Gifted Students and the Common Core State Standards

by

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ABSTRACT

The State of Arizona mandates that students with superior intellect or abilities, or identified gifted students, receive appropriate gifted education and services in order to achieve at levels commensurate with their intellect and abilities. Additionally, the State of Arizona adopted the Arizona College and Career Ready Standards (AZCCRS) initiative. This investigation explores if, according to the perceptions of gifted educators, the AZCCRS support a gifted mathematic curriculum and pedagogy at the elementary level which is commensurate with academic abilities, potential, and intellect of these mathematically gifted students, what the relationships are between exemplary gifted curriculum and pedagogy and the AZCCRS, and exactly how the gifted education specialists charged with meeting the academic and intellectual needs and potential of their gifted students interpret, negotiate, and implement the AZCCRS.

This study utilized a qualitative approach and a variety of instruments to gather data, including: profile questionnaires, semi-structured pre-interviews, reflective journals, three group discussion sessions, and semi-structured post interviews. The pre- and post interviews as well as the group discussion sessions were audiotape recorded and transcribed. A three stage coding process was utilized on the questionnaires, interviews, discussion sessions, and journal entries.

The results and findings demonstrated that AZCCRS clearly support exemplary gifted mathematic curriculum and practices at the elementary level, that there are at least nine distinct relationships between the AZCCRS and gifted pedagogy, and that the gifted education specialists interpret, negotiate, and implement the AZCCRS uniquely in at least four distinct ways, in their mathematically gifted pullout classes.

I dedicate this study to my entire family who are my rocks and my foundation. I especially want to dedicate this to my mother Ruthie, my best friend. I miss you every day. You always loved me unconditionally, always understood me, and always cheered me on. I also dedicate this to my father John who encourages me and is always proud of me, my brother Dennis and sister Doris June both of whom I wished to emulate when I was little and still look up to every day, my grandson Ridge who will no doubt be a gifted student, and my son-in-law Clint who is following the career path of a teacher—an everyday hero. I want to especially dedicate this to my lovely daughter Libby, the joy of my life. It has been fun to be college girls together. I am so proud of you. Finally, I principally want to dedicate this to my amazing husband Bob, the love of my life. Thank you for all you do for me every single day. I feel cherished and adored. Half of this degree belongs to you. I cannot imagine a day without you in my life. You are truly my better half.

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CHAPTER 1

INTRODUCTION

Every child should have the opportunity to receive an education that appropriately meets their needs. Elementary school should not be the exception. The foundation for learning, the habits of mind, and the basis of more complex concepts are all rooted in the elementary school years. If the goals, curriculum, and standards used by educators in the elementary school years are not adequate, rigorous, or rich enough there is a chance that potential is not realized in higher education and beyond. It is imperative that gifted children receive an education commiserate to their abilities. There are too many possible negative consequences that can be the result, for the individual and for society, if this promise to all children is not kept. The appropriate curriculum, goals, and standards are imperative for all children, including gifted children. This is of particular interest to me because Arizona adopted the Common Core State Standards (CCSS), or as they are called in Arizona, the Arizona College and Career Ready Standards (ACCRS). This investigation explored the adequacy of the standards in meeting the educational needs of gifted elementary children, as perceived by gifted education specialists, as well as the compatibility of AZCCRS and the State of Arizona's mandate pertaining to gifted students and their education.

Background of Current Investigation

One of my earliest memories is of my older brother and sister, both in elementary school at the time, appearing to make sense out of the black squiggles on pages in books they were reading aloud to me. I remember thinking that I should be able to do that too. In fact, I even remember thinking there must be something wrong with me because I

could not do what they were doing. They were reading! I was very lucky because both my older siblings and my mother read to me constantly from nearly birth, and they positioned the books so I could see the squiggles as they pointed their fingers to the words. At the same time, I was hearing them say the words aloud and eventually I cracked the sound-letter code.

By the time I was three-years-old, I too could easily read the squiggles. I could read any word I had heard, but my parents didn't realize this until some friends pointed it out to them. They set me in my highchair and put the newspaper in front of me. I read every headline flawlessly. My parents seemed pleased, but didn't make too much more of it. I assumed they were pleased that I was no longer unlike their other children. I could read. I was normal, thankfully.

I thrived with my new skill of reading, and read everything in sight. I sneaked my older brother's and sister's elementary school textbooks into my room and read them from cover to cover. I found that not only was reading fun, but I could learn so much. Even though I was reading very well, I still felt inadequate compared to my brother and sister, both of whom appeared to know everything about everything. I needed to get going so I could catch up and be normal like them. No one told me that I was well above average for a three-year-old. I believed I was way behind!

My mother grew weary of all my preschool questions and she told me years later that she just couldn't keep up with my educational demands. I wasn't like my older brother and sister. I pushed her so hard to teach me everything and was relentless and exhausting, according to her. My parents decided to try to find a school that would admit a four-year-old who was reading, was able to add and subtract easily, had a wealth of

knowledge, and appeared starved for new learning. Again, luckily, my parents were able to afford a private kindergarten that would accept me.

None of the public schools in the area would make an exception to the age requirement for kindergarten in the late 1950's in Arizona. Sputnik was launched the previous October, which began a nationwide conversation about higher standards for public school, specifically about more science and math instruction, but not early entrance for precocious children. Being female already put a glass ceiling on my educational opportunities, which I came face-to-face with years later. At the time, it was explained to my parents by the public school officials that if I passed kindergarten, no matter what my age, I would be accepted as a first grade student in the public school system. So my mother enrolled me in a private kindergarten at age four.

I was so excited to be starting school. Since my older brother and sister had been in school my whole life, and they seemed to know everything, I was sure this would be the place for me. I remember my mother asking me how the first day went when she picked me up at noon, since even private kindergarten was only half days in 1958. I told her it was fine. Every day after school my mother asked me if I learned anything. Most days I replied with the stark honesty of a four-year-old, "No."

I was disappointed in kindergarten. I already knew my letters and numbers and colors and shapes. I didn't understand why we were spending so much time playing pretend when there were things I wanted to learn. Needless to say, I easily sailed through kindergarten in a private school setting, but I learned very little. I already knew the entire curriculum before I ever started—what a disappointment. But my mother, being forever the optimist and hoping she didn't make a mistake paying so much tuition for

kindergarten, assured me that I would learn so much in first grade. I believed her. I spent my summer swimming, reading, and praying for school to start soon. I just knew first grade would be where I would finally learn something new and catch up with my brother and sister.

First grade turned out to be just an all day version of kindergarten. Again, we spent time on pretend play, flash cards with letters, numbers, colors, or shapes on them, drawing pictures, and sitting a lot. I remember picking up a book that the teacher was reading aloud to us and starting to read where the teacher left off. She became quite angry with me, and told me that the class was not yet ready to begin reading. I told her I could read. She said that what I did was not really reading because my parents had taught me, and they didn't know how to teach a child to read. Later in the year she would teach the class how to read and that would be real reading. She talked to my mother on the phone after school and politely asked her not to encourage my attempt at reading because it would only confuse issues later, and I would have to be un-taught all the bad habits I was forming.

The best part of my day was recess when I could speak to my friends in Spanish, a language I was learning from our live-in housekeeper. She couldn't speak English and my parents couldn't speak Spanish. If I wanted to communicate with her, I had to learn Spanish and she was very willing to teach me. I loved practicing Spanish with the children on the playground who spoke Spanish at home, until one day when we were caught. All of them were sent to the principal's office and I assumed they were going to get a swat because according to my brother, that is what happened to you when you were sent to the principal's office. And he should know because he was sent to the principal's

office a lot. The teacher supervising on the playground told me never to speak Spanish at school again. I didn't until I took it in high school as my foreign language requirement. However, I did learn enough at home from our housekeeper that I was able to assist the communication between her and my parents.

Eventually, we got around to learning phonics in first grade, which was the preliminary subject to real reading. At first it was a fun game for me, but I soon grew tired of it. It was tedious and seemed to have little to do with reading. I didn't need phonics. I had already learned hundreds of sight words. Why wouldn't my teacher just let me read? I remember thinking it must be second grade that real learning would finally happen.

I was given a special test in second grade. I didn't know at the time, but it was an IQ test. Years later, when the school district office was being razed, my mother's best friend, who worked in the district office, confiscated all of her children's school records and all of my mother's children's school records before they were sent to the shredder. By then, I was in college double majoring in elementary and secondary education, and it was interesting to look at those records of my own schooling, read the comments teachers made about me that were passed along, and see the recorded IQ score from that special test in second grade. I would have been labeled gifted by current Arizona State statute definitions, but there were no mandates or statutes about gifted education, gifted services, or gifted students at the time in Arizona when I was in second grade.

To my knowledge, and according to my own cumulative school file, nothing was done differently to quench my thirst for knowledge. Second grade wasn't much different than first grade, so I started dreaming about third grade. I already knew the entire

curriculum for second grade before I ever started. I had read all my older brother's and sister's textbooks and taught myself the curriculum before I was even in kindergarten. I convinced myself that third grade would be different. I would finally learn something I didn't already know and I would be happy. But third, fourth, fifth, and sixth grades were all the same story.

I did find that there were a few things, like long division, that I didn't know already, but I learned how to do it the first time my fifth grade teacher showed us her example of what we were going to learn. I hated long division because we had to do hundreds of the same kind of problems on worksheets and from our textbooks. I did learn that this was busy work, that is work to keep me busy and not tie up the teacher's time with my questions so she could spend her time with those who were struggling. I skipped up to new chapters in the math book until I was caught and my teacher told me not to do that again. She said I would misunderstand and I wouldn't have anything to learn in the upcoming weeks if I went ahead. I actually did that with all my textbooks. I usually had them read entirely by Thanksgiving or Christmas holiday. School was boring and a waste of my time. All I wanted to do was be at home where I could read whatever I wanted to and work on my erector set in the living room.

Besides reading, I loved to build things, mostly out of empty cardboard boxes. So one year, my parents bought me an erector set for Christmas. I remember my older brother taking it away from me. He said it was a boy's toy, and since he was the only boy in the family, it must have been mislabeled. My parents set him straight. Then, my amazingly understanding mother gave me the living room as my own private place to "play." She said I just seemed to need my own place to be happy, away from the other

children in the family and their friends. I remember one of the other mothers in the neighborhood asking my mother how she could put up with me. She said this right in front of me as if I couldn't hear her or something! My mother, who probably invented the notion of unconditional love, told her I was just high strung and that there were many joys in having such a smart little girl. I couldn't wait to get out of elementary school. I calculated that junior high school would be different; after all, it was almost high school.

It was different in that I had several teachers instead of just one. Also, I was allowed to take an elective course, what a real treat. I took art. In eighth grade I was allowed to take two electives! I took journalism and speech/debate. I wanted to be a writer if I didn't become a scientist or engineer, but maybe I would do all three and be an actress on the side. I belonged to the drama club and really loved being in all the school plays. I even wrote my own plays.

I was also a cheerleader and belonged to the girl's athletic association, which met after school to play team sports such as softball and field hockey. I was a good athlete, but a bit small. I made up for my stature with laser sharp reflexes and agility. I was very good with my hands and had excellent hand-eye coordination. This made it difficult to sit still in class sometimes, especially if we were doing repetitive drill on concepts I had learned years before without needing to drill. Today, I might have been labeled ADHD. I did not suffer with ADHD. I was just restless and needed to have my mind and hands occupied with thoughtful work that meant something to me and helped me learn.

Throughout my elementary school years my parents also paid for piano lessons for me because I had asked. They never pushed me into any activities. I always begged them for lessons and extras. Usually they said no because of cost or inconvenience, but

sometimes they said yes, thankfully. All the afterschool activities, elective classes, and social situations I found myself in during my junior high years made school tolerable, but the learning still seemed slow and monotonous. Would high school finally be the place I would quench my thirst for knowledge and learning?

One thing I really liked about high school was the variety of course offerings and the larger social scene. I continued being a cheerleader and was put in all the honors classes. I was so excited about starting high school that between my eighth and ninth grades I took summer school, freshman English and general science. When I actually started high school I was in sophomore English and biology with students who were now two years older than I was. By my sophomore year, I was disenchanted with high school. It again seemed that I already knew what they were trying to teach me. Thankfully, though, I did find out that there were other students who were like me. That was remarkable. I had long ago come to the conclusion that I was an anomaly in school and I should just be nice and try to get along with everyone, especially my teachers. Many of these new friends became my lifelong friends. They were my intellectual peers.

Our town had two high schools, and I was sent to the old one while my older brother and sister went to the new one. The new one was full by the time it was my turn for high school, so they split families up and sent all the younger children to the old high school again. This was very upsetting, but nothing could be done about it. However, the old high school is where all the university professors' children attended, and it was in those students that I found an affinity group. They seemed to understand me. They seemed to be like me, except I was at least two years younger than they were. No one seemed to notice though.

The high school curriculum, however, was still not very impressive to me. It was all too easy and repetitive, even the honors classes. I ended up completing high school in three years because they allowed me to take more credits than a so-called full load normally allowed, and I took summer school classes such as chemistry for fun. I had completed all the requirements and had a GPA in the top 2% of the school population, but suddenly the administration said I could not graduate! They said that at sixteen, no college or university would accept me. They suggested to my parents that I get a job and continue to attend high school in the mornings for another year at least by taking elective courses. I wanted to go to college. I just knew the university would have something to offer me. My father listened for some time, and then point blank asked the vice principal if I had enough credits to graduate. He said, "Yes, but…" My father never let him finish. He just said, "Fine. Give her the piece of paper and let us worry about whether a college or university will accept her or not."

In the end, I graduated with the other seniors that were two years older than I was. I attended all the usual senior activities such as prom, ditch day, and after graduation parties. I just had an earlier curfew. I started college at Arizona State University that very next summer at age sixteen, and I drove myself to school everyday. I still lived at home. Luckily, my parents lived only two miles from the university. I took freshman English and a class on the foundations of elementary education.

The English class was tedious and repetitive and the professor of the elementary education course fell asleep in class nearly every day. It was awful. I was so disappointed. I had been looking forward to college all my life. Was there no place for a learner like me? Was it like this for all fast learners? How did they not go crazy? I felt I

was just a misfit. It was all so depressing.

Then, on top of it all, my father announced that he wouldn't pay for my college education because I was a girl and would probably just get married and have children anyway. It would be a waste of money. My older sister was pregnant in her senior year of high school and married before she graduated. She did graduate from high school, but perhaps my father thought I might do something similar. My brother, on the other hand, would have everything paid for as long as he wanted to stay in college. He did attend classes, but only until he ended up with a very high number in the draft and no longer needed a college deferment so he wouldn't be sent to Viet Nam. He never finished college. But now I was determined to show my father he was wrong and that "college money" should be invested in me. The next year, I transferred to the University of Arizona, applied for every scholarship I could find, and got a job in the office of scholarships and financial aid so I could monitor my own status for scholarships, grants, and loans.

I paid for my own college through winning scholarships and grants and working. I began by majoring in elementary education, but after one semester decided that I was wasting my money because I wasn't learning much new. So I decided to double major in elementary and secondary education. Since English was my worst subject (math and science always seemed to come easier to me), I decided to get my money's worth and chose English as my secondary education emphasis. Besides, even though English was my worst subject (I actually received the occasional A- from time to time) I always wanted to be a writer of some kind, so it seemed a good fit.

One semester, however, I decided to splurge and take an engineering class. I

always had this secret desire to be an engineer, even though I was a girl. On the very first day of class I walked into a room of about 75 students. I looked around and quickly discovered that I was one of only four females. The professor asked the four of us to take a seat in the front row, which we did. When all had entered and settled down, the professor asked the four of us to stand and face the others. We did.

He told the male students in the classroom to look carefully at the four of us. He said we were there for our "M," "R," "S" degrees and to remember that. The next class two of the four females had dropped out. The other woman and myself were on scholarships and therefore not allowed to drop a class. We miserably sat next to each other the rest of the semester, both ended up with "A's," and never took another engineering class or even a hard science class again. Elementary education majors had special watered down versions of science and math classes called methods classes.

But, that culminating and life-changing school experience is what finally pushed me, once and for all, to make the concrete and unwavering decision to be a teacher. I figured out by then that there were other students similar to me, and school just could not and should not be that bad for us, especially elementary school.

In the late 1970's, after doing my student teaching in the summer session of a year-round junior high school, I finished college. Three days after completing my degree requirements, I started teaching high school in my own classroom. I was determined to do it differently. That same year, the Arizona State legislature passed a mandate that outlined the requirements for the education of gifted students in public schools. It took me eleven years of trying things on my own, teaching mostly junior high school honors classes in three different districts in two different states, but also getting my Master's

degree in English from Arizona State University and teaching freshman English 101, 102, 111 and 112 at ASU before gifted education and I would collide. I never looked back. I had found my niche in teaching. This was where I was supposed to be, finally.

Now all those quirky ways I thought and all the boredom and yearning to learn more all began to make sense to me. It became quite clear. Gifted students needed to be taught differently. I knew that to my very marrow. I had experienced general education when I was a special needs child! I was gifted, but did not have the benefit of differentiation or special classes. I had too many barriers set up around me when I needed more freedom and encouragement to explore learning my way. I couldn't let that happen to other children, now that I knew better. Once you have gained knowledge, you must act on it. You cannot deny that knowledge and claim ignorance.

I have spent the last 26 years concentrating on gifted education and teaching gifted children exclusively. As a teacher with 37 years experience, I have seen countless curriculum, goals, objectives, and standards come and go in general education. I experienced the reading wars, new math (actually several times), and the inclusion of teaching requirements such as human growth and development, computer science, and etiquette/manners in the cafeteria. I've received in-service training in Outdoor Education, back to basics, traditional education, outcome based education, Madeline Hunter, English language learning, standards based education, and countless others. All of these have merits, and all were "cutting edge" at the time they were introduced. However, few if any really addressed the needs of gifted students.

Current Investigation

Currently, the Common Core State Standards (CCSS) or as they are known in

Arizona, the Arizona College and Career Ready Standards (AZCCRS), which include the 21st century skills, is what curriculum is based on in K-12 education. These are the newest educational "buzz" words. The difference with AZCCRS and all the other standards from the past is that it is being adopted across the nation by state legislatures. It is the first set of standards to base curriculum on that the United States has ever had, and is as close to the first steps in establishing a national curriculum that we have ever experienced, which begs the question, is it adequate for the education of gifted students? Because of my long dedication to the field of gifted education and the devotion to my gifted students, the questions guiding this investigation are:

- According to the perceptions of gifted education specialists, to what extent do the AZCCRS support exemplary gifted curriculum, best practices for gifted education, and instructional strategies and techniques used with gifted students?
- According to the perceptions of gifted education specialists, what are the relationships between the AZCCRS and gifted education?
- How do gifted education specialists interpret, negotiate, and implement the AZCCRS?

This study examines the similarities between the curricular needs of gifted students (according to the Arizona State Statutes) and the dictates of the Arizona College and Career Ready Standards. Do gifted educators perceive them as compatible? Additionally, this study examines how gifted education specialist teachers negotiate the AZCCRS as they translate and implement them for their gifted students' curriculum.

To compare the relationships between state statute mandates and AZCCRS as well as to investigate to what extent the AZCCRS support gifted curriculum, I used a

variety of methodological tools, including: semi-structured interviews, group discussion sessions, and reflective journals. Gifted education specialist teachers were the participants in the study because they are the experts who provide services to gifted students. These teachers know what the curricular mandates are for gifted students in Arizona, due to their special training, knowledge, and experience working with gifted students in order to receive a gifted endorsement on their teaching certificates. Also, because they are public school teachers, they must comply with the Arizona College and Career Ready Standards initiative; therefore, they also know what the standards are. I gathered data from these experts to answer the above research questions because I wanted to know their perceptions. In chapter two, I provide extant research that informs this study, and in chapter three I explicate my methods for data collection. Chapter four is a description of how I analyzed the data gathered, and chapter five lists the findings of that analysis.

In this introduction, I outlined my own experience as a gifted student throughout my education to show how I became interested in the research questions for this investigation. Additionally, my personal educational experience mirrors the curricular needs of gifted students in Arizona.

According to the Arizona Revised Statues, 47th Legislature, 2nd Regular Session, effective January 1, 2007, Title 15-Education, Chapter 7-Instruction, Article 4.1-Gifted Education for Gifted Children, 15-779-Definitions, the State of Arizona demarcates gifted education and categorizes a gifted student as:

> 1. "Gifted education" means appropriate academic course offerings and services that are required to provide an educational program that is an integral part of the regular school day and that is commensurate with the academic abilities and potential of a gifted pupil.
> 2. "Gifted pupil" means a child who is of lawful school age, who due to superior

> intellect or advanced learning ability, or both, is not afforded an opportunity for otherwise attainable progress and development in regular classroom instruction and who needs appropriate gifted education services, to achieve at levels commensurate with the child's intellect and ability (n.p.).

The key phrases in these definitions are "commensurate with the academic abilities and potential of a gifted pupil" and "levels commensurate with the child's intellect and ability." These key phrases and definitions are examined in chapter two, "Literature Review."

Gifted educational specialists' discussion of the relationship between the AZCCRS and the mandated needs of gifted students in Arizona elementary schools is established. Chapter two includes an outline of the academic, intellectual, and educational needs of gifted students that are different from students in the general population. And finally, chapter two outlines the provisions of the AZCCRS.

Do the Arizona College and Career Ready Standards (AZCCRS) provide gifted students standards to base a curriculum on which is commensurate with their academic abilities, potential, and intellect, according to the perceptions of gifted specialists? How do the gifted education specialist teachers, who are charged with meeting the academic and intellectual needs and potential of their gifted pupils, interpret and implement the AZCCRS in order to meet this charge? The data gathered to answer these major research questions is reported in chapter four "Data Analysis," and in chapter five "Findings," assertions are listed.

This study examines if the parameters of gifted education are calcified in chapter two "Literature Review." Also in chapter two, this study examines what is needed to provide curriculum commensurate with the academic abilities, potential, and intellect of

gifted students. Next, this study examines what Arizona's College and Career Ready Standards are, and their implementation with students. Finally, the similarities between the curricular and instructional needs of gifted students, according to Arizona Revised Statues, and what curriculum and instruction based on the AZCCRS provides is compared (see chapters four "Data Analysis" and five "Findings"). The comparison will be accomplished through analysis of the perceptions of the Arizona College and Career Ready Standards by currently active gifted specialist teachers as they interpret and negotiate the AZCCRS, as well as implement a curriculum and provide services to their gifted students. The data used for this examination was gathered through the data collection instruments of a profile questionnaire, pre- and post semi-structured interviews, group discussion sessions, reflections in personal journals, and my researcher's journal.

CHAPTER 2

LITERATURE REVIEW

Because this study hinges on the specific educational experience of Arizona's gifted student population, it is important to examine exactly what the definition of a gifted student is, according to the State of Arizona, as well as if the parameters of gifted education have even calcified in the field. Also important is what the curricular needs of the gifted population are, according to Arizona Revised Statues, and how they differ from traditional classroom pedagogy. Three examples of modified curriculum and differentiated instruction that meet the state's requirements are examined, and all three are found to be constructivist approaches. Therefore, constructivism is addressed. Additionally, the specific provisions of the Arizona College and Career Ready Standards, are examined. These areas are probed to illuminate this study's main research questions of: to what extent do the Arizona College and Career Ready Standards support modified curriculum and differentiated instruction for gifted students which is commensurate with their academic abilities, potential, and intellect as perceived by gifted education specialists; what are the relationships, if any, perceived by gifted specialists between the AZCCRS and curriculum and instruction modified and differentiated for use with gifted students; how do the gifted education teachers, who are charged with meeting the academic and intellectual needs and potential of their gifted pupils, interpret, negotiate, and implement the AZCCRS?

Definitions of Giftedness

The U.S. federal definition of what constitutes giftedness is purposefully vague in order to be flexible enough to be as inclusive as possible. According to the National

Association for Gifted Children's (NAGC) publication *Supporting the Needs of High Potential Learners* (2008c), the federal definition first appeared in the 1972 Marland Report to Congress, with many modifications since then. Further, according to this publication, "The Elementary and Secondary Education Act" defines gifted as, "students, children, or youth who give evidence of high achievement capability in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and who need services and activities not ordinarily provided by the school in order to fully develop those capabilities" (n.p.).

It is important to note that states and districts are not required to use the federal definition; however, many states base their definitions on this federal definition. When examining Arizona's definition of giftedness, it appears to be one of the states that based its definition on this federal definition.

Problems with federal definition. The phrase "give evidence of high achievement capability" included in this federal definition is problematic because how does one determine high achievement capability and how does one give evidence? One way to "give evidence" might be on standardized tests of abilities such as the Cognitive Abilities Test or the Otis-Lennon School Abilities Test, both of which are on the Arizona State list of accepted tests for giftedness. But at what point does one determine that evidence of high achievement capability on one of these tests has been met? Arizona State Statutes use a cut score, the 97%ile or above (Ariz. Rev. Stat., 2007, n.p.). There is no explanation in the statute as to why the 97%ile was chosen as the cut score, but the statute does additionally state that school districts can chose to serve students who score below that score on state approved tests, but must serve students at or above that score

(Ariz. Rev. Stat., 2007, n.p.). Another possible way to "give evidence" would be through performance. This too can be problematic because the performance would have to be judged and even though criteria would need to be determined, every judge will interpret that criteria and each performance differently. It is subjective.

Other national definitions. There are many other definitions of giftedness, gifted students, and gifted education from other national sources as well. These include the National Associations for Gifted Children's (NAGC) definition, the Columbus Group's definition, a definition from Dr. Joseph Renzulli, the director of the National Research Center for Gifted and Talented, and Dr. Francoys Gagné's definition. Each has problems.

The NAGC definition. The National Association for Gifted Children's (NAGC's) position paper *Supporting the Needs of High Potential Learners* (2008c), defines gifted individuals as:

> Gifted individuals are those who demonstrate outstanding levels of aptitude (defined as an exceptional ability to reason and learn) or competence (documented performance or achievement in top 10% or rarer) in one or more domains. Domains include any structured area of activity with its own symbol system (e.g., mathematics, music, language) and/or set of sensorimotor skills (e.g., painting, dance, sports). The development of ability or talent is a lifelong process. It can be evident in young children as exceptional performance on tests and/or other measures of ability or as a rapid rate of learning, compared to other students of the same age, or in actual achievement in a domain. As individuals mature through childhood to adolescence, however, achievement and high levels of motivation in the domain become the primary characteristics of their giftedness. Various factors can either enhance or inhibit the development and expression of abilities (n.p.).

Problems with the NAGC definition. Again, as with the federal definition, the concept of demonstrating "outstanding levels of aptitude…or competence…in one or more domains" which appears in the NAGC's (2008c) definition of a gifted individual is vague and subjective. What exactly would be the point at which outstanding aptitude and

competence have been demonstrated? A cut score on an aptitude test could be chosen. However, if a 97%ile is chosen, for example, as the cut score, then why aren't people who score at the 96%ile considered gifted as well? What is the %ile score that demonstrates outstanding levels of aptitude or competence? Likewise, if a performance assessment is used, any performance would have to be judged by a set of criteria in which each judge could interpret the criteria and therefore the performance differently. Some individuals would be considered gifted by some judges while not gifted by other judges.

The Columbus Group's definition. The NAGC (2008c) further cites that The Columbus Group, in 1991, defined giftedness as "asynchronous development in which advanced cognitive abilities and heightened intensity combine to create inner experiences and awareness that are qualitatively different from the norm. This asynchrony increases with higher intellectual capacity. The uniqueness of the gifted renders them particularly vulnerable and requires modifications in parenting, teaching and counseling in order for them to develop optimally" (n.p.).

Problems with the Columbus Group's definition. This definition of giftedness attacks the dilemma from a different point of view, the asynchronous development of an individual, but still has the same basic problem inherent in its wording with the phrase "advanced cognitive abilities" and "heightened intensity." Both of these would have to be measured in some fashion with a line drawn dividing those that are above the line as "advanced" or "heightened" and those below the line not. Further, how does one measure if an individual has had "inner experiences and awareness" that are different from the norm? What exactly is the norm first of all, and how far from this hypothetical norm

would one have to be in order to be considered "qualitatively different" from it? Again, a line would have to be drawn.

However, this definition does include the concept that whoever these gifted people are, they have a uniqueness that "renders them particularly vulnerable and requires modifications in parenting, teaching and counseling in order for them to develop optimally" (NAGC, 2008c, n.p.). This idea is worth noting because the statutes that various state legislatures, and Arizona's 47th legislature in particular, have enacted regarding gifted students, gifted education, and giftedness are trying to be sure this vulnerability is protected through modifications so that the individual develops optimally. This is important to the state and society because the assumption is that an optimally developed individual will positively contribute back to the state and society. It is for the good of the whole and for the perpetuation of the state and society. So even though, again, it would be difficult to decide and impossible to defend at what point an individual becomes "particularly vulnerable," the notion that these individuals, whomever they are, need modifications in their parenting, education, and counseling is more than just interesting, an entire educational field is being based on it.

Renzulli's definition. Dr. Joseph Renzulli is an educational psychologist and pioneer in the field of gifted education. He is the director of the National Research Center on the Gifted and Talented at the University of Connecticut. In his model called the Three-ring Conception of Giftedness, he broadened the idea of giftedness from just abilities to include creative production, motivation, and an overlap and mixing between these three qualities in an individual. Renzulli (1978) wrote that:

Giftedness consists of an interaction among three basic clusters of human traits—

> these clusters being above-average general abilities, high levels of task commitment, and high levels of creativity. Gifted and talented children are those possessing or capable of developing this composite set of traits and applying them to any potentially valuable area of human performance. Children who manifest or are capable of developing an interaction among the three clusters require a wide variety of educational opportunities and services that are not ordinarily provided through regular instructional programs (p. 261).

Problems with Renzulli's definition. However, as with the other definitions, Renzulli's includes the notion of "above-average general abilities." How does one measure when an individual is "above average" except with either criteria for a performance and a judge's decision if the criteria have been met or not or a cut score with standardized testing? Likewise, how does one measure "high levels" of task commitment and "high levels" of creativity? Demarcating lines would have to be drawn again for either performance measures or standardized testing.

Including an interaction between traits is an interesting complexity, but does not get any closer to a calcified definition for the field of gifted education. Notice again, though, that Renzulli's definition points out that these individuals "require a wide variety of educational opportunities and services that are not ordinarily provided through regular instructional programs" (1978, p. 261). These individuals have needs that are different and require something educationally different, according to Renzulli. In his words, they need "a variety of educational opportunities and services." They need differentiation in the school setting.

Gagné's definition. Another twist on the definition of giftedness comes from Francoys Gagné who is an educational psychologist from the University of Montreal. Gagné developed the Differentiated Model of Giftedness and Talent. In a published interview with Stoeger (2004), Gagné stated, while referring to gifted education that,

"from a professional perspective, I would target as the most pressing problem the lack of agreement among scholars on many basic issues, especially clear definitions of the two central concepts in the field" (p. 168). These two central concepts mentioned are the definitions of giftedness and talent. Gagné (2010) differentiates gifts as natural abilities and talents as what is developed from the gifts. He makes it clear that without the proper catalysts, talents may never be fully actualized from the gifts.

Problems with Gagné's definition. Differentiating between gifts and talents adds another dimension to attempts at defining giftedness, but does not get any closer to a calcified definition. This work continues. For example, Foley-Nicpon writes, "As a field, we have made substantial progress toward gaining greater knowledge about effective identification and intervention strategies…because of the impassioned work of many committed professionals" (2013, p. 208). Further, she states that, "we will continue to move forward on the path of empirical understanding for these amazing children and their families" (2013, p. 208). Meanwhile, for practicality, educational institutes press forward with serving and protecting gifted individuals even if the institutes cannot clearly define who would receive these services and protections.

Arizona's definition. Besides these definitions of gifted education, giftedness, and gifted students, from national and international scholars in the field and from the federal government, each state has its own definition of giftedness, and each of these varies. Some include talents such as musical or athletic talent while others, for example, strictly address academic gifts or the gifts that manifest in specific domains. Determining who these gifted individuals are is the first problem and then what their educational needs

are is the second problem, which is coupled with how to provide for those educational needs.

Trying to define giftedness has been a problem worked on by many esteemed individuals for decades, perhaps centuries, and does not appear to have an easy or readily available solution. The State of Arizona, like many other states, has based its definition on the federal government's definition as described in the 1972 Marland Report to Congress and The Elementary and Secondary Education Act. The fact that the State of Arizona has a definition of gifted education and gifted pupil in its statutes reveals that its mandate is based on the Gifted Child Paradigm that traces back to the work of Terman and Hollingworth (Dai and Chen, 2013). Since this study concentrates on how the Arizona College and Career Ready Standards meet the intellectual and academic needs of its gifted population, Arizona's definition of gifted education and gifted pupil must be closely examined.

Gifted education and gifted pupil are defined in the Arizona Revised Statues, 47th Legislature, 2nd Regular Session, effective January 1, 2007, Title 15-Education, Chapter 7-Instruction, Article 4.1-Gifted Education for Gifted Children, 15-779-Definitions as:

> 1. "Gifted education" means appropriate academic course offerings and services that are required to provide an educational program that is an integral part of the regular school day and that is commensurate with the academic abilities and potential of a gifted pupil.
> 2. "Gifted pupil" means a child who is of lawful school age, who due to superior intellect or advanced learning ability, or both, is not afforded an opportunity for otherwise attainable progress and development in regular classroom instruction and who needs appropriate gifted education services, to achieve at levels commensurate with the child's intellect and ability (n.p.).

Gifted education defined. Beginning with the definition of "gifted education," the State of Arizona mandates that educators in its public education institutes provide

educational programs that are "commensurate with the academic abilities and potential of a gifted pupil." Once again, what constitutes the level of academic abilities and how does one measure the potential?

Level of academic abilities is a subjective level of performance or cut score on a standardized test of abilities. Potential is the possibility of someone doing something valuable for a society in the future. One would not know if an individual truly had potential until some point in the future when that individual demonstrates actualizing that potential. Meanwhile, it is only a guess that the potential was ever within an individual in the first place. Potential is impossible to determine beforehand. The only exception to this would be if a student is actualizing his or her potential while still a student. That would be a prodigy, and easily recognizable as a gifted person. The State of Arizona mandates that its gifted population receive appropriate programming commensurate with potentials, yet it is impossible to determine what would be commensurate to anyone's potential.

Gifted pupil defined. A gifted pupil, according to the definition in Arizona's state statutes, has "superior intellect or advanced learning ability, or both" (2007, n.p.). IQ scores have a superior range which is two standard deviations from the so-called norm or mean for individuals of any given age range. The two standard deviations becomes a cut score at the bottom end of the superior range. Why not one and a half standard deviations above or three standard deviations above? Arizona's definition does not explain what superior intellect means, but does mention the cut score of the 97%ile on state approved abilities tests (Ariz. Rev. Stat., 1977). Advanced learning ability is another term that is impossible to pinpoint with accuracy. Advanced compared to whom, the average student at that age or grade level? What is the learning ability of the average student at that age or

grade level? How much more advanced would the gifted pupil have to be, one unit on some form of measurement, twenty units, fifty units? It would again be a cut score if there could even be agreement on the unit of measurement, what a mean average student's score would look like, and what would constitute advanced from that mean. Nevertheless, gifted education specialists are asked to make these determinations and implement gifted education commensurate to these gifted pupils' abilities and potentials, to be in compliance with Arizona's State Statutes (2007).

Impact of non-calcified definitions. Unable to determine exact definitions due to vague wording and unspecificied levels of abilities and potentials is frustrating to practitioners in the field of gifted education. However, with or without a calcified definition of exactly what gifted education is and who gifted students are does not deter the State of Arizona from mandating that gifted education specialists identify gifted students and provide programs commensurate with these gifted students' abilities and potentials. The myriad of definitions of gifted education, gifted student, and giftedness lead directly into the next mire, that is how to identify gifted students and how to implement curriculum commensurate to their abilities and potentials. A closer look at what the expectations are for the identification of gifted students and exactly what gifted education services should look like, according to Arizona's statutes, is the next focus of this study.

Gifted Education and Services

Even though there are expert spokespeople at the national and international levels who struggle to define gifted behaviors, giftedness, and gifted individuals, each state individually addresses the issues that surround the education of gifted students for that

state, which includes defining giftedness. The State of Arizona's statutes outline specifics as to the education of Arizona's gifted students, after having defined both gifted education and gifted pupil in its state statutes going back at least to 1990 (Ariz. Rev. Stat., 2007).

Powers and duties of school boards. In the statutes, the State of Arizona explains the powers and duties of the school district governing board, in regards to gifted education and gifted pupils. Among other powers and duties, the governing board shall (2007), "provide gifted education to gifted pupils identified as provided in this article" as well as "develop a scope and sequence for the identification process of and curriculum modifications for gifted pupils to ensure that gifted pupils receive gifted education commensurate with their academic abilities and potentials" (n.p.). According to Arizona's state statutes, it is imperative that there be curriculum modification for gifted students and that this modification allow for their advanced academic abilities and potentials.

Modifications for gifted students. The modification required by gifted students must be delineated in a submitted scope and sequence, which is then approved not only by the district's school board, but by the state school board as well. In the statutes there is further delineation about this scope and sequence which includes that the scope and sequence shall, "provide for routine screening for gifted pupils using one or more tests adopted by the state board" and that "school districts may identify any number of pupils as gifted but shall identify as gifted at least those pupils who score at or above the ninety-seventh percentile, based on national norms, on a test adopted by the state board of education" (2007, n.p.).

Therefore, students who score at the 97%ile on abilities tests which use national norms and are listed on the state school board adopted test list becomes the working definition for gifted students in the State of Arizona because these are the same students who must be given a modified curriculum and services commensurate with their abilities. Arguments can be made that the 97%ile cut score is or is not the point at which a student has superior intellect or advanced learning ability; nonetheless, the State of Arizona expects school districts to identify and provide modified curriculum to these identified students. The question this study seeks to answer is to what extent, according to the perceptions of gifted education specialists, do the Arizona College and Career Ready Standards, which are also adopted and mandated by the state, provide an adequate basis for a curriculum that is modified from the general education curriculum and is commensurate with the abilities and potentials of students scoring at or above the 97%ile? Do gifted specialists perceive these two to be compatible? This study examines this question.

Additionally, the Arizona State Statutes specifically includes curriculum and instruction in the list of elements that must be addressed in the scope and sequence for gifted education that is developed by the governing board. The scope and sequence must include criteria that "address the elements of program design, identification, curriculum, instruction, social development, emotional development, professional development of administrators, teachers, school psychologists and counselors, parent involvement, community involvement, program assessment and budgeting" (2007. n.p.).

The statute also outlines how gifted education curriculum and instruction for gifted pupils should differ from regular education, including that it differ in such areas as

"(a) Content, including a broad based interdisciplinary curriculum. (b) Process, including higher level thinking skills. (c) Product, including variety and complexity. (d) Learning environment, including flexibility" (2007, n.p.). These four areas, content, process, product, and learning environment, are also included in the five possible ways curriculum may be differentiated for gifted learners, according to Tomlinson and Eidson (2003). Their five areas are content, process, product, assessment, and learning environment. Assessment, then, is the only area not included for needed differentiation from the general or standard curriculum for gifted students.

Additionally, the Arizona State Statutes list three ways that Governing boards shall adopt policies for the education of gifted students. The first way is to include curriculum that is expanded with course offerings that include, for example, "acceleration, enrichment, flexible pacing, interdisciplinary curriculum, and seminars" (2007, n.p.). The second way is to offer differentiated instruction "which emphasizes the development of higher order thinking, may include critical thinking, creative thinking, and problem solving skills" (2007, n.p.). The third way is to provide supplemental services for gifted students that "meet the individual needs of each gifted student, may include, for example, guidance and counseling, mentorships, independent study, correspondence courses, and concurrent enrollment" (2007, n.p.).

Compliance to modifications. If the submitted scope and sequence does not acquire full approval by the superintendent of public instruction for the State of Arizona, "the school district is not eligible to receive state aid for the group A weight for seven per cent of the student count and shall compute the weighted student count for pupils in group A as provided in section 15-943 by adjustment of the student count accordingly"

(2007, n.p.). In brief, districts would not receive 7% of their budget computed from the total student count or group A weight, which is the main source of funding, if their scope and sequence is not approved by the state board of education. The State of Arizona is very earnest about the education of identified gifted students, and that it should differ from standard education. Seven percent of a district's student count is significant since all state aid, or funding, comes from a district's student count.

Further evidence of this earnest stance comes from the statutes that require a school district to include the amount of monies spent on programs for gifted pupils and the number of pupils enrolled in programs or receiving services by grade level in its annual financial report as prescribed in section 15-904 (2007, n.p.). The State of Arizona carefully monitors its gifted population. Requiring districts to include this information about gifted students and the money spent on them in the district's annual financial report demonstrates this earnest monitoring.

Another area that demonstrates how earnest the State of Arizona is about providing modified education for its gifted population is its requirement for additional training for the teachers of gifted students. These teachers become Arizona's experts in gifted education. The Arizona Revised Statute, in regards to gifted teacher expertise, states that school districts that comply with the state's requirement of providing gifted endorsed teachers for gifted students "may apply to the department of education for additional funding for gifted programs equal to seventyfive (*sic*) dollars per pupil for four per cent of the district's student count, or two thousand dollars, whichever is more" (2007, n.p.). It is these gifted endorsed educational experts that will be consulted when posing the question of whether, in their perceptions, the Arizona College and Career

Ready Standards adequately support a modified curriculum and differentiated instruction for identified gifted students.

Thus, the State of Arizona requires inclusion of gifted pupil counts by grade level in official financial reports, and requires additional education for teachers of gifted students. The additional education of teachers, indicated by an endorsement on the teaching certificate, is to ensure that gifted students have teachers trained in providing a curriculum that is different from the general curriculum, and the State of Arizona will monetarily reward districts that comply with this requirement.

Obtaining a gifted endorsement. In order to obtain a gifted endorsement from the State of Arizona, an applicant must first have a valid Arizona teaching certificate. There are actually two different gifted endorsements, a provisionary endorsement and a full endorsement. The provisionary endorsement only lasts three years. The full endorsement is automatically renewed when the teaching certificate is renewed every six years.

Besides filling out the application, paying the fee, and providing proof of a valid Arizona IVP fingerprint card or fingerprint clearance card, an Arizona certified teacher who wants a full gifted endorsement must provide the Arizona State Certification Unit a transcript "showing completion of 9 semester hours of upper division or graduate level courses in an academic discipline such as science, mathematics, language arts, foreign language, social studies, psychology, fine arts, or computer science" (Arizona Dept. of Ed, 2013, p. 2). Additionally, an applicant must comply with at least two of four listed options. Option A is three-years of verified full-time teaching experience in gifted education as a teacher, resource teacher, or specialist. Option B is 135 verified in-service clock hours of training in gifted education. Option C is producing official transcripts

showing twelve semester hours of courses in gifted education. Option D is completion of six semester hours of practicum or two years of verified full-time teaching experience in which most students were gifted (Arizona Dept. of Ed, 2013, p. 2). Arizona certificated teachers with gifted endorsements on their certificate are the experts in this study. This study explores these gifted experts' perceptions of to what extent the Arizona College and Career Ready Standards support curriculum and instruction which is differentiated from the standard or general curriculum and commensurate to the abilities and potentials of identified gifted students, what the relationships are between the AZCCRS and gifted education pedagogy, and how these experts interpret, negotiate, and implement the AZCCRS while simultaneously complying with the required modifications to curriculum required by Arizona State Statutes.

Parameters of Giftedness in Arizona. Using definitions and explanations from the Arizona Revised Statutes (2007), the parameters of giftedness in Arizona include three important concepts, provision of specifically differentiated curriculum and supplemental services, implementation of curriculum and instruction by gifted endorsed teachers, resource teachers, or specialists, and identification of gifted students and their placement in gifted programs. Two of these three concepts that outline the parameters of giftedness in Arizona have been explored above, but the third, identification of gifted students and their placement in gifted programs, is addressed more fully below.

Identification of gifted students. The Arizona statutes advance that Governing boards shall adopt policies for procedures to identify and place students in gifted programs (2007). The students who score at or above the 97%ile on nationally norm referenced state approved tests in any one of three areas, verbal, nonverbal, or

quantitative, will be identified as gifted and placed in gifted programs. The statutes also mention, incidentally, that students who score below this cut score may also be placed, if the local educational agency (LEA) so chooses, but students who score at or above this threshold must be identified and placed (2007). Further, LEA's must also identify and place students whose identification and placement came from other valid LEA's or qualified professionals, and LEA's must identify and place transfer students as soon as verified eligibility is produced (2007).

School boards in Arizona must have procedures in place to identify gifted students and place them in programs that provide curriculum and instruction that is differentiated and commensurate with the abilities and potentials of these identified gifted students. Specifically, the State of Arizona mandates instruction that includes developing the higher order thinking of gifted students as well as critical thinking, creative thinking, and problem solving, thus begging the question, do the AZCCRS adequately support the development of differentiated curriculum and instruction that can accomplish this feat?

Historical Perspectives of Giftedness. Throughout history, those with extraordinary abilities compared to their age peers have been noticed and even expected to solve major societal problems. Grinder states that, "we humans have always been inspired by the gifted and talented because of their ability to solve problems and perform feats that are beyond the capability of ordinary people. Those with extraordinary abilities have been expected to contribute to social survival and cultural advance since perhaps the very origins of communal life" (1985, p. 5). The appropriate education of the gifted becomes an issue larger than leaving no child behind. It may even involve leaving no society behind. As far as the State of Arizona is concerned, however, only giftedness in

the three areas of verbal, quantitative, and nonverbal will be accommodated in the public school system.

Identification. The very first step in making the appropriate accommodations to meet the statutory requirements in the State of Arizona is identifying gifted students. Grinder (1985) professed that there really isn't a good system to separate people based on their abilities. He states that, "the knotty problem in respect to giftedness at least, has always been divisible into two mutually related questions: How have people with extraordinary capabilities been identified? How has their giftedness been explained?" (1985, p. 6). He explains that society has only found two ways to identify giftedness, one by "observing who stand out in our midst," and the second is with the use of mental tests beginning with the works of Sir Frances Galton (cousin to Charles Darwin), Alfred Binet, and Lewis Terman (1985, p. 6).

According to Grinder (1985) the use of mental tests began before there were even adequate scientific procedures to justify their use. Even though they were unable to investigate them, Galton and Binet held two very different viewpoints about where intellectual competence comes from in humans (Grinder, 1985). Galton believed that giftedness could be identified with "measures of reaction time, sensory discrimination, and perceptual speed" (Grinder, 1985, p. 28). Modern researchers such as Eysenck and Jensen continue this hypothesis, among others, that pertain to processing information at the neurophysiologic levels (Grinder, 1985).

Following the other viewpoint of the source of extraordinary abilities in humans, Robert Sternberg, Howard Gardner, and others have been inspired to develop theories of intellectual functioning based on Binet's original ideas about the judgmental and analytic

aspects of intelligence (Grinder, 1985). According to Sternberg and Davidson people's abilities differ in how well they execute metacomponential skills (Grinder, 1985). Further, "the psychological basis of giftedness is thus said to be 'insight skills.' Gifted individuals, they say, are characterized by an unusual ability to acquire, and to think in terms of, novel concepts and conceptual systems. These exceptional insight skills set apart the gifted from the ordinary" (pp. 29-30).

In order to come to terms with these two viewpoints about giftedness, Grinder (1985) suggests that instead of taking Eysenck's and Jensen's view or Sternberg's and Davidson's view, researchers should instead be "considering both neurophysiological and metacomponential theories of intellect simultaneously, perhaps the centuries-old struggle to identify and understand giftedness may be elevated to the point where judgments will be made less on the basis of data provided by test technology and more on the premises of theory that is substantiated by verifiable hypotheses" (p. 30).

For now, however, the State of Arizona identifies giftedness in individuals using test technology, and further recognizes that there must be a differentiated education provided for these individuals. In other words, gifted individuals do think and learn differently than the general population and need a differentiated learning environment, differentiated curriculum, and differentiated instruction in order to fully develop their potential, according to the State of Arizona. Do the AZCCRS provide an academic environment that supports the development of appropriately differentiated curriculum and instruction for Arizona's gifted students as perceived by gifted specialists?

Neurophysiology. Even though utilizing test technology is the path the State of Arizona's statutes require for identification of gifted students, neurophysiology appears

to be making a significant contribution to the understanding of intelligence. What is unclear is if some aspect of the physiology of a person's brain, such as developing neural circuitry rapidly, is a predisposition or if the environment plays a role in causing rapid neural circuitry. Sousa (2003) describes this process as neural efficiency, and states that, "if an important aspect of intelligence is speed of learning, then it is likely that individuals born with a predisposition for developing neural circuitry rapidly are destined to be gifted in some way" (pp. 22-23). Sousa further states that, "this trait is likely to appear during the early years in a child's development when neuron circuit building is at its peak" (p. 23).

It appears that the predisposition for neural efficiency must be present, but the environment either acts as a catalyst to awaken this predisposition or may even cause rapid neural circuitry to develop. Either way, the environment is paramount in the development of gifts and talent. Sousa states that even though a person may be genetically predisposed for neural efficiency, there is still substantial evidence that an individual's environment "can also provide opportunities for improving the speed with which new learning takes place" (2003, p. 23). This is significant when designing curriculum and instruction for gifted students. Without an appropriate environment that adequately promotes improving neural efficiency, or perhaps other aspects of neurophysiology, gifted children may not optimally develop their potentials and abilities.

The right environment for a student who is predisposed for neural efficiency, may, then, act as a catalyst to allow that student to demonstrate giftedness or high intelligence. Appropriately differentiated curriculum and instruction is imperative if identified gifted students are to thrive. Without appropriate curriculum and instruction,

these gifted individuals may not fully develop their intellect. They may not contribute to society at their full potential. They may not advance their abilities as far as possible. Do the AZCCRS give appropriate support to allow the creation of a rich enough modified curriculum and appropriately differentiated instruction to promote neural efficiency in identified gifted students?

Another area of neurophysiology that appears to be different for high IQ individuals, according to Sousa (2003), is in the storage of working memory. Sousa points out that researchers in this area speculated that "the ability of the frontal lobes to store and rehearse spatial information in working memory and in the posterior areas (occipital lobe) of the brain" is a characteristic found in individuals with high intelligence, but not in their lower IQ peers (2003, p. 25). Again, though, are individuals simply born with this ability to store spatial information in their working memory or is it imperative to provide the right environment to develop this ability if the predisposition exists at birth? If educators don't recognize this as a need for gifted students, and therefore never require these students to use this ability, never nurture this ability, then do gifted students lose it or do they keep it but at an underdeveloped stage? Although other researchers, such as Antonio Demasio, have recent research on many aspects of neurophysiology, Sousa's writes exclusively about the brain of gifted people, particularly children. Do the AZCCRS support the implementation of a curriculum and differentiated instruction that would nurture the ability to store spatial information in the working memory? Do the AZCCRS even recognize spatial reasoning (also called nonverbal reasoning)?

Gifts versus talents. A different perspective, when examining the parameters of

giftedness, is distinguishing between gifts and talent. Gagné (2010) proposes a clear distinction between giftedness and talent. He states that people have natural gifts expressed as untrained abilities or aptitudes. One must be in the upper 10% of age peers to be considered gifted in an ability domain, according to Gagné. Talent, on the other hand, according to Gagné, is developing the knowledge and skills in a domain that would place a person in the top 10% of peers (2010). He further explains that two types of catalysts, intrapersonal and environmental, play into the motivation for talent development (Gagne, 2010). So, Gagne, as well as Sousa, recognizes the importance of the environment as a catalyst in the development of either giftedness or talent or both.

Rogers (2002) further explains Gagne's model and the differences between a talent and a gift. She also makes clear how important the environment is when developing a talent and states that it is possible to be gifted, but not talented however it is impossible to be talented without first having a gift. So the development of a gift, if the environment is optimal, becomes a talent. Rogers (2002) gives the example of William Sidis who graduated from Harvard at 15 years old, but then spent the next 30 years of his life as a hermit collecting bus tokens from around the world, never actualizing his obvious potential or developing his gift into a talent. Sidis is an example of having a gift, but not being talented. Rogers (2002) then gives the example of Walt Disney who was told he had no artistic potential and was failed in his high school art class, but then of course went on to make a fortune with his cartoon characters, demonstrating his obvious talent. Rogers explains this as "if a child is performing at very high levels, there had to be potential to start with. No matter how hard a person works, or how much exposure and enrichment a family provides, or how much a school works to help develop potential, if

high potential isn't there to begin with, it can't be developed. In other words, there is no such thing as an overachiever. No one can do more than they have the capacity to do" (2002, pp. 34-35). Walt Disney had the gift and potential all along, even if his high school art teachers didn't recognize it. He nurtured it and developed it into a talent despite his teachers.

Perhaps what is wanted in society from the gifted is to develop their talent for the good of all. Gagné, through Rogers' explanation, appears to be describing a predisposition for a particular talent as being gifted, and that the proper catalyst or environment must be present or it withers. Accepting his premise as well as Rogers', the main question still pertains, do the AZCCRS allow for an educational environment that will be a catalyst for gifted individuals to develop their talent, at least in domains normally addressed in a public school setting such as language arts or mathematics?

The various parameters described above, as well as others, point to the practical matter of educating the gifted. What curriculum and instructional methods are best for these individuals? This question is at the heart of gifted education. Making the right decision about curriculum and instruction for gifted learners, once identified, seems urgent, especially if one accepts the premise that curriculum and instruction, along with other factors, may determine if the individual's talent, according to Gagné and Rogers, or potential, according to the statutes in the State of Arizona, is fully developed or actualized, or allowed to atrophy or be unrealized. What characteristics of curriculum and instruction should be present in order to appropriately act as a catalyst to fully develop a person's gifts and talents? Do the AZCCRS support the development of curriculum and

instruction that could be a catalyst to develop the gifts and talents of identified gifted students in the State of Arizona?

Modified Curriculum and Differentiated Instruction

Gifted students have unique curricular and instructional needs that the State of Arizona requires be implemented in order to meet their potentials. Curriculum and instruction must be commensurate with their academic abilities, potential, and intellect according to the Arizona State Statutes (2007). In other words, curriculum and instruction must have certain characteristics and meet certain criteria in order to be appropriate for gifted students. Failure to provide appropriate curriculum and instruction may result in being out of compliance with the laws of Arizona. What are these characteristics and criteria?

State requirements. The statutes (2007) of the State of Arizona outlines how gifted education, in three areas, curriculum, instruction, and services for gifted pupils should differ from general education. More specifically, the state statutes require that the curriculum should differ in such areas as, "(a) Content, including a broad based interdisciplinary curriculum. (b) Process, including higher level thinking skills. (c) Product, including variety and complexity. (d) Learning environment, including flexibility" (2007, n.p.). The statutes (2007) further explain that the curriculum, or "expanded academic course offerings may include, for example, one or more of the following: acceleration, enrichment, flexible pacing, interdisciplinary curriculum, and seminars" (n.p.). When describing the differentiated instruction, the statutes (2007) state that the "differentiated instruction, which emphasizes the development of higher order thinking, may include critical thinking, creative thinking, and problem solving" (n.p.).

When referring to supplemental services, the Arizona State Statutes (2007) state that "supplemental services, which may be offered to meet the individual needs of each gifted student, may include, for example, guidance and counseling, mentorships, independent study, correspondence courses, and concurrent enrollment" (n.p.).

Differentiated curriculum. Development of higher order thinking skills, creative thinking skills, problem solving, and critical thinking are mentioned more than once in the Arizona State statutes, in connection with the appropriate curricular offerings and instructional strategies to be implemented with gifted students. What the State of Arizona mandates to be implemented for its gifted pupils is an alternative curriculum, meaning a differentiated curriculum or an approach that is different from what would typically be presented to students at a particular age or grade level in a general education classroom. One reason the statutes delineate this requirement is because, according to Rogers "matching a child's preferences for how she learns with how the curriculum is actually delivered most certainly will enhance the child's motivation to learn so that attitudes toward school remain positive. Positive attitudes and motivation are important if the child is to reach higher achievement." (2002, p. 278). Tomlinson and Eidson state that differentiation for gifted students is critical in the elementary years because, "young students' early experiences have a profound impact on their views of school, their conceptions of the learning process, and their perceptions of themselves as learners" (2003, p. x). VanTassel-Baska found in her research that gifted education specialty teachers in gifted classrooms typically employed more strategies associated with good teaching and differentiation, but there was still room to improve even these gifted classroom situations when trying to meet the needs of gifted students, including even

more emphasis on higher level thinking, problem solving, and accommodating individual differences (2006).

The differentiation can be of the content, product, process, assessment, or environment (Tomlinson and Eidson, 2003). If an approach is differentiated in most of these categories, it would probably be an entirely alternative curriculum for gifted learners. If the differentiation occurs in only one or two of these areas the approach might be classified as just a differentiated strategy, method, technique, or practice. For the purposes of this study, any differentiation in any of the categories will be considered an alternative curriculum.

Alternative curriculum. There are a number of alternative curriculum, or strategies, methods, techniques, or practices, that emphasize application, analysis, evaluation, or creativity, which are, of course, the higher order cognitive skills (Anderson and Krathwohl, 2001). Curricula that possess these characteristics, traits, or criteria would also meet the requirements listed in the statutes of the State of Arizona. Alternative curriculum also differentiate in at least one area of content, product, process, or environment which is another characteristic the statues of Arizona lists as being necessary to be considered differentiated instruction. In fact, any alternative curriculum that is based on the constructivist approach would meet the State of Arizona's requirements of a modified curriculum and differentiated instruction. Examples of alternative curriculum that are based on the constructivist approach include enrichment clusters, which are a component of the Schoolwide Enrichment Model (SEM), project-based learning, and problem-based learning.

All three of these alternatives to the standard school curriculum not only have in common the incorporation and emphasis of the higher order cognitive skills, but they also each offer some form of authenticity, meaning there is an element of learning that directly relates to problems and solutions found outside school. They are not hypothetical problems for students to tackle, but actual or authentic problems. Moreover, these three offer some degree of being student-centered or student-driven as well. Renzulli, Gentry, and Reis state that authentic learning "is the vehicle through which everything from basic skills to advanced content and processes come together in the form of student-developed products and services" (2004, p. 74). Additionally, these alternatives to the standard curriculum often boast of being founded in some way around the 21st century skills as outlined by the Partnership for 21st Century Skills which include critical thinking, authentic problem solving, creativity, innovation, and collaboration, among others (2009). The AZCCRS also incorporate the 21st century skills as outlined by the Partnership for 21st Century Skills.

Kay and Honey claim that founding curriculum in the 21st century skills is essential to prepare students to succeed as citizens, thinkers, and workers (2006). Further, Kay and Honey state that "today's students need critical reasoning, creative, technical, and interpersonal skills to solve complex problems; design new product prototypes; and collaborate across teams and borders using technology as one of their fundamental tools, canvases, or means of communication" (2006, p. 63). Interestingly, Kay and Honey were discussing curriculum for all students, not just gifted students, yet these very same skills are what are often listed as what constitutes a differentiated curriculum for gifted students, as per the Arizona Revised Statutes 2007, for example.

If an alternative curriculum claims to be standards-based, then it probably doesn't differentiate in content from the general education curriculum. It must be accomplishing the differentiation by differentiating the process, product, assessment, environment, or a combination, unless it differentiates the content by acceleration, meaning it bases the curriculum on content that is usually designated for a higher grade level. Each of these three alternatives to the standard curriculum, enrichment clusters, project-based learning, and problem-based learning, will be examined for differentiation of the content, process, product, assessment, environment, emphasis of higher order cognitive skills, authentic learning, student centeredness or being student-driven, and inclusion of 21st century skills. These are the characteristics, traits, or criteria of an alternative curriculum that would satisfy the State of Arizona's requirements for the education of its gifted students, and also would, in their approach, be classified as constructivism, an epistemology or learning theory that requires the learner to construct meaning and understanding from problem solving.

Enrichment clusters. A component of Renzulli's Schoolwide Enrichment Model (SEM) is enrichment clusters, which emphasize application, analysis, evaluation, and creativity, the higher order thinking skills of Bloom's taxonomy of educational objectives (1956). This would be an excellent curriculum model for all students, but especially for Arizona's gifted students because it would meet many of the educational requirements, including the necessity for more complex material and cross disciplinary connections, mentioned in the state's statutes concerning the education of its gifted children (2007).

Imagine for a moment all of the things about arithmetic, geometry, geography, architecture, purchasing, computer graphics, advertising, photography, accounting,

cooperation, leadership, and ornithology that a group of students learned by deciding that they wanted to design, construct, and market environmentally friendly bird houses and feeders (Renzulli, Gentry & Reis, 2003). This is an example of a SEM enrichment cluster. Students inductively learn skills and concepts through application, or what many educators call authentic learning. John Dewey called it collateral learning (Renzulli, 1985).

Description. Renzulli describes the Schoolwide Enrichment Model as, "a systematic set of specific strategies for increasing student effort, enjoyment, and performance, and for integrating a broad range of advanced-level learning experiences and higher order thinking skills into any curricular area, course of study, or pattern of school organization" (2005, p. 82). It is based on the "principles that each learner is unique, learning is more effective when it is enjoyed, learning is more meaningful when it is within the context of a real problem, and that knowledge results from students' own construction of meaning" (Gibson & Efinger, 2001, p. 51). Reis and Renzulli explain enrichment clusters as non-graded groups of students who share common interests (2010). These students are grouped together during specially designated time periods. They work with an adult who shares their interest and who has knowledge and expertise in the shared interest. Enrichment clusters are a component of the Schoolwide Enrichment Model (Renzulli, Gentry & Reis, 2003).

Membership in an enrichment cluster is by individual choice for both teachers and students. The teacher becomes a facilitator in the cluster, guiding all learners to become as close to experts about their chosen topic as possible. Students do what professionals in that field would do. For example, if the topic of interest is videography, the members of

that cluster would learn as much about videography as possible including script writing, acting, how to use the camera, editing, directing, storyboarding, etc. in order to produce a product. Every member of the cluster would bring his or her unique talents and strengths to the learning situation and be valued for those talents and strengths (Renzulli, Gentry & Reis, 2003).

Effectiveness. Reis', Gentry's, and Maxfield's research in urban schools "found that the use of enrichment clusters resulted in higher use of advanced content, thinking skills, and research skills for all students, and that after classroom teachers had offered these advanced opportunities in their clusters, the majority also began using them in their regular classrooms" (as cited in Reis & Renzulli, 2010, p. 44). In a British study of enrichment clusters, over half of the teachers reported that the children benefitted socially and academically, while virtually all of the children who participated rated the experience highly because of the varied teaching styles, no repetitive activities, and more fun (Morgan, 2007).

Renzulli, Gentry, and Reis state that, "the main rationale for participation in one or more clusters is that *students and teachers want to be there*" (2003, p. 44). A teacher who wants to be there, also gets to teach what she wants to teach. This experience could be a catalyst that affects her attitude about teaching. It could counteract the "overemphasis on test preparation and mechanistic instruction and the use of remedial materials" which has "made many urban classrooms dreary places to learn" (Reis & Renzulli, 2010, p. 48). Enrichment clusters promote more advanced inductive learning that is more creative, engaging, and authentic; students use more integrated knowledge

and are enabled to apply thinking skills and problem solving skills (Reis & Renzulli, 2010; Braund & Reiss, 2006; McAllister, B. A. & Plourde, L. A., 2008).

Research by Schlichter and Olenchak found that "the effectiveness of the SEM, as measured by various indicators of change throughout entire schools, has produced positive results in terms of student attitudes toward learning and teacher attitudes toward teaching" (1992, p. 159). Teachers who have implemented enrichment clusters, even though the implementation takes time, energy, and commitment, have found that their efforts are fruitful because this type of learning makes the educational environment more enjoyable and engaging to students (Reis & Renzulli, 2010). Likewise, Martin found that in order for art enrichment to benefit children the school's culture had to value the talents of all adults and children, infuse enrichment as a regular practice, and require commitment on behalf of the entire school (1998).

When the important component of enrichment is not infused in the curriculum, "it belies the importance of student engagement and motivation to learn and the dynamic quality that occurs when this energy exists in the learning environment" (Beecher & Sweeny, 2008, p. 509). The enrichment cluster experience allows teachers to create enjoyable and engaging environments for their students. Beecher and Sweeny described a transformation that the teachers at their school went through as they became a group of highly skilled teachers in search of even more improvement in student achievement and even willing to teach their newly acquired skills to others (2008). Beecher and Sweeny stated that the teachers involved in enrichment clusters, "not unlike their students, developed their unique gifts and talents and gained confidence as teachers of other teachers. Their passion for the success of their students led to the development of the

school as a professional learning community" (2008, p. 524). These teachers became so committed to honing their craft that they became teachers of teachers.

Crocco and Costigan found that "under the curricular and pedagogical impositions of scripted lessons and mandated curriculum, patterns associated nationwide with high-stakes testing, the No Child Left Behind Act of 2001, and the phenomenon known as the 'narrowing of curriculum' new teachers in New York City (NYC) find their personal and professional identity thwarted, creativity and autonomy undermined, and ability to forge relationships with students diminished—all critical factors in their expressed job satisfaction" (2007, p. 512). These same results were found by Moriarty, Edmonds, Blatchford, and Martin when studying the satisfaction and stress involved in teaching young children (2001).

Emphasis on accountability may even be a major contribution to teachers leaving the profession because they are frustrated and angry, attitudes that are viewed as critical factors in staying or leaving the profession (Crooco & Costigan, 2007). Pines found that teachers need to believe that what they do is important and significant in order to avoid burnout, manifested in being less motivated, avoiding contact with students, and leaving the profession (2002). Sanders and Schwab contend that very little within the institution of education actually supports teachers to become masters of their craft except their own motives to be the best and most successful teachers they can be (2001). However, enrichment clusters actually allow teachers more control over what they teach and how they teach it. Looking at it from another perspective, Olenchak and Renzulli report that teachers' attitudes during the implementation of the SEM enrichment clusters was not negative, whereas implementation of other school wide programs usually reveal that

teachers' attitudes become negative about their positions in schools, at least temporarily during the stress of implementation (1989).

Enrichment clusters allow the teacher many choices. They are based on interest in the chosen topic of study for both teacher and student, and empower the teacher to make many educational decisions. The teacher becomes a facilitator in the learning situation (Renzulli & Reis, 1997). It is an experience that is powerful enough to change teachers' attitudes about what they teach and how they teach it, which in turn affects many important aspects of education such as the satisfaction a teacher feels about her work, the enthusiasm she brings to the learning environment, her capacity to fully engage learners, her motivation to master her craft, and even her desire to continue in the profession.

The enrichment clusters component of The Schoolwide Enrichment Model allows for teaching in a more engaging and creative fashion (Renzulli, 2005; Chislett, 1994). Harris found that the deepest level of student engagement happened when teachers and students collaborated in the learning, and teachers self-reported success associated with this strategy (2010). This better brand of teaching is exemplified by history teacher Bill Plitt who allows his students to become researching historians, as they would in an enrichment cluster focused on history. Plitt states that "the traditional 'drill and practice' approach to remediation for low-performing students is boring and often ineffective, especially for students who lack motivation. Furthermore, such practices emphasize the recall of information and shortchange essential skills, such as analytical thinking or the 'habits of the mind' that students need for success in college, in the workplace, and in their lives as responsible citizens" (2004, p. 745). Reis, Gentry, and Park found that in "one urban teacher's comment about enrichment clusters reflects the attitude of most

teachers who have participated in enrichment pedagogy research, 'Suddenly I remembered why I had gone into teaching in the first place. I had forgotten. Then I remembered what I had always thought teaching would be all about'" (as cited in Reis, 2003, p. 48).

Research on the effectiveness of the SEM found "more positive staff attitudes toward the gifted program; fewer concerns about identification; positive changes in how guidance counselors worked with students; more excitement about teaching in general; more incentives for students to strive for higher goals through modeling (students were now eager to pursue topics of great personal interest to them even though they hadn't been identified formally for the gifted program); and a better quality of life for both students and staff" (Renzulli & Reis, 1994, p. 9). All excellent results, but results that were found many years ago, prior to the Common Core State Standards being adopted by many states and the Arizona College and Career Ready Standards being adopted by Arizona. Also this research is prior to an educational climate of accountability, high stakes testing, and narrowing of the curriculum. Because of today's over-reliance on standardized tests, student outcomes such as critical and creative thinking, positively working with others in problem solving teams, and healthy social and emotional growth has been minimized in favor of teaching to the standardized tests (Gratz, 2010). Critical and creative thinking are elements mentioned for a curriculum to be appropriately modified for gifted students in the Arizona Revised Statutes (2007). Enrichment clusters incorporate critical and creative thinking as components of this curriculum, while simultaneously combating the minimizing of these skills by over-reliance on teaching to the standardized tests.

There is one more recent study of implementation of enrichment clusters in an urban elementary school on the west side of Hartford, Connecticut. This was a failing school in desperation mode. The entire culture of the school had to change, and the faculty was ripe for any changes that would show improvement. The staff decided to use gifted education pedagogy, and adopted several components of the Schoolwide Enrichment Model, including enrichment clusters, along with immersion into a social studies-based Global Studies curriculum (Beecher & Sweeny, 2008). The school was turned around and is no longer considered a failing school.

Renzulli believes that "it is time to view schools as places that go beyond the acquisition of information that will make us look good on tests—*schools are places for developing the talents of all*" (2005, p. 88). Renzulli further states that, "this vision of schools for talent development is based on the belief that everyone has an important role to play in societal improvement, and that everyone's role can be enhanced if we provide all students with opportunities, resources, and encouragement to aspire to the highest level of talent development humanly possible. Rewarding lives are a function of ways we use individual potentials in productive ways" (2005, p. 84).

Meeting state requirements. Enrichment clusters could be a way to meet the curricular and instructional needs of Arizona's gifted students because they emphasize the higher order thinking skills of application, analysis, evaluation, and creativity. These characteristics or traits are all necessary to meet the educational needs of gifted students, and perhaps all students, as mentioned several times in the Arizona Revised Statutes (2007). Additionally, a major focus of enrichment clusters is doing what a professional would do in a particular field, area, topic, or domain. For students, this focus brings

authenticity, or the concept of working on problems that are not hypothetical, that are usually found outside of the school setting, and brings choice to the curriculum. Having choices embraces the components of being student-driven and interest-based. All three of these components: authenticity, being student-driven, and being interest-based, contribute to meeting the educational needs of Arizona's gifted students, as outlined in its statutes. The 21st century skills of critical thinking, problem solving, innovation, and collaboration are all components of enrichment clusters as well, and likewise contribute to meeting the educational requirements of Arizona's gifted students.

Finally, enrichment clusters contain the main ingredients of differentiating the content, process, product, assessment, and environment, as again required by the statutes in Arizona. In short, the enrichment clusters component of the Schoolwide Enrichment Model is a modified alternative curriculum and differentiated instructional model that contain the characteristics, traits, and criteria necessary to provide an educational environment conducive to the appropriate development of Arizona's gifted students' potentials, gifts, talents, and abilities as described in the Arizona Revised Statutes (2007), and is based on constructivism, an epistemology or learning theory that requires the learner to construct meaning and understanding from problem solving.

Project-based learning. Another modified curriculum and differentiated instruction that would meet Arizona's state requirement for gifted education curriculum and instruction is project-base learning. "The Project Method" as developed in the Progressive era of curriculum development and public education by William H. Kilpatrick is a forerunner to project-based learning (Marshall, Sears, Allen, Roberts, & Schubert, 2007).

Description. Project-based learning involves the learner throughout the process. It offers the learner choices. It allows the learner to develop self-directedness, intrinsic motivation, problem solving, and critical thinking patterns. It is meaningful and purposeful learning. The learner is able to choose what to learn, when to learn, the pace of learning, and even what order to learn. In reality, the learner has always chosen what to learn because no one can make a person learn something. The learner has always had the choice to internalize what is being presented to him or her or to choose not internalize it. In the future, possibly, this concept will be recognized and accepted so that all curricula will be written, chosen, and developed by the individual for that individual. If a person wants to study some aspect of history, for example, they will have access, via the Internet, to any facet of history and from any point of view that he or she wishes to encounter. Indeed, this exists now, but is not as widespread, nor taken advantage of as much as it might be in the future and in what might be the future's version of the K-12 public school system.

Historical development. Benjamin Franklin is attributed to saying, "Tell me and I forget. Teach me and I remember. Involve me and I learn." The Progressive Education Association (PEA) in 1919 believed in this quip by promoting a curriculum that involved the learner as much as possible (Marshall et al, 2007). One aspect of the PEA's movement in education was Kilpatrick's project method. While a professor at Teacher's College, Columbia University, he wrote the essay "The Project Method" which first appeared in the *Teachers College Record* in 1918, however he did not claim this to be a new type of curriculum. Kilpatrick began his explanation of the theory of "wholehearted purposeful activity," as he named the project method in his famous essay, by reminding

the reader that this type of curriculum is not "newly born," and "not a few readers will be disappointed that after all so little new is presented" (The Project Method, 2005, n.p.).

According to Knoll in his article "Project Method" from the 2002 edition of *Encyclopedia of Education*, the idea of curriculum being project-based can be traced back as far as 1590 to the academies of architecture in Rome and Paris where the more advanced students would be asked to work on a design problem such as creating a fountain or a palace. Knoll explains that later this type of curriculum was used as a regular teaching method in the newly established engineering schools in France, Germany, and Switzerland from 1765-1880 (2002). William B. Rogers introduced the project method in 1865 at the Massachusetts Institute of Technology. Calvin M. Woodward used project-based learning at his Manual Training School where students not only designed their own projects, but produced them as well. Gradually the idea of project-based learning spread from manual training to vocational education and even to general science. In 1918, Kilpatrick picks up the thread and publishes his essay. But, he was criticized by Boyd H. Bode, John Dewey, and other leading American Progressives, so his ideas lost steam in the United States. However, they were carried on in Europe, India, and the Soviet Union. Interestingly, Kilpatrick's project method was again reborn in the 1970's in Germany, the Netherlands, and other European countries, where it was praised as the only method that democratic societies should adopt (Knoll, 2002).

Knoll further clarifies exactly what Kilpatrick's "Project Method" entails as a method of education in which children take a period of time to solve practical problems (2002). Examples of these problems, which may spring from teacher suggestions or from the students themselves, include such things as building rockets, publishing class

newspapers, and even designing their own outside play area. A key to being a "Project Method" experience is that the students must do all the planning and execute the chosen solution themselves, or at least as much as possible. This can happen individually or even in small groups. The focus is always on applying knowledge, not on acquiring specific skills or knowledge. Students are involved and motivated which leads to being thinkers that are more independent, more self-directed, and more self-confident. Students also become more socially responsible when involved in a "Project Method" experience (Knoll, 2002).

There are two basic types of project-based learning, according to Knoll (2002). The first, older and more historical, involves two steps. First the students are taught particular facts and skills using knowledge-based curriculum and then are asked to apply the skills, facts, and knowledge acquired in a creative project while being self-directed. The second approach integrates the skills, facts, and knowledge into the project itself that is chosen first by the students. Knoll describes it as students choose the project, discuss what they must know to accomplish the project, set out to learn what they need to know, and finally execute the project all as independently as possible (2002). He stresses that in both methods, students need adequate time to reflect and evaluate before moving from one phase to the next.

Components. Project-based learning allows students to develop more self-directedness. Embedded within this method is the decision making process. Throughout project-based learning, students must make many decisions, beginning with the decision to actually pursue a particular project. Each subsequent step in the project is dependent on the decisions made previously. Learners thus direct their own learning, subsequently

deciding what they need to know, how to acquire that knowledge or skill, and applying it (Knoll, 2002).

Louv, in his book *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder* describes how there is actually a "schoolhouse in a tree" when children build a tree house (2006). Children spending the summer building a tree house can be a perfect example of Project-based Learning. Louv explains that when he was a child in the U.S. during the 1950's, there were often forests and woods that fringed the outskirts of towns and housing developments. There were open spaces, vacant lots, and empty land just begging for children to rummage in and discover their world. Today's children, he argues, due to situations such as overcrowded conditions, restrictions and laws, environmental issues, and fear of child predators, are deprived of this natural exploration to the point of having a deficit when it comes to being able to not only interact with nature but even develop thinking patterns that prior humans took for granted (2006).

Louv recalls that, "my dad helped when he could, but most of the time he left us to try things: to experiment, test, fail, or succeed. We learned so much more than we ever would have with someone showing us the right way to do things every time. Our failures gave us a deep, intrinsic understanding of how things worked. We understood the laws of physics long before we took the class" (2006, p. 79). He further describes that after picking the largest oak tree in the state, he and five or six other boys spent the summer constructing a four-story tree house with a sealed bottom floor that you had to get to by negotiating through a trap door in the floor of the second level. The tree house was more elaborate and larger at each level because the tree's branches opened out. "The top floor was a crow's nest that could only be reached by leaving the third story and crouch-

walking out ten feet on a thick branch, transferring to a higher branch that dipped down close to the first one, and then traversing that branch to the crow's nest—forty feet above the ground. This tree house was serviced by ropes and pulleys and two baskets" (Louv, 2006, p. 79).

As an adult, Louv asked a friend, Alberto Lau, who is an architect and construction scheduler to list what the boys may have learned while building that tree house (2006). Lau included:

> • You learned the most common sizes of lumber, 4' x 8' sheets of plywood, and 2" x 4" studs; also about the sizes of nails.
>
> • You probably figured out that diagonal bracing stiffened the structure, whether the bracing was applied at a corner or to hold up the platform or floor of the tree house.
>
> • You learned about hinges, if you used those to attach the trap door.
> • You probably learned the difference between screws and nails.
> • You learned about ladders, if that is how you got from one story to the next.
> • You learned about pulleys.
> • You learned that framing must strengthen openings such as windows or the trap doors.
> • You probably learned to slope the roof in imitation of real homes, or because you were beginning to understand that a slope would shed rain.
> • You probably learned to place the framing narrow side up; you were beginning to learn about "strength of materials," a subject taught in engineering schools.
> • You learned how to cut with a handsaw.
> • You learned about measurement, and three-dimensional geometry.
> • You learned how the size of your body relates to the world: your arms and legs to the diameter of the tree trunk; your height to the tree height; your legs to the spacing of the ladder rungs; your reach to the spacing of the tree branches; your girth to the size of the trap door; the height from which you could safely jump, etc. (Louve, 2006, pp. 80-81).

In Louv's account, Lau adds, "'One more thing...You probably learned from your failures more than from success. Perhaps a rope broke from too much weight; a board of

2 x 4 pulled off because you used nails that were too small. You also learned, by practicing, one of the essential principles of engineering: you can solve any large or complex problem by breaking it down into smaller, simpler problems'" (2006, pp. 81-82). Not only were these boys intrinsically motivated, self-directed, and practicing problem solving and critical thinking, they participated in authentic learning. This was learning from a purposeful act, or what Kilpatrick called the "Project Method."

Sousa has studied the human brain and how it learns. In his book, *How the Gifted Brain Learns* he describes the difference between "learning" something and retaining it long enough to pass a test versus "learning" something that becomes part of the brain's long-term storage networks (2003). Sousa explains that most of what is taught in schools is information held in short term memory long enough to take a test. But, retention requires that learners "not only give conscious attention but also build conceptual frameworks that have sense and meaning for eventual consolidation into long-term storage networks" (2003, p.32). Project-based learning allows learners to build those conceptual frameworks of meaning that are captured in the brain's long-term storage networks because the task is complex, not just difficult. The brain's short-term memory cannot capture and retain complexities. It is better suited for difficult concepts.

The difference between complex and difficult is crucial to understanding how the brain learns. Sousa explains that complexity describes the level of thought that the brain is working at, according to Bloom's taxonomy (2003). A question such as, "What is the capital of Alaska?" is at the knowledge level, whereas asking the learner to describe in his or her own words what is meant by a state capital would be at the comprehension level, and asking the learner to critique the governmental effectiveness of the officials

who run Alaska's state capital would be at the evaluation level. Increasing the complexity of the task means moving the thinking required up the taxonomy, which in turn requires more conceptual frameworks of meaning from long-term storage networks. On the other hand, if the learner is asked to memorize all the state capitals he or she is being given a knowledge level task, and this task can be made more difficult without increasing the complexity by next asking the learner to memorize all the state capitals in alphabetical order by capital and by state. This more difficult task will require more memory, but is still at the knowledge level of Bloom's taxonomy and does not build new conceptual frameworks of meaning in the brain. Project-based learning, by its very nature, requires new conceptual frameworks of meaning to be built in the brain. The problem solving, critical thinking, and creative thinking involved in completing a project, all at the higher levels of Bloom's taxonomy, automatically require more complex thinking.

In her article on inquiry learning in elementary science classes, Landis states that "in elementary classrooms, the scientific practices of observing, questioning, predicting, describing, explaining, and investigating should be woven together with the literacy practices of reading, writing, speaking, and listening" (2005, n.p.). In a lesson plan on worms, Landis explains that, "students actively participate in scientific practices and use scientific vocabulary while reading, writing, and researching" (2005, n.p.). Together the students build a habitat for worms, a project-based and inquiry-based activity. Landis continues by stating that, "Students are naturally curious about the world around them. Therefore, it is important to provide students with the opportunity to pose questions and discover answers on their own. Working across the disciplines helps to reinforce the facts, skills and information for the students" (2005, n.p.). And, working on this project

together also reinforces the facts, skills, and knowledge that the students have gleaned while researching how to go about providing an appropriate habitat for the worms.

According to Liu project-based learning is an "instructional approach that exemplifies authentic learning and emphasizes solving problems in rich contexts," and "provides a meaningful and concrete way to apply the essential principles of the constructivist theory, which states that learning is essentially an act of active knowledge construction on the part of a learner" (2004, p. 358). Blumenfeld, Soloway, Marx, Krajcik, Guzdial, and Palincsar describe project-based learning as "a comprehensive approach to classroom teaching and learning that is designed to engage students in investigation of authentic problems" (1991, p. 369).

Project-based learning is another alternative curriculum model that incorporates application, analysis, evaluation, and creativity, or the higher order thinking skills of Bloom's taxonomy of educational objectives. It also incorporates many, if not all, of the 21st century skills into the curriculum. Kay and Honey describe why the shift in education is needed in the 21st century in order to globally compete, and explain that unlike the common definition of rigor where students amassed great stores of knowledge about specific subject matter to become experts, "we will need a new definition of rigor that recognizes that each student must possess the ability to apply critical twenty-first century skills to their understanding of all subjects. This goal requires a rethinking of what we are focused on in education, and the resulting new emphasis will have profound implications for a research agenda" (2006, p. 67). Meanwhile, project-based learning could fit the criteria as described in the Arizona Revised Statutes of a modified curriculum and

differentiated instructional model for Arizona's gifted students, and is based in the constructivist approach (2007).

Project-based learning addresses the areas of authenticity, or solving non-hypothetical problems usually found outside the school arena, and the component of being student-driven. project-based learning can be differentiated in all areas, content, process, product, assessment, and environment, but always is differentiated in process and product. Differentiating assessment in project-based learning appears to, interestingly, increase learning, as evidenced by the research of Miedijensky and Tal who found that when assessment is purposefully designed to promote learning in project-based science courses it contributed to the learning (2009).

Like enrichment clusters, project-based learning would meet the educational needs of gifted learners in the State of Arizona, according to its statutes. McAllister and Plourde state that "inquiry-based, discovery learning approaches that emphasize open-ended problem-solving with multiple solutions or multiple paths to solutions are what mathematically gifted students need to be successful" (2008, p. 40). Project-based learning is an inquiry-based, discovery learning approach. It is based in constructivism which emphasizes problem solving with divergent solutions. Arizona's mathematically gifted students should thrive, according to the criteria described in the statutes, when a modified curriculum of project-based learning techniques, instruction, and strategies is implemented.

Stanley describes project-based learning as a process of completing projects over time (2012, p. 1). According to Stanley, the project component of project-based learning is actually a series of complex tasks that students attack autonomously over a long period

of time and "involve students in design, problem-solving, decision making, or investigative activities" (2012, p. 1). Further, project-based learning usually culminates in some realistic product, presentation, or production (Stanley, 2012).

When comparing project-based learning (PBL) with more standard teaching methods or strategies, Stanley explains that, "the major difference in PBL is that students *discover* for themselves the process of learning. They are provided with the structure, resources, and guidance, but it is their responsibility to figure out how best to learn the material" (2012, p. 1). In other words, project-based learning is an alternate curriculum and differentiated instruction that stems from the constructivist approach to learning.

There is a strong element of the curriculum being student-driven in project-based learning, which is a necessary element for a curriculum to be classified as constructivism. Helm and Katz explain that some teachers utilize features of project-based learning such as construction, observational drawings, and documentation, and therefore, "some units or thematic learning experiences look like projects. However, unless the elements of child initiation, child decision-making, and child engagement are present in a learning experience, it is not a project, and it is less likely to provide the unique benefits of project work" (2001, p. 5). Stanley lists the following characteristics as probably being necessary for curriculum to be considered project-based learning, "student choice, an open-ended question, a real-world problem, a lack of teacher-prescribed activities, student-led constructive investigation, an authentic assessment, student-driven time management, student-driven learning, collaborative learning, challenge for every student, student autonomy, independent work, or a conclusion featuring a product fashioned after an adult or real-world model" (2012, p. 2).

The constructivist approach to curriculum and instruction, including project-based learning, seems to be what Darling-Hammond is describing when she stated that a NELS study,

> of more than 2,000 students in 23 restructured schools found higher achievement on intellectually challenging tasks for students who experienced what the researchers termed *authentic pedagogy*—that is, instruction, curriculum, and assessment that requires students to apply their learning in real-world contexts, consider alternatives, use knowledge as disciplinary experts do (for example, engage in scientific inquiry, historical research, literary analysis, or the writing process), and communicate effectively to audiences beyond the individual teacher. The NELS study noted above also found that students in schools with high levels of *authentic instruction*—instruction focused on active learning calling for higher-order thinking, extended writing, and products that resemble how knowledge is used in the world outside of school—experienced greater achievement gains (2010, p. 239).

Hun, Hwang, and Huang also found that "project-based learning with digital storytelling could effectively enhance the students' science learning motivation, problem-solving competence, and learning achievement" (2012, p. 368).

The student-driven aspect of project-based learning is especially important for modifying the standard curriculum and differentiating instruction to meet the needs of Arizona's gifted students. As Stanley explains, "rather than truly differentiating, some teachers simply throw more work at the gifted student, which causes that student to resent being labeled as gifted. Project-based learning allows for a fairly simple method of differentiating, wherein the student sets the level for what can be accomplished" (2012, p. 6). Allowing the students to set the level of accomplishment differentiates the process and product, but also allows the curriculum to be student-driven with all the major choices being made by the student. All of these are important characteristics, traits, or criteria of a modified curriculum and differentiated instruction for Arizona's gifted students.

According to Stanley "this choice serves as a natural motivator and allows students to feel empowered in their learning because they have some say in what and how they learn" (2012, p. 10).

Bell succinctly describes the major elements of project-based learning as not a supplement to the curriculum that supports learning, but the basis of the curriculum because projects include reading, writing, and mathematics naturally (2010). That would classify project-based learning, according to Bell, as a fully modified curriculum for Arizona's gifted students, not a supplemental curriculum. Bell further explains that many of the projects in project-based learning are based in science and evolve from a current social problem that students notice in the world around them (2010). He says that students have a deeper and broader understanding of the topic being studied and they additionally encounter higher-level reading and more motivation to learn. In Bell's words, "PBL is a key strategy for creating independent thinkers and learners. Children solve real-world problems by designing their own inquiries, planning their learning, organizing their research, and implementing a multitude of learning strategies. Students flourish under this child driven, motivating approach to learning and gain valuable skills that will build a strong foundation for their future in our global economy" (2010, p. 39).

Interestingly, just as with enrichment clusters, teachers' beliefs are affected by project-based learning as well. Levin and Nevo describe the change that ten elementary school teachers underwent in their study of teachers' views on learning, when after three years "in a constructivist-based learning environment dealing with trans-disciplinary themes and concepts presented through class discussions and project based learning, teachers' educational beliefs have changed quite substantially" (2009, p. 458). He

explains that in his study he found that before engaging in this type of curriculum, teachers held behaviorist and functionalist, transmission-based views of teaching. Further they thought of learning as a passive activity that was teacher-controlled. However, by the end of the three years working in a project-based educational environment, the teachers' " views also supported a constructivist orientation, although most of the teachers continued to express both behaviorists and constructivist perspectives. This constructivist orientation sees learning and teaching as the active construction of meaning on the personal and social levels, and as involving self-regulation, personal responsibility, individual strategies, dialogue, and critical reflection" (2009, p. 458).

Meeting state requirements. Thus, project-based learning, like enrichment clusters, emphasizes application, analysis, evaluation, and creativity, the higher order thinking skills, which are necessary to meet the educational requirements of a modified curriculum and differentiated instruction for Arizona's gifted students. Additionally, project-based learning focuses on authenticity (or working on problems that are non-hypothetical, usually originate in the world outside of the school environment, and have real world application), and choice in the curriculum, both of which contribute to a modified curriculum. Having choices embraces the component of being student-driven. Again, as in enrichment clusters, both authenticity and choice contribute to meet the educational requirements of Arizona's gifted students. The 21st century skills of critical thinking, problem solving, innovation, and collaboration are all components of project-based learning as well, which further contributes to meeting the educational requirements of a modified curriculum and differentiated instruction of gifted students in Arizona. Finally, project-based learning differentiates in content, process, product, assessment, and

environment, yet another requirement for modified curriculum and differentiated instruction in the Arizona Revised Statutes for the education of its gifted learners (2007).

A similar alternative curriculum is problem-based learning. Just as with enrichment clusters and project-based learning, problem-based learning is based in the constructivist approach to learning, and it also embraces most of the major characteristics, traits, and criteria needed to meet the educational requirements of Arizona's gifted students, as outlined in the statutes (2007).

Problem-based learning. Like project-based learning, problem-based learning involves students working to solve a problem, but the biggest difference, according to Stanley "lies in where students solve. Here, they can choose the methods by which they arrive at the solution but generally, the problem is prescribed for them" (2012, p. 3). Stanley further explains the difference as "project-based learning begins with the solution, and problem-based learning begins with the problem" (2012, p. 3). VanTassel-Baska and Stambaugh explain that problem-based learning is "a curriculum and instructional model that is highly constructivist in design and execution. First used in the medical profession to better socialize doctors to patient real-world concerns, it is now selectively employed in educational settings at elementary and secondary levels with gifted learners" (2006, p. 266).

Description. VanTassel-Baska and Stambaugh list characteristics that would be necessary for a curriculum to be considered a problem-based learning model (2006). These include that students be in charge of their own learning, that the problem be ambiguous, incomplete, authentic, and engaging to students, and that the teacher is a

facilitator, coach, or guide who scaffolds learning, asks questions, and provides resources (2006).

Further, the students follow a series of steps to plan their attack such as, identifying what they already know, what they need to know and prioritizing what they need to know, and how they will find out what they need to know, creating their own assignments, developing timelines, and executing plans (VanTassel-Baska and Stambaugh, 2006). Sousa explains problem-based learning as putting learners "in the position of trying to solve a multifaceted problem of significant complexity. The problem resembles a real-life situation in that the students lack some of the information they need to solve the problem or are not clear on the steps they will need to take. The students critically analyze the problem from different points of view, look for alternative solutions, select a solution, and develop a plan of action for its implementation" (2003, p. 77). Hmelo-Silver explains that "although the roots of PBL (problem-based learning) go back to Kilpatrick (1918) and Dewey (1938), PBL has the advantage of suggesting a method to promote active and reflective knowledge-building-for-action" (2004, p. 261).

Problem-based learning clearly utilizes the higher order cognitive skills of creativity, evaluation, analysis, and application as students move through the steps to solve the presented problem. Students make many choices also as they work on the real-world, authentic problems, and often have the opportunity to present their solution to adult stake-holders or experts. Holt and Willard-Holt point out that students are intrinsically motivated to work on these problems because of the problems' authentic nature (2000). Students want to be a part of something that matters and something that goes beyond their schoolhouse walls.

Students also utilize the 21st century skills of critical thinking, creative thinking, innovation, authentic problem solving, and collaboration as they often work in small groups on the problems presented to them. This curriculum might be differentiated in content, product, environment, and assessment, but is definitely differentiated in process. Sousa states that, "The open-ended nature of problem-based learning allows for considerable differentiation of curriculum and instruction" (2003, p. 77). VanTassel-Baska describes problem-based learning by explaining that it asks the learner to grapple with real-world problems, inquire and research about the nature of the problem, and collect relevant data (2005). She points out that problem-based learning "also requires the use of flexible team grouping and whole class discussion. Problem resolution requires student-initiated projects and presentations" (2005, p. 95).

According to VanTassel-Baska, teachers based their opinions of a new strategy or model on reactions by their students (2003b). If students' reactions are positive, the teachers' opinions of the strategy is more likely to be positive as well and teachers are more likely to use the strategy or model. "Results from teacher implementation data in science, for example, consistently showed that teacher enthusiasm for problem-based learning increased as they saw their students' motivation increase with use of the pedagogy" (VanTassel-Baska, 2003b, p. 366). She also states that problem-based learning, "because of the sheer demands of working on ill-structured problems, poses a particularly appropriate instructional approach for gifted program use" (2003a, p. 3).

Another description of problem-based learning comes from Hmelo-Silver who states that problem solving is where learning is situated in this technique, and that it gives students the opportunities to "consider how the facts they acquire relate to a specific

problem at hand. It obliges them to ask what they need to know. PBL offers the potential to help students become reflective and flexible thinkers who can use knowledge to take action" (2004, p. 261).

Meeting state requirements. Problem-based learning, like project-based learning and enrichment clusters, allows for differentiation of the standard curriculum in ways that would meet the educational requirements of Arizona's gifted students. It allows for the content, process, product, assessment, and environment to be different from what would be taught and how it would be taught in a general education classroom. Problem-based learning also includes student choice. It is student-centered and student-driven since students are the ones grappling with the meaning in this constructivist approach, and teachers are the facilitators of that struggle. It is authentic learning as students are given problems to solve that are from the context of the real world and are relevant, not hypothetical or theoretical in nature. Problem-based learning also involves most of the 21st century skills of critical thinking, creative thinking, innovation, and collaboration since most problems are presented to small groups to solve. It would be an ideal curriculum to meet the requirements of Arizona's gifted students, according to the State of Arizona's statutes (2007).

Other alternative curriculum. There are other curriculum models that might be considered alternative or modified curriculum for gifted learners because of the inclusion of higher order thinking skills, authenticity, a student-driven component, inclusion of 21st century skills, and because they allow for differentiation of content, process, product, assessment, or environment. However, enrichment clusters, project-based learning, and problem-based learning are excellent representative examples of the kind of curriculum

for Arizona's gifted students because they match the requirements of the state's statutes (2007). All three are also examples of a constructivist approach. These three exemplify the characteristics, traits, and criteria needed to be a modified curriculum and differentiated instruction for gifted learners in Arizona. However, two other models in particular, also based in constructivism, are very similar to these three, inquiry-based learning and discovery-based learning. Therefore, a brief description of each will be included.

Inquiry-based learning. Like SEM's enrichment clusters, project-based learning, and problem-based learning, inquiry-based learning involves a great deal of student choice. Stanley claims that inquiry-based learning "is so open that there is usually no prescribed target toward which students are heading. They are simply letting their curiosity drive their learning and going wherever it takes them. This fosters a lot of creativity and higher level thinking, because students are not simply following a marked path—they are exploring and learning for themselves" (2012, p. 3). Johnson points out that inquiry-based learning is a discovery approach that requires a teacher to nudge students toward results, solutions, or discoveries rather than telling them about a topic (2003). These results, solutions, or discoveries become the students' products, but the processes are the main emphasis in inquiry-based learning. Also, students are required to engage in individual and small group problem solving and projects as well as be self-paced during inquiry-based learning. Inquiry-based learning is based in the constructivist approach that would be a modified curriculum and differentiated instruction that meets the requirements of the Arizona Revised Statutes for its gifted population (2007).

Discovery-based learning. Discovery-based learning is also based in a constructivist approach like enrichment clusters, project-based learning, problem-based learning, and inquiry-based learning. There is a strong element in discovery-based learning to be student-driven because the student must discovery the concepts and make the conceptual connections with the content without the teacher taking the student through the process step by step. Warner believes that unless more discovery-based learning is utilized in the K-12 realm, students will not be prepared to succeed in the science education system at the college level (2004). He feels that because they have been using the lower levels of Bloom's taxonomy such as memorization, students may not be prepared to embark on college level science education which requires advanced scientific reasoning for conceptual understanding (2004). Discovery-based learning develops the needed critical thinking as well as concentrates on the higher levels of Bloom's cognitive skills. It too would be a modified curriculum and differentiated instruction that meets the requirements of the Arizona Revised Statutes for gifted students (2007).

Constructivism. All three of the alternative curriculum models described in the preceding sections, SEM's enrichment clusters, project-based learning, and problem-based learning, are appropriate for Arizona's gifted learners because they comply with the statutes. All three require development and utilization of the higher order cognitive skills. All three incorporate some form of authenticity (or non theoretical or non-hypothetical problem solving found generally outside the realms of the schoolhouse). All three are student-driven, and allow for student-choice. All three involve interdisciplinary study to some degree. All three include many, if not all, of the 21st century skills. All

three differentiate the general education curriculum in at least one area of content, process, product, assessment, or environment. Therefore, any of the three would meet the requirements of the State of Arizona statutes for its gifted students. Additionally, all three are examples of constructivism, a cognitive psychological theory or epistemology of learning. A closer look at what constructivism entails is needed.

Problem solving is at the center of the constructivist approach to learning, thinking, and development. People form or construct a deep understanding of a concept through solving a problem and contemplating the consequences of their action by reflection. According to Halpren, Donaghey, Lamon, and Brewer "People only deeply understand what they have constructed" (2002, p. 1464). Three giants in the field of education contributed to the constructivist approach, Piaget, Vygotsky, and Dewey. "Piaget contributed the idea of transformation in learning and development; Vygotsky contributed the idea that learning and development were integrally tied to communicative interactions with others; and Dewey contributed the idea that schools had to bring real world problems into the school curriculum" (Halpren, Donaghey, Lamon, and Brewer, 2002, p. 1464). Hoy would also include influences on constructivism by the Gestalt psychologists, Fredric Bartlett, and Jerome Bruner (2002).

One of the beliefs that constructivists hold is that prior knowledge impacts the learning process. It is prior knowledge, or a learner's mental framework, that a learner acts on, or constructs from, or builds onto with new information for meaningful learning to occur. Another constructivist belief is that learners need authentic or real world problems to act on or they may not fully engage in constructing meaning (Halpren, Donaghey, Lamon, and Brewer, 2002). Yet another belief held by constructivists is that

"negotiation can also occur between individuals in a classroom. This process involves discussion and attentive listening, making sense of the points of views of others, and comparing personal meanings to the theories of peers. Justifying one position over another and selecting theories that are more viable leads to a better theory" (Halpren, Donaghey, Lamon, and Brewer, 2002, p. 1465). Hoy lists the following as recommendations for constructivist approaches, "(1) Complex, challenging learning environments and authentic tasks, (2) Social negotiation and shared responsibility as a part of learning, (3) Multiple representations of content, (4) Understanding that knowledge is constructed, (5) Student-centered instruction" (2002, p. 679).

In curriculum based on constructivism, what a student knows, what the student is confused by, puzzled by, or wants to know, and what the teacher's learning goals are, all guide the learning. Also, according to Halpren, Donaghey, Lamon, and Brewer, in classrooms utilizing the constructivist approach, "curriculum is generally a process of digging deeper and deeper into big ideas, rather than presenting a breadth of coverage" (2002, p. 1465), The role of the teacher also changes in a classroom utilizing a constructivist approach to learning. The teacher is not lecturing to the students, but acts as a model learner, organizes information around big ideas that capture students' interests, and guides students "into adopting cognitive strategies such as self testing, articulating understanding, asking probing questions, and reflection" (Halpren, Donaghey, Lamon, and Brewer, 2002, p. 1465). Further, the kinds of activities engaged in by students in a classroom using a constructivist approach "are student-centered, and students are encouraged to ask their own questions, carry out their own experiments, make their own analogies, and come to their own conclusions" (Halpren, Donaghey, Lamon, and Brewer,

2002, p. 1465). According to Hoy, the constructivist approach is currently spreading to classrooms worldwide (2002). She sees the constructivist approach in science, mathematics, educational psychology, anthropology, and computer-based education (2002).

All three curriculum models described above, enrichment clusters, project-based learning, and problem-based learning, are based in constructivism, a cognitive psychological theory of learning, and all three exhibit the characteristics, traits, and criteria that would be appropriate to develop the potentials and abilities of Arizona's gifted and talented youth, according to the Arizona Revised Statutes (2007). All three meet the rigorous requirements outlined in these statutes for the education of Arizona's gifted learners. However, do the Arizona College and Career Ready Standards, support the use of any of these curriculum models with gifted learners, as perceived by gifted education teachers? A closer look at the AZCCRS, and how its elements compare with the major components of these curriculum models is necessary.

Arizona College and Career Ready Standards. The three modified or alternate curriculums that are based in a constructivist approach that were examined in detail above would all meet the unique academic and intellectual needs of gifted learners, according to the statutes of the State of Arizona (2007). They all rely heavily on the use of the higher order thinking skills of application, analysis, evaluation, and creativity. They are student-driven and include authentic problems, assessment, or execution. They all have some form of interdisciplinary study embedded in them. Enrichment clusters, project-based learning, and problem-based learning all may be differentiated from the general education curriculum in content, process, product, assessment, and environment,

and all include most of the 21st century skills as well. They are all exemplary curriculum and instruction used with gifted students. However, do the AZCCRS support the use of any of these exemplary curriculum models, according to gifted specialists, when attempting to meet the needs of Arizona's gifted learners? Can the use of modified curriculum and differentiated instruction based in the constructivist approach be justified as not only curriculum and instruction that meets the requirements of gifted students according to the Arizona State statutes regarding gifted students' education, but because they are supported by the AZCCRS as well, as perceived by the gifted education specialists? How do Arizona gifted education specialist teachers negotiate, interpret, and implement the AZCCRS as well as meet the state requirements for their gifted students? What is the relationship between the AZCCRS and the requirements for educating Arizona's gifted students in their perceptions?

Two of the five big ideas. McTighe and Wiggins (2012) have explored five big ideas about the Common Core State Standards (CCSS) and their translation into curriculum. These big ideas can be applied to the AZCCRS as well. These ideas include that the AZCCRS need to be read carefully by educators to avoid retrofitting them into the previous system and standards. Their second idea is a reminder that standards, including the AZCCRS, are neither curriculum nor teaching methods, yet a relationship needs to be developed between the AZCCRS and the chosen curriculum. This is an important part of what the gifted education specialist teachers are asked to do when implementing a curriculum that meets the requirements of the Arizona Revised Statutes for Arizona's gifted students while simultaneously implementing the AZCCRS. This

study is about the relationship these teachers develop between the AZCCRS and a gifted curriculum that meets the requirements as outlined by these statutes (2007).

McTighe and Wiggins emphasize this need for developing a relationship between curriculum models or instructional methods and standards because only the marriage of the two will produce optimal learning experiences needed for success past high school (2012). They claim the standards focus on this relationship by pointing out that the English Language Arts (ELA) standards include anchor standards, which are the most complex ability and performance standards and the exact ones that students need in order to be ready for college, career, and life. Likewise, the mathematical standards emphasize, according to McTighe and Wiggins "the need to weave the Content and Practice Standards together in a curriculum" (2012, p.4). Besides the more discrete content standards in mathematics, there are eight practice standards in the AZCCRS that cross all grade bands of kindergarten through high school, and are larger, broader, or more overarching goals than the content standards (McTighe and Wiggins, 2012).

NAGC's position paper. The National Association for Gifted Children (NAGC) has posted a position paper on its website addressing the most asked questions about the marriage between the CCSS and gifted education. According to the NAGC's position paper (2008a), aligning the CCSS with gifted education programming standards can be achieved in three major strategies. Using any one or even all three strategies will result in developing a relationship between the CCSS and modified curriculum and differentiated methods for gifted learners. These strategies can also be applied to the AZCCRS. The first is to provide pathways to accelerate the CCSS for gifted learners. Because some of the CCSS already address higher-order thinking skills, such as the standards concerning

pattern and problem solving in mathematics, they should be the focus for gifted education. Additionally, NAGC recommends that some of the more discrete skills embedded in standards should be "clustered across grade levels and compressed around higher-level skills and concepts for more efficient mastery by gifted students" (2008a, p. 1). In other words, these standards should be packed together more closely so the curriculum can be accelerated for gifted children.

The second strategy to align the standards with gifted education, according to the NAGC is to provide examples of differentiated task demands to address specific standards (2008a). A comparison between what a typical learner at a grade level can accomplish in regards to a standard and what a gifted learner at the same grade level can accomplish should be made, then the curriculum is differentiated to accommodate what more the gifted learner can do. The differentiated curriculum should be more complex, more creative, and use a more advanced curriculum base for the gifted learner (NAGC, 2008a). For example, NAGC recommends that the discrete standard in mathematics concerning interpreting data with a graph for the typical learner might be expanded to include real world data and multiple data sets to not only interpret the data with graphs but to demonstrate trends in data over time for the gifted learner (2008a).

The third strategy mentioned by the NAGC to align standards with gifted education programming standards is to create interdisciplinary product demands to elevate learning for gifted students and to efficiently address multiple standards at once (2008a). In the position paper, NAGC recommends that, "since English Language Arts and Mathematics standards can be grouped together in application, much of the project work that gifted educators might already use could be revised to connect to the new

CCSS and show how multiple standards could be addressed across content areas" (2008a, p. 2). The example is given of a research project that is designed to address the English Language Arts standards concerning research and the data representation standards in mathematics by requiring that the research product be on an issue with researchable questions that would require multiple sources to answer them, represent the answers in tables, graphs, and other mathematically visual displays, present it to an audience, and even include a plan of action as part of the final product. This type of product might be possible for gifted learners to accomplish in earlier grades than typical learners (2008a).

All three of these strategies recommended in the NAGC's position paper would demonstrate the development of a relationship, or McTighe's and Wiggins' second big idea, between the AZCCRS and a modified curriculum and differentiated instruction that would also satisfy the requirements of the Arizona Revised Statutes that concern gifted education and gifted students. However, in another NAGC position paper addressing the common core's next generation of science standards and gifted education curriculum and pedagogy, it warns, "the message that high-level learning experiences are important for all must be coupled with a recognition that even with increased rigor and higher standards, some students will still require experiences beyond what the standards specify to show ongoing learning growth" (2014, p. 1).

Three of the five big ideas. The third big idea from McTighe and Wiggins is for educators to unpack each standard in the CCSS into four broad categories: "1) Long term Transfer Goals, 2) Overarching Understandings, 3) Overarching Essential Questions, and 4) a set of recurring Cornerstone Tasks" (2012, p. 4). In this study, the gifted specialist teachers unpacked mathematical standards from the AZCCRS, beginning with the eight

practice standards and then unpacked a sample of the content standards. They used the unpacking model described by McTighe and Wiggins (2010). These four categories used to unpack standards are each explained further by McTighe and Wiggins.

The transfer category are the parts of standards that, when achieved, allow students to use content understanding, knowledge, and skills in long-term situations when confronted with novel challenges both inside and outside the realms of school. An example of this kind of standard from mathematics would be "students will be able to use the mathematics they know to solve 'messy,' never-seen-before problems using effective mathematical reasoning" (McTighe and Wiggins, 2012, p. 4).

The second category, overarching understandings, and the third category, overarching essential questions, actually go together in the unpacking process. Any overarching understandings embedded in a standard would explain the skills needed to transfer the learning to novel situations. Any overarching essential questions associated with the standard would engage the learners in making meaning and deepening their understandings. These, of course, are also goals of curriculum and instruction that is based in a constructivist approach to learning. McTighe and Wiggins give examples of overarching understandings and overarching essential questions when unpacking mathematical practice standard #4 Model with mathematics. Some overarching understandings might be "Mathematicians create models to interpret and predict the behavior of real world phenomena" and "Mathematical models have limits and sometimes they distort or misrepresent" (2012, p. 5). The overarching essential questions include, "How can we best model this (real world phenomena)?", "What are the limits of this model?", and "How reliable are its predictions?" (2012, p. 5).

The fourth category suggested by McTighe and Wiggins to be used when unpacking curriculum is cornerstone tasks, which should occur across grade bands, from simple to more complex, and from a need for heavy scaffolding to complete learner autonomy. These would be tasks, embedded within the curriculum, that are the most important demonstrations by learners that they can apply the knowledge and skills acquired to "authentic and relevant context" (McTighe and Wiggins, 2012, p. 5). Since these tasks are meant to be set in realistic contexts, 21st century skills such as collaboration, use of technology, creativity, innovation, etc. should easily be integrated. Further, McTighe and Wiggins explain these rich cornerstone tasks can be used as formative and summative assessments and that they "honor the intent of the Standards, within and across subject areas, instead of emphasizing only the content measured more narrowly on external accountability tests" (2012, p. 5).

Cornerstone tasks parallel the modified curriculum and differentiated instruction outlined previously (SEM's enrichment clusters, project-based learning, and problem-based learning) because of the reliance on a realistic, authentic, relevant context, and most importantly, the autonomous use of applying acquired knowledge and skills. Likewise, these cornerstone tasks are the type of product demands that address multiple standards at once that is described in the third strategy of NAGC's position paper on questions about the CCSS and gifted education (2008a). This fourth category of McTighe's and Wiggins' model for unpacking standards may prove to be the most fruitful for gifted specialist teachers in Arizona who are negotiating the standards while simultaneously implementing curriculum and instruction that meets the requirements for gifted students as outlined in the Arizona State Statutes (2007).

McTighe and Wiggins do offer a caution about unpacking standards at levels below the state, region, or district due to the possibility of ending up with simply a long list of discrete skills that are too easily left fragmented by the educator in the classroom (2012). The unpacking is meant to assist in not only creating curriculum maps and blueprints that cluster standards into rich classroom experiences and cornerstone tasks that truly highlight what the learners can do, apply, and synthesize, but to demonstrate the underlying foundation of the various standards toward the intended goal of self-directed learners who are ready for successful endeavors because they transfer their learning outside the realms of elementary and secondary schools (McTighe and Wiggins, 2012).

The fourth big idea from McTighe and Wiggins concerns a coherent curriculum that can be achieved only if it is mapped backwards from the desired performance. This idea is connected to their earlier caution about not unpacking the standards to the discrete and fragmented level without ever putting them back together again when designing methods, strategies, techniques, activities, experiences, and lessons. They make it clear that "curriculum should be framed and developed in terms of worthy *outputs*; i.e., desired performances by the learner, not simply as a listing of content *inputs*" (2010, p. 7). The key idea with a backwards design of a coherent curriculum is that, again, the end result will be self-directed learners who successfully transfer their learning outside the realms of elementary and secondary schools. McTighe and Wiggins explain their term transfer as, being all "about intelligently and effectively drawing from your repertoire, independently, to handle new situations on your own. Accordingly, we should see an increase, by design, in problem- and project-based learning, small-group inquiries, Socratic Seminars, and independent studies as learners progress through the curriculum

across the grades" (2010, p. 9). This big idea exactly parallels what gifted specialist teachers do by implementing curriculum such as SEM's enrichment clusters, project-based learning, and problem-based learning which additionally are modified curriculum and differentiated instruction that meets the requirements set forth in Arizona's State Statutes (2007).

McTighe's and Wiggins' last big idea concerns assessments of the standards. They believe that the CCSS come alive through proper assessments. They claim that the standards are not only the learning goals to be achieved, but that these standards refer also to the desired level of quality and degree of rigor to be achieved, and assessed. They suggest that the cornerstone tasks can be used as summative and formative assessments (McTighe and Wiggins, 2010). With these five big ideas in mind, examining exactly what the AZCCRS address in at least one of the two major divisions, mathematics, is necessary.

Mathematics division. To begin this examination, it must be pointed out the first major difference between the AZCCRS for Mathematics and previous standards is that the AZCCRS are more focused and coherent. The AZCCRS stress conceptual understanding of key mathematical structures and ideas, and reiterate organizing principles throughout the grade levels. Further, in order to develop the coherence sought in the AZCCRS, the authors "began with research-based learning progressions detailing what is known today about how students' mathematical knowledge, skill, and understanding develop over time" (McTighe and Willins, 2010, p.4). One of the outcomes of the AZCCRS for Mathematics is for learners to be able to explain and justify why a mathematical statement is true, or where a mathematical rule comes from,

according to the maturity of the learners. Therefore, McTighe and Wiggins explain that the authors of the standards do set specific grade-level standards, but admit that the standards, "do not define the intervention methods or materials necessary to support students who are well below or well above grade-level expectations" (2010, p. 4). Further, the McTighe and Wiggins state that "the Standards should be read as allowing for the widest possible range of students to participate fully from the outset, along with appropriate accommodations to ensure maximum participaton (*sic*) of students with special education needs," all the while acknowledging that, "no set of grade-specific standards can fully reflect the great variety in abilities, needs, learning rates, and achievement levels of students in any given classroom" (2010, p. 4). Flexibility while negotiating the AZCCRS is necessary for all teachers then, but especially teachers of students with special needs such as students of gifted specialist teachers.

Arizona's gifted students would fall into the category of students with special education needs, since there are separate and explicit statutes passed by Arizona's 47th legislature that outline how their special educational needs should be met (2007). Also, Arizona's mathematically gifted students would, in most cases, be the same students that are well above grade-level expectations in math. Therefore, special accommodations will have to be enlisted for Arizona's mathematically gifted learners. Arizona's gifted specialist teachers will have to negotiate the AZCCRS in mathematics differently, according to NAGC's position paper, McTighe and Wiggins, and the State of Arizona statutes, when developing and implementing curriculum in mathematics. To what extent do the AZCCRS support these accommodations to the general education curriculum and instruction in mathematics in order to meet the requirements of the Arizona statutes

concerning gifted students and gifted education, the recommendations of the NAGC through the NAGC position paper, and McTighe and Wiggins recommendations?

Content and practice standards. The AZCCRS for Mathematics are divided into content standards and practice standards. The grade-level specific standards are the content standards. The eight practice standards are intended to be standards repeatedly practiced and focused on with increasingly more depth from kindergarten through high school mathematics. The AZCCRS for Mathematics' eight practice standards include: 1) Make sense of problems and persevere in solving them, 2) Reason abstractly and quantitatively, 3) Construct viable arguments and critique the reasoning of others, 4) Model with mathematics, 5) Use appropriate tools strategically, 6) Attend to precision, 7) Look for and make use of structure, and 8) Look for and express regularity in repeated reasoning. There are more defining descriptions for each of the eight standards. These descriptions were discussed among gifted specialist teachers in order to determine to what extent these standards are a match or a mismatch to the Arizona State Statutes concerning the education of gifted students as well as to what extent these practice standards support curriculum and instruction that meets the requirements of the state's statutes. Unwrapping these eight practice standards during the discussion was aided by using McTighe's and Wiggins' unwrapping model consisting of the four categories previously delineated: long term transfer goals, overarching understandings, overarching essential questions, and a set of recurring cornerstone tasks (2010).

Influence of program model. Unwrapping and implementing any of the AZCCRS will also be influenced by the program model being used by gifted education specialist teachers. Even though the Arizona Revised Statutes outline many aspects of the

education of its gifted population, the type of program model is never mentioned (2007). Districts must report the program model being used in the submitted scope and sequence, but there are no requirements to choose any one type of program model (2007). Some of the possible program models include variations of heterogeneous settings, cluster grouping models, a variety of pullout models, and various degrees of replacement models up to a full self-contained gifted classroom. Each of these models presents different challenges for unwrapping and implementing the AZCCRS while still meeting the requirements of the state's statutes.

The gifted education specialist teachers who unwrapped the AZCCRS for this study use a once per week pullout model that is unique in that the pullout is a double pullout. Students identified as gifted are first pulled out of their general education classes as a whole group, no matter the area(s) of identification. Then, a separate pullout meets once per week with only students identified in one of the three state mandated areas (verbal, quantitative, and nonverbal/spatial) in attendance. The NAGC position paper makes direct recommendations for each possible program model, including the pullout model, and states that "teachers who serve gifted students in pull-out models, where gifted students spend a portion of their school day (or week) in a setting other than their general education classroom, are encouraged to consider how their infusion of literacy and numeracy address the CCSS and how the experiences offered in the pull-out setting offer advanced learning experiences beyond those that would be provided in the general education classroom" (2008a, p.2) This encouragement is no different for gifted education specialist teachers utilizing pullout models in the past with previous standards, except that the focus, coherence, and rigor of the AZCCRS have changed. So too, then,

there must be a change in the focus, coherence, and rigor of the modified curriculum and differentiated instruction offered in pullout models for gifted students in Arizona.

Grade level specific standards. To make this change, grade-level specific standards must be examined by gifted specialist teachers. For example, the third grade standards include the domains of: operations and algebraic thinking, numbers and operations in base ten, number and operations—fractions, measurement and data, and geometry. Within the domain of operations and algebraic thinking, the content standards include: represent and solve problems involving multiplication and division, understand properties of multiplication and the relationship between multiplication and division, multiply and divide within 100, solve problems involving the four operations, and identify and explain patterns in arithmetic. Focusing on just one standard, represent and solve problems involving multiplication and division, there are four parts that delineate it. One of these includes: determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 multiplied by ? = 48, 5 = ? divided by 3, and 6 multiplied by 6 = ? Each standard within the domain of operations and algebraic thinking is thus delineated as are all other domains within the third grade level of mathematics.

One of these standards and all of its underlying delineations was unwrapped using McTigh's and Wiggins' model (2010). The gifted educators in this study were asked to do this unwrapping in order to determine to what extent the AZCCRS for Mathematics content standards support, match, or mismatch modified curriculum and differentiated instruction that meets the requirements for Arizona's State Statutes pertaining to the

education of its gifted population, in their perceptions.

A final note on the Arizona College and Career Ready Standards is that according to McTighe's and Wiggins' interpretation, the authors of AZCCRS understood that these standards needed to be a document with the ability to grow and adapt as research develops understanding of learning more (2010). The AZCCRS needed to be a living document. McTighe and Wiggins stated that, "one promise of common state standards is that over time they will allow research on learning progressions to inform and improve the design of standards to a much greater extent than is possible today. Learning opportunities will continue to vary across schools and school systems, and educators should make every effort to meet the needs of individual students based on their current understanding" (2010, p. 5). These statements give Arizona's gifted education specialist teachers some room to negotiate the AZCCRS while still staying true to their intent and meeting the requirements of the state's statutes in regards to gifted students and gifted education. However, just how they negotiate the AZCCRS for gifted students remains a pertinent question as well as to what extent, according to the gifted education specialists' perceptions, do the current, unrevised AZCCRS support the type of modified curriculum and differentiated methods required by Arizona's state statutes for its gifted population.

Conclusion

To summarize what has been examined in the literature section of this study requires reiteration of six main areas: definitions and parameters of giftedness, gifted students, and gifted education; Arizona state's requirements for the education of its gifted students as outlined in the 47th Legislature's Revised Statutes of 2007; the curricular needs of gifted students; examples of three constructivist approaches to modified

curriculum models that both meet the curricular needs of gifted students as well as the state of Arizona's requirements; an overview of constructivism or the constructivist approach to learning; an overview of the Arizona College and Career Ready Standards. Each of these areas was examined with the main research questions of this study at the forefront: to what extent do the AZCCRS support modified curriculum and differentiated instruction commensurate with the abilities and potentials of identified gifted students in the state of Arizona, according to the perceptions of gifted education specialist teachers; what is the relationship between the AZCCRS and curriculum and instruction that has been modified and differentiated to satisfy the requirements of Arizona's statutes regarding its gifted population, according to the perceptions of gifted education specialist teachers; how exactly do gifted education specialist teachers negotiate the AZCCRS while also meeting the requirements of Arizona's statutes concerning gifted students and gifted education?

The definitions and parameters of gifted education, gifted students, and gifted education are varied, but each state defines these terms and sets the parameters independently for its own gifted student population. International scholars in gifted education are not in agreement as to the definitions, nor the parameters, so these remain central issues in the field. Other issues related to these include systems of identification for giftedness, needs of society to understand giftedness through either neurophysiological or metacomponential means or a combination of both, and the distinctions among gifts, talents, abilities, and potentials. The definitions and parameters have not calcified in the field of gifted education. The State of Arizona, nonetheless, has

defined gifted pupils and gifted education as well as set parameters for gifted education and its gifted population.

These parameters in Arizona were set by the 47th Legislature in 2007 with the Arizona Revised Statutes. Embedded within these statutes is the identification of gifted pupils using test technology. The modified curriculum and differentiated instruction plan must be submitted to and approved by the State of Arizona's School Board through a document entitled the Scope and Sequence Plan for the Education of Gifted Students by each school district in the state, after each district's document has been approved by its own board of education. This plan must include how the modified curriculum differs from general education curriculum, if teachers of gifted students have had additional training in the form of a gifted endorsement, and a gifted program placement plan for the gifted population within that school district, among other parameters.

The curricular needs, as described by the Arizona State Revised Statutes of 2007 were outlined including differentiation of content, product, process, and environment. Assessment is often included in this list as well to be differentiated for gifted students, but Arizona's statutes do not mention assessment as a differentiation category. Development of the higher order thinking skills of application, analysis, evaluation, and creativity as well as creative thinking skills, problem solving skills, and critical thinking skills are among the curricular needs mentioned. Additionally, student interest must be taken into account as well as curriculum that is student-driven, involves student choice, and includes an element of authenticity. Inclusion of the 21st Century Skills is also recommended. These needs all point to a constructivist approach to learning.

Three examples of alternative or modified curriculum models are described: Schoolwide Enrichment Model's enrichment clusters component, project-based learning, and problem-based learning. All three are constructivist approaches. Other alternative curriculum models, that are also constructivist approaches to learning, are briefly touched on in this part of the review of the literature. Constructivism or the constructivist approach to learning, as a cognitive psychological theory or epistemology of learning, is described.

Finally what the Arizona College and Career Ready Standards look like is included. McTigh's and Wiggin's five big ideas to consider when examining AZCCRS is also described and include: The AZCCRS have new emphases and require careful reading; standards are not curriculum; standards need to be "unpacked;" a coherent curriculum is mapped backwards from desired performances; standards come to life through the assessments (2010). Three recommendations from the National Association of Gifted Children (NAGC) are inserted within the description of McTigh's and Wiggin's second big idea, which pertains to the development of a relationship between the AZCCRS and curriculum and instruction to be implemented with gifted students. The third big idea from McTigh and Wiggins is the notion of unpacking a standard to expose the underlying structures and foundations and see recurring themes. Discovering these recurring themes throughout the standards for a grade level as well as among standards for various grade levels allow standards to be clustered and grouped. This would be a very positive and powerful step toward developing curriculum and instruction that is more complex and deeper, a necessity for gifted students.

Cornerstone tasks, McTigh's and Wiggin's fourth big idea, are highlighted due to the possible promise of being a very close match to gifted programming often used by gifted education specialist teachers and a close match to the modified curriculum and differentiated instruction outlined in the Arizona statutes. Accommodations of the AZCCRS for special needs students such as gifted is touched on in the introduction of the AZCCRS and reported in this literature review. An examination of how the AZCCRS are structured into two main areas, English Language Arts and Mathematics, with a tour of the mathematical area is included. Finally, McTighe's and Wiggins' statement that the AZCCRS authors intend the standards to be a living document that can inform and improve as research on learning informs and improves in the future is mentioned, due to the possibility of the still fluid field of gifted education.

The next chapter of this study will explain the methods that were used to gather data to answer the research questions: to what extent do the Arizona College and Career Ready Standards support modified curriculum and differentiated instruction for gifted students which is commensurate with their academic abilities, potential, and intellect, according to the perceptions of gifted education specialist teachers; how do the gifted education specialist teachers, who are charged with meeting the academic and intellectual needs and potential of their gifted pupils, interpret and implement the AZCCRS; what is the relationship between the AZCCRS and curriculum and instruction modified and differentiated for use with gifted students, according to the gifted education specialist teachers.

CHAPTER 3

METHODS

To examine if the AZCCRS are compatible with gifted education in the State of Arizona, a qualitative approach was taken, and various tools for gathering data were used directly with three of Arizona's gifted education specialist teachers. Gifted education teachers or gifted specialists are, according to the State of Arizona, the experts on the needs of gifted students and on the appropriate ways to modify curriculum and differentiate instruction for gifted students (see chapter two "Literature Review"). To acknowledge this expertise, the State of Arizona requires that these educators have a certification endorsement in gifted education if they are the primary educators responsible for programming for gifted students. In this chapter, I describe the context, participants, including the description of the participants' gifted education model and the role of the researcher, data gathering instruments, and procedures for collecting data.

Data about how gifted education specialist teachers from a particular Arizona urban elementary school district negotiate, interpret, and implement the Arizona College and Career Ready Standards, their perceptions about the compatibility between the AZCCRS and the mandated requirements for the education of Arizona's gifted students, and their perceptions about the relationships, if any, between the AZCCRS and gifted curriculum and pedagogy were gathered during a six-month period of the first school year that the AZCCRS were in effect for all K-8 grade levels in this district.

The epistemology or cognitive psychological theory of learning that this investigation took was constructivism. Not only are the alternative curriculum models that were described in chapter 2 "Literature Review" exemplary gifted education

curriculum that all take a constructivist approach, and which the gifted education specialists are very familiar, but constructivism is also the approach I took with the gifted education specialist teachers during this research investigation. They were co-constructing meaning throughout the research study, but especially during the group discussion sessions and interviews. Halpren, Donaghey, Lamon, and Brewer state that, "People only deeply understand what they have constructed" (2002, p. 1464). That is exactly what the gifted education specialists in this study were asked to do, deeply understand the connections and relationships between the AZCCRS and gifted pedagogy through co-construction of meaning. They constructed what the AZCCRS means to their curriculum and practices in gifted education together.

Constructivists hold that prior knowledge impacts the learning process, learners need to engage in real world problems to construct meaning, and that when co-constructing meaning a richer yield can result when members must negotiate and justify their positions while simultaneously selecting viable theories (Halpren, Donaghey, Lamon, and Brewer, 2002). The gifted education specialists had some prior knowledge of the AZCCRS and prior knowledge of gifted curriculum and pedagogy. They additionally engaged in the real world problem of constructing the meaning of the AZCCRS for gifted education. Finally they were co-constructing the meaning of what the AZCCRS means to their practice, especially during the three group discussion sessions.

Within the framework of constructivism, I took the approach of phenomenology (Creswell, 2013). The gifted education teachers were asked to make sense of their experiences concerning the AZCCRS and its compatibility with what they are also required to comply with, Arizona State Statutes concerning gifted education. According

to Creswell, "A phenomenology provides a deep understanding of a phenomenon as experienced by several individuals. Knowing some common experiences can be valuable for groups such as therapists, teachers, health personnel, and policymakers" (2013, p. 82).

In order to get at these common experiences and deep understandings of the AZCCRS and gifted education pedagogy, I pre-interviewed the participants and post-interviewed the participants. Between these interviews, they met as a group to discuss the phenomenon in three group discussion sessions. During the sessions they were asked to read the AZCCRS eight mathematical practice standards, an article about how to go from standards to curriculum, and a position paper from the National Association of Gifted Children on the Common Core State Standards and gifted education. They discussed what they learned from the readings together and how the information affected their practices. They also discussed the three research questions of this study. Additionally they were asked to brainstorm a list of strategies to include any of the eight mathematical practice standards in the mathematical curriculum they were already implementing, then try one of the strategies and report back to the group. They also were asked to unpack a mathematical content standard together and discuss what they learned from this activity as it pertains to their gifted education practices. After each of the three group discussion sessions and after trying the strategy in their math classes, they were asked to reflect and write about the experience in a personal journal. What follows is a more detailed description of the methods I used to record the phenomenon the participants experienced during this study as they co-constructed meaning of the AZCCRS for gifted education curriculum and pedagogy.

Context of Study

This study took place in the Kennedy Elementary School District (KESD), an urban elementary school district in the State of Arizona in the United States. KESD has twenty schools serving approximately 12,000 students in grades pre-kindergarten to eighth grade. There is a large research university, as well as a Native American town within the district's boundaries, which provides a rich diversity of students (*e.g.* socioeconomic, cultural, linguistic). The district receives Title 1 funding due to the high numbers of students who qualify for free or reduced meal programs.

KESD has an extensive gifted education program that uses a pullout service model (*i.e.* enrichment) to service gifted students, rather than an acceleration model. This means that students receive a substantively different curriculum than their general education peers, instead of moving though the general education curriculum at an accelerated pace. Students are grouped together according to their domain of giftedness (*e.g.* verbal, quantitative, or nonverbal/spatial). They are placed in general education classes and receive support with a gifted specialist for a minimum of two hours per week to enrich and extend the curriculum.

Approximately 1,000 students (8% of the total population) in KESD have been formally identified as gifted in at least one domain (*e.g.*, verbal, quantitative, or nonverbal/spatial), using a cognitive abilities test from the state approved list of acceptable tests. Specifically, Kennedy Elementary School District uses the *Cognitive Abilities Test*, the *Naglieri Nonverbal Abilities Test*, and the *Otis Lennon School Ability Test*. Most of the twelve gifted specialists travel between two schools, but four of them serve at only one school and two of them travel among three schools. One school has two

full-time gifted specialists that only work at that school since it has a very high population of gifted students. Approximately 25% of this one school's student population is identified as gifted in kindergarten through fifth grade. It is the school in the district that is situated closest to the major university.

One part of KESD's weekly pullout service model is for just quantitatively gifted K-5th grade students, as opposed to a replacement service model such as a self-contained gifted class, an honors class, a high ability class, or even a model in which students attend a mathematics class intended for higher grade levels (often referred to as walking up to math). During this portion of the gifted model both enrichment and acceleration strategies are utilized. It is beyond the scope of this study to compare the appropriateness or success on any level between enrichment or acceleration strategies, or even a combination of them; however, enrichment strategies require more complex modifications and differentiation.

The enrichment piece of a modified curriculum and differentiated instruction is a necessary element for this study. Enrichment means going deeper and staying longer with a particular concept than what might typically be spent in a general education curriculum. Acceleration does not necessarily go any deeper with a concept, but describes moving faster in some way with a concept. A replacement gifted service model may also modify and differentiate the general curriculum and instruction, but often uses only an acceleration strategy. So, although modified curriculum, differentiated instruction, and even certain service models use acceleration or increasing the pace of the learning approach in some fashion as a strategy for gifted programming, it is the enrichment piece of programming that requires more modification and differentiation and is a more

complex strategy to employ. Therefore, to get the richest yield from the gathered data for this study, a service model such as KESD's pullout model is the preferred choice. It utilizes both enrichment and acceleration as strategies to provide gifted programming.

This district was chosen for this study because its gifted program meets certain requirements. In order to specifically investigate the AZCCRS in the mathematics area for gifted students, this study requires a gifted service model that groups only quantitatively gifted students together. These gifted students need to be at the elementary level (kindergarten to fifth grade), not middle school or high school level, in order to examine enrichment strategies and techniques and not just acceleration which is typically found in the middle school and high school levels. Additionally, this study requires a pullout gifted service model, not a replacement type of model, in order to determine what gifted specialist teachers do that is different, if anything, from what the general education teachers do in regards to the AZCCRS. This district was a purposefully selected site (Creswell, 2013).

Participants

Data was gathered during a six-month period of the first academic year that the AZCCRS were in effect for all K-8 grade levels. Gifted education specialist teachers from an urban elementary school district in Arizona served as participants. I served as a participant observer, working with the teachers to negotiate, interpret, and implement the new standards.

As a matter of courtesy, I asked permission from the gifted program's coordinator to approach the faculty to invite and recruit volunteers to participate in the study from the pool of twelve gifted specialist teachers who teach an exclusively quantitatively focused

class to identified gifted students from kindergarten to fifth grade using an enrichment strategy. All twelve of these specialist teachers hold certificates with gifted endorsements (Tempe Elementary School District, 2013). Before the teachers were approached, however, I obtained approval for the study from the IRB at Arizona State University and the elementary school district to be studied (see Appendices U and V). Whoever volunteered from the pool of gifted education specialist teachers in this district was the sample for this study.

For this research study, all eleven gifted specialist teachers in this district were invited to volunteer and participate during an all-staff gifted department faculty meeting. I am the twelfth gifted specialist teacher in this district. This invitation took place before gathering of any data began. All teachers were given a description of the study, what they would be asked to do for the study, and information about how their identities would be kept confidential in the study. All invited who chose to volunteer were accepted as participants of this study. Three teachers volunteered.

This was a convenient sample of Arizona's gifted specialist teachers (Creswell, 2013). Because this study focused on how the AZCCRS for Mathematics in the kindergarten through fifth grades support modified curriculum and differentiated instruction in the quantitative domain for gifted students, a teaching situation in which only K-5th grade quantitatively gifted students attend was necessary. Also, curriculum and instruction that was modified and differentiated for these K-5th grade quantitatively gifted students from their general education mathematics curriculum and instruction was necessary.

Once the participants volunteered, they were given a detailed description of the study along with an informed consent form to sign and an explanation of how their identities would be kept confidential. Each was assigned a number and a pseudonym. The key to this number/identity/pseudonym was kept in a locked file drawer of the researcher. Only the researcher had access to this key. At all times during the data gathering, analysis of data, and reporting of findings the participants were referred to by their pseudonyms or numbers.

When data gathering tools were distributed to the participants, interviews audio taped, or researcher's notes written, the participants' numbers were used, not their real names, in order to keep the information separated by each participant. This was done for cross-reference purposes of data gathered in different manners and at different times of the study. During any reporting of findings, their numbers were used. In this way, not even the participants themselves know positively who the actual person within the data is, except during the group data gathering situations called group discussion sessions.

Description of gifted education model. Kennedy Elementary School District uses a weekly resource pullout model to provide its gifted services. Each spring the gifted specialists write the upcoming school year's gifted curriculum by deciding on either one or two interdisciplinary themes written as units for the year. Enduring understandings and essential questions are written for the theme or themes and then lessons are devised that list the AZCCRS to be addressed in the lesson, but usually the standards listed are several grade levels above the intended grade bands of kindergarten to second grade, third to fifth grade, and sixth to eighth grade.

All identified gifted students meet weekly with the gifted specialist for at least one hour but often for one and one-half hours, usually within the grade bands of kindergarten to second grades, third to fifth grades, and sixth to eighth grades. These weekly classes are called the integrated classes because the children attending are all integrated, meaning all the areas or domains they qualify in are represented, and the curriculum is integrated since it is based on an interdisciplinary theme. In some cases there are integrated classes made up of just one grade level if there are enough identified students at a particular school to make a dynamic intellectual peer group in that grade level. Also in some cases there are other grade band groupings such as fifth through eighth grades or second and third grades, again depending on the size of the identified gifted population in each grade level at each school.

The gifted class sizes are normally smaller than a general education classroom, and it is written in Kennedy Elementary School District's scope and sequence submitted to and approved by the district's school board and the State of Arizona's school board that gifted class sizes will be less than sixteen students (Tempe Elementary School District, 2013). This, then, is one way the district differentiates the environment, one of the five possible areas of differentiation, (see chapter two "Literature Review") for its gifted population.

Additionally, the gifted specialists meet separately with groups of gifted students who are identified in each of the three areas or domains of verbal, quantitative, and nonverbal (usually referred to as spatial so as not to be confused with the nonverbal stage of English Language Developmental students). Curriculum and instruction are either chosen or written by the gifted specialist teachers that focuses and concentrates on just

these domains in order to strengthen and nurture the talents of students in these domains. These classes are called focus groups. The gifted specialists normally meet for forty-five to sixty minutes with gifted students identified in just one area or domain at a time. Some gifted students are identified in two or even all three of these domains. They attend the number of focus groups that they qualify for, from one to three. Again, the gifted specialists usually group the students by grade bands of kindergarten to second grades, third to fifth grades, and sixth to eighth grades, but depending on the population at each school, the groups can be formed with other configurations as well such as second and third grades or fifth through eighth grades or even just one grade level.

The gifted education department of this school district has over thirty-five years of experience writing and implementing alternative curriculum and instruction (see chapter two "Literature Review") with its gifted population. Over the past three years, they have been asked to also embed the AZCCRS into the curriculum they write and implement with their gifted students.

Role of the researcher. I am a member of the Kennedy Elementary School District's faculty and a member of its gifted education department. This affords me special access to the faculty as a true participant researcher. I have been a gifted education specialist teacher in this district for twenty-six years and an honors teacher in this district for an additional four years, as well as an honors teacher in another district for two years. Additionally, I have taught classes at the self-contained middle school for gifted students in this district for the first semester of its inception. I have had a full gifted endorsement for twenty-five years, and participated in choosing and creating modified curriculum and differentiated instruction for this district's gifted population for twenty-

eight years. Additionally, I have been a teacher for thirty-six years, including working with elementary, middle school, high school, college, and adult students.

Data Gathering Instruments

Several types of data gathering instruments were used for this study, including: (a) interviews, (b) questionnaires, (c) reflective journals, (d) audio tapes and transcriptions from group discussions, and (e) researcher's notes.

Interviews. The main instrument was semi-structured interviews (Corbin and Strauss, 2008). Each participant in the study was interviewed twice during the six months, once at the beginning of the study as a pre-interview and once toward the end of the study as a post interview. This was done to see if any changes occurred during this study's time period.

In order to answer the research question concerning the ways gifted education teachers negotiate the AZCCRS while simultaneously addressing the needs of gifted students, the participants were directly asked how they use the AZCCRS when choosing or creating as well as when implementing curriculum and instruction for their quantitatively gifted students. To answer the research question concerning their perceived relationships, if any, between the AZCCRS and gifted education, the gifted specialists were directly asked what relationships they see between the AZCCRS and the modified curriculum and differentiated instruction they choose and implement with their gifted students. Finally, to answer the research question about the extent, as perceived by the gifted education teachers, that the AZCCRS support exemplary gifted curriculum, best practices for gifted education, and instructional strategies and techniques used with gifted students, the participants were again directly asked to what extent they perceive the

AZCCRS support the curriculum and instruction they utilize with their gifted students. These are the three primary questions of this study. Directly asking the gifted specialists provided data to answer these three questions (see Appendices A and B).

Questionnaires. Prior to either interview, the participants filled out a profile questionnaire, another tool used to gather data (Corbin and Strauss, 2008). The questions on the questionnaire help to identify the participants as educators. Questions such as how many years have you been a gifted specialist and why did you become a gifted specialist teacher allowed me to profile the participants as a group (see Appendix C). This is necessary to know who is answering the primary research questions, and to be sure there is a rounded representation within the group.

These data especially helped to answer the research question concerning the participants' perceptions as to what extent the AZCCRS support exemplary gifted curriculum, best practices for gifted education, and instructional strategies and techniques used with gifted students. Likewise, knowing more about the participants helped answer the research question concerning the relationships, if any, between the AZCCRS and gifted education in their perceptions.

Reflective journals. A personal reflective journal kept by each participant was the third instrument to gather data used in this study (Creswell, 2013). This journal was coded with each participant's number and collected by the researcher twice during the study, at the middle of the study and at the end of the study. Writing prompts were provided to the participants to assist them in recording their reflections in their personal journals (see Appendix J). These writing prompts directed them to the primary research questions of this study. For example, one of the twelve prompts was: How did I

differentiate or modify curriculum and instruction for my gifted learners that made their learning set apart from the standard curriculum and instruction and did it also address a quantitative AZCCRS for Mathematics standard? Which one? Was this by design and if so, how did I negotiate this? Any references about how the participants view the AZCCRS or how they interpret and implement them that are recorded in the personal journals were noted in my field notes during both collections.

The collected and noted data from the personal reflective journals answered all three of the primary research questions of this study because the prompts asked directly about ways the participants perceive the AZCCRS address the needs of gifted students, the relationships, if any, between the AZCCRS and gifted education, and to what extent in their perceptions the AZCCRS support exemplary gifted curriculum, best practices for gifted education, and instructional strategies and techniques used with gifted students. Participants were asked to reflect on these questions and record those reflections in their personal journals.

Additionally, the participants were asked to reflect and record in their journals any specific strategies and techniques discussed during the group discussion sessions that they tried in their classrooms with their quantitatively gifted students. This data was collected to help answer the research question concerning to what extent, in their perceptions, the AZCCRS support exemplary gifted curriculum, best practices for gifted education, and instructional strategies and techniques used with gifted students.

Audiotape recordings and transcriptions of group discussion sessions. A fourth instrument to gather data was three group discussion sessions (Creswell, 2013). Each was at least one hour in length, approximately four weeks apart, and was audio

recorded and later transcribed. There were pre-determined agendas for each session including questions and tasks that the panel of gifted specialist teachers discussed and did as a group in order to collaboratively examine, interpret, and negotiate the Arizona College and Career Ready Standards (see Appendices D, E, and F). Part of the AZCCRS philosophy (see chapter two "Literature Review") includes preparing students for collaborative work in their careers or college. It was appropriate that the teachers who were analyzing the AZCCRS also be given the opportunity to hear and speak to each other on this topic. There is a group dynamic that is realized in collaborative work. This research study includes these insights as they emerged from the group during these group discussion sessions.

The three group discussions were designed to answer the primary questions of this study: how do gifted education specialists interpret, negotiate, and implement the AZCCRS while simultaneously addressing the needs of gifted students according to the statutes of the State of Arizona; what are the relationships, if any, between the AZCCRS and gifted education as perceived by gifted specialists; to what extent do the AZCCRS support exemplary gifted curriculum, best practices for gifted education, and instructional strategies and techniques used with gifted students as perceived by gifted education teachers?

The participants were asked to choose a strategy or technique of addressing a AZCCRS that had been brainstormed during the first session, and actually implement it in their gifted quantitative math groups. They reflected on this in their personal journals as well as reported back at the second group discussion session how the implementation of the strategy or technique went. During the second group discussion session, the

participants unwrapped a specific AZCCRS for Mathematics content standard. The third group discussion session focused on the ramifications of the AZCCRS for gifted education. All three sessions were designed specifically to answer the primary research questions of this study and allow the participants to co-construct meaning of the AZCCRS and gifted education (Creswell, 2013).

Additionally, this particular sample of Arizona's gifted specialist teachers normally collaborate when writing modified curriculum and differentiated instruction to be implemented with their gifted students, and occasionally they even collaborate during the implementation as well. This is a normal working situation for them. Professional rapport has already been built within this group which assists this study in gathering data since building professional rapport, building working relationships, and becoming comfortable working as a collaborative group has already been firmly established and was not needed to be established for this study.

Researcher's journal. The fifth instrument to gather data were notes kept by me. These notes were organized into two large binders with various headings such as personal statements, themes, theories, and memos (Corbin and Strauss, 2008). Additionally, the binders hold the notes taken during interviews, group discussion sessions, reviews of personal journal entries, transcriptions of interviews and group discussion sessions, and analyses of data. The binders also house the research question, the proposal, a blank consent form, literature review, references, data analysis steps, drafts of the study, documents and artifacts collected, and correspondence to me pertaining to this research study.

The data from my researcher's journal help answer the primary research questions of this study because I recorded in the notes any time I heard answers to these questions during the interview sessions, during group discussion sessions, while reading the personal journal entries, and while reviewing the transcripts of the interview sessions and the group discussion sessions. In the following section, I describe how each data instrument was used to collect data.

Data Collection Procedures

There are five data collection tools used in this study. Each tool was chosen because it gathers data that will answer the research questions of: how do gifted specialists interpret, negotiate, and implement the AZCCRS while simultaneously meeting the needs of gifted students as mandated by the State of Arizona; what are the relationships, if any, between the AZCCRS and gifted education as perceived by gifted specialists; to what extent, according to gifted education teachers' perceptions, do the AZCCRS support exemplary gifted curriculum, best practices for gifted education, and instructional strategies and techniques used with gifted students. In this section, how each of the five tools was used to collect data will be described in detail. The five tools will be discussed in this order: pre and post semi-structured interviews responses, questionnaire responses, recordings of group discussion sessions, personal reflective journal entries, and researcher's journal entries.

Interviews. Since the data gathering for this study was conducted over a six-month period when school was in session, two semi-structured interviews of each participant took place, once toward the beginning of that period, and once at the end.

These pre and post semi-structured interviews of each participant were the main tool for gathering data for this study (Corbin and Strauss, 2008).

All interviews were semi-structured in order to be able to probe in a direction that would reveal interpretations of AZCCRS as they possibly emerged during the interviews. Participants were asked questions pertaining to what they know about the AZCCRS, how they use and implement the AZCCRS, what components of the AZCCRS support the curriculum they use with their quantitatively gifted students, and what relationships they see between the AZCCRS and the curriculum they use (see Appendix A for pre-interview protocol). During the pre-interview, participants were asked the primary questions first, and secondary questions were asked only if needed to illicit more data from the participant and if time remained in the half hour scheduled for the interview. The probing questions were designed to elicit full and rich answers and explanations, as well as gather data from the participants that answered the research questions of this study.

The second semi-structured interview was a post interview and included the primary, secondary, and probing questions asked in the pre-interviews, as well as one additional question (see Appendix B for post interview protocol).

All interviews were audio taped, with each interviewee's consent, and labeled only with the participant's number. The tapes were then transcribed by me, to maintain confidentiality, and then erased. A copy of the transcript of each interview was given to each participant for a member check (Saldana, 2012). Each participant was asked to read the transcript of her interview checking for accuracy and intent in meaning as well as accuracy of the transcription.

Questionnaires. In order to be more efficient during the semi-structured interviews and still acquire profile data on the participants to thoroughly describe the sample of participants in the final report, a questionnaire was administered prior to the pre-interview (Corbin and Strauss, 2008). The participants were e-mailed the questionnaire as their first task once they agreed to be a participant in this investigation. They were asked to return the questionnaire either by printing it once filled out and sending it to me in the U.S. mail, returning it through e-mail to me, or returning a printed copy to me at the pre-interview. I print the e-mailed versions and collected these in the notebooks or binders along with my field notes. The participants were given a due date to return the questionnaire before or at the pre-interview. If a participant had not completed the questionnaire before the pre-interview, she was asked to fill it out before the pre-interview began. See Appendix C for the questionnaire.

Audiotape recordings and transcriptions of group discussion sessions. Another tool to gather data was the audio recordings and subsequent transcriptions of three group discussion sessions (Creswell, 2013). All three group discussion sessions included all the participants and me. Additionally, the district's Gifted Education Coordinator, the district's Math Coordinator, and the district's Director of Curriculum and Instruction were invited for clarification purposes to the second group discussion, and all three attended and participated in that group discussion session.

The focus of these sessions was to exchange ideas, strategies, and knowledge about the AZCCRS, specifically to what extent, as perceived by gifted specialists, the AZCCRS support modified curriculum and differentiated instruction implemented with quantitatively gifted learners. The group sessions mirrored the AZCCRS because

constructing viable arguments and critiquing the reasoning of others is one of the eight practice standards of the AZCCRS for Mathematics. Collaboration is also listed as one of the 21st Century skills (see chapter two "Literature Review"). The group dynamics created when like-minded peers discuss a topic is a way to enrich and expand the information gathered about the AZCCRS and to what extent they support modified curriculum and differentiated instruction implemented with quantitatively gifted students by the gifted specialist teachers, in their perceptions. Sharing ideas, thoughts, and viewpoints among the group of gifted specialist teachers about the relationships, if any, between the AZCCRS and curriculum and instruction used with gifted students is another justification for the group discussion sessions. The group discussion sessions were instrumental in co-constructing meaning between the AZCCRS and gifted education pedagogy (Creswell, 2013).

The group discussion sessions were audio recorded and transcribed by me. The three sessions took place during the six-month period of the study, but after the pre-interview and before the post interview of each of the three gifted education teacher participants. The three sessions were spaced about four to five weeks apart. This spacing gave the participants time to try any suggestions that come up in one group discussion session and record reflections in their personal journals before the next group discussion session. Each group discussion session lasted approximately two hours.

Each of the three group sessions had a prearranged agenda and discussion questions. See Appendices D, E, and F respectively for the three agendas. The intent of each of the group discussion sessions was to focus on the interpretation by the gifted education specialist teachers as to what extent the CCSS support the modified gifted

curriculum and differentiated instruction that they implement with their gifted learners, in their perceptions. Various questions and tasks that address the gifted education specialist teachers' interpretations and translations as well as their ability, in their perceptions, to negotiate the Arizona College and Career Ready Standards and the impact the AZCCRS have on gifted curriculum and instruction were discussed for the two hour long sessions.

Group discussion 1. The first group discussion session targeted the eight AZCCRS for Mathematics practice standards. This session began by discussing each of the five big ideas from McTighe and Wiggins' article *From Common Core Standards to Curriculum: five Big Ideas* (see Appendix G) in regard to translating the AZCCRS into curriculum and instruction. Next, the eight mathematical practice standards were read and then discussed, listing key understandings of each (see Appendix H). The group of gifted specialist teachers were then asked to brainstorm strategies to use in their quantitative focus groups that directly addressed at least one of the eight mathematical practice standards. Each gifted education teacher chose a strategy to try in her quantitative class before the next group discussion session. They were also asked to bring any artifacts related to this trial to the next group discussion session to share.

Group discussion 2. The district's Gifted Education Coordinator, the district's Coordinator of Mathematics Curriculum and Instruction, and the district's Director of Curriculum and Instruction were invited to this second session in order for the gifted education specialist teachers to have resources available to clarify understandings and answer questions in regards to the district's interpretation of the Arizona College and Career Ready Standards.

The second group discussion session began by sharing the strategies that each participant tried in her quantitative math class. These strategies were brainstormed in the first group discussion session. They also shared artifacts that were created during implementation of the strategy. A discussion about the successes and challenges of applying these chosen strategies in the quantitative classes as well as ways to improve on the challenging aspects of these strategies ensued. The artifacts are stored in my research notebooks or binders.

After sharing the strategies that the participants implemented and the subsequent discussion, the section on the approaches to use in differentiating the mathematics standards for quantitatively gifted students from the National Association of Gifted Children's (2008a) position paper on frequently asked questions about the standards and gifted education was read and discussed (see Appendix I). Additionally, the three strategies to use when aligning the standards to gifted education programming standards, according to the NACG position paper, was read and discussed. These three strategies include: provide pathways to accelerate the standards for gifted learners, provide examples of differentiated task demands to address specific standards, and create interdisciplinary product demands to elevate learning for gifted students and to efficiently address multiple standards at once.

The question of whether there are relationships, according to the perceptions of the gifted specialists, and what those relationships look like between the AZCCRS and the three suggested strategies to marry gifted curriculum and instruction with the standards were discussed. The three district administrators were able to assist, clarify, and answer questions during this discussion. This discussion led well into the next topics,

how might the gifted education specialist teachers in the district connect the AZCCRS for Mathematics content standards and practice standards to the gifted curriculum implemented with quantitatively gifted students, what are the implications of the connections for gifted math students, and what does all of this mean to gifted education specialists' practices?

After the discussion of the topics described above, the group session shifted to more of a workshop type setting as the gifted education specialist teachers were asked to unpack an AZCCRS for Mathematics content standard. This began by reading titles for the third grade math domains which are: operations and algebraic thinking, numbers and operations in base ten, number and operations—fractions, measurement and data, and geometry. The gifted specialist teachers were allowed to choose a domain. They chose numbers and operations in base ten. Next the subtitles within that domain for third grade were read. There is only one, and it is: use place value understanding and properties of operations to perform multi-digit arithmetic. The gifted education teachers, of course, chose this one. The actual standards that students are expected to do and that delineate this section of the domain were read next. These include: 3.NBT.A.1. Use place value understanding to round whole numbers to the nearest 10 or 100; 3.NBT.A.2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction; 3.NBT.A.3. Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 x 80, 5 x 60) using strategies based on place value and properties of operations. The teachers were allowed to vote on which standard they wanted to unpack, and they choose the first one,

3.NBT.A.1. Use place value understanding to round whole numbers to the nearest 10 or 100.

After the teachers narrowed their focus to the content standard they wanted to unpack, McTigh's and Wiggin's model for unpacking standards was employed. The entire standard was unpacked into long term transfer goals, overarching understandings, overarching essential questions, and cornerstone tasks. The transfer goals are what the uses of this content standard's understanding, knowledge, and skill would be in the long run, or what we want students to be able to do when they face novel challenges with this content standard, both inside and outside the realm of school. The second and third broad unpacking categories are the overarching understandings and overarching essential questions for this content standard. The overarching understandings are what skilled mathematicians would need in order to transfer this content standard into any situation while the overarching essential questions would be a set of questions that engage learners in making meaning and deepening their understanding of this content standard. The last broad unpacking category is the cornerstone tasks meant to allow learners to apply their newly gained knowledge and skills associated with the content standard to authentic and relevant contexts. The cornerstone tasks include integrating the 21st Century skills into the task as well. The teachers were asked what cornerstone tasks this content standard could be applied in.

Next, they were asked to further unpack the standard and comment on how the pieces actually meet specific needs of gifted students such as being student-driven, allowing choice, utilizing higher order thinking skills (application, analysis, evaluation, and creativity), utilizing authentic learning, utilizing 21st century skills (creativity,

innovation, critical thinking, problem solving, communication, collaboration, technology skills, flexibility, adaptability, initiative, self-direction, social skills, cross-cultural skills, productivity, accountability, leadership, or responsibility), differentiating (in content, process, product, assessment, or environment), using critical thinking skills, using creative thinking skills, using problem solving skills, or being an interdisciplinary study. A checklist of the indicators listed above was given to the participants. This unpacking exercise ended with a discussion about what all of this might mean for gifted education practices.

The purpose of waiting until the second group discussion session to have the participants engage in the task of dissecting or unpacking an AZCCRS for Mathematics was because the participants became more focused on the standards as well as the modified curriculum and differentiated instruction which they implement with their quantitatively gifted students after they had participated in at least one semi-structured interview, group discussion session, and wrote at least one reflective journal entry.

Group discussion 3. The third group discussion session was reserved for any incomplete discussion from the previous two sessions. Additionally, a more general discussion concerning the ramifications of the AZCCRS for gifted education was initiated. The last session was less pre-arranged in order to leave room to address topics that surfaced from the previous two sessions. The focus of this session was based more on the data collected in the previous two sessions. The three primary questions guiding this study were addressed: In what ways, as perceived by gifted specialists, do the AZCCRS address the needs of gifted students and to what extent, in their perceptions, do the AZCCRS support exemplary gifted curriculum, best practices for gifted education,

and instructional strategies and techniques used with gifted students and mandated by the State of Arizona? What are the relationships, if any, between the AZCCRS and gifted education? How, exactly, do gifted education specialists translate, negotiate, and implement the AZCCRS?

I transcribed the audio recordings of each of the three group discussion sessions. Each session lasted for approximately two hours. Transcriptions were given to each participant for a member check (Saldana, 2012). Each participant checked for accuracy of meaning and intent as well as accuracy of the transcription itself.

Reflective journals. Another data gathering tool was a reflective personal journal for each participant (Crewsell, 2013). The reflections recorded in the personal journals included answers to specific questions about their analyses or unpacking of a particular AZCCRS in mathematics and how the group discussion sessions were being received including if any of the activities affected their teaching experiences.

This artifact was coded with only the participant's number and collected twice during the study period, near the middle of the study period but after the first group discussion session, and after the post interview with each participant. The participants were instructed to make an entry after each of the three group discussion sessions and after trying out the strategy chosen in the first group discussion session, as well as at any other times they wished. There was a minimum of four entries in each personal journal. They were asked to date each entry so there was a time line established. They were asked not to use any real names in their entries, including their own, but only initials. Their entries focused on their ideas, concerns, and insights about the group discussion sessions, about teaching gifted students, about curriculum used to teach gifted students, about

implementing the AZCCRS as the goals for their curriculum and instruction, the relationships they see between the AZCCRS and gifted education, and if, in their perceptions, the AZCCRS support modified curriculum and differentiated instruction implemented with gifted students. Additionally, there was an entry about the strategy they chose and implemented in their quantitative gifted class. They were asked to keep all the entries reflective in nature.

The participants were asked to consider addressing at least two of the twelve prompt questions. They were asked to choose two different prompt questions to address for each of their three entries following group discussion sessions. The fourth entry they made concerned the strategy they tried, and for that entry they described the strategy, what was successful about it and what was a challenge about it. Also, what they would do differently if they could re-do the trial. See Appendix J for the choices of prompt questions for personal journal entries.

The personal journals were supplied to the participants along with a list of the prompt questions and directions for the participants to consider when making an entry in their personal journals. The personal journals have only the participant's number on the cover to identify it as that participant's journal. This number is used to maintain confidentiality.

The personal journals were a place where participants could record using higher order thinking skills (creating, evaluating, analyzing, applying), 21st century skills (creativity, innovation, critical thinking, problem solving, communication, collaboration, technology skills, flexibility, adaptability, initiative, self-direction, social skills, cross-cultural skills, productivity, accountability, leadership, responsibility), authentic learning,

differentiation (of content, process, product, assessment, environment), critical thinking skills, creative thinking skills, problem solving skills, inclusion of interdisciplinary content, student-driven curriculum, and student choice while implementing curriculum for their quantitatively gifted students. These skills and features are considered exemplary gifted education curriculum and instruction (see chapter two "Literature Review").

All teachers in this district base their implementation of curriculum and instruction on the AZCCRS, including the gifted education specialist teachers. But in addition, the gifted education specialist teachers must implement curriculum and instruction that meets the needs of gifted students and is commensurate with their abilities and interests, according to the statues of the State of Arizona (see chapter two "Literature Review"). The classroom is the place where these two mandates collide. Participants reflecting on their teaching practices in their classrooms is one way to document this collision. Asking gifted education specialist teachers to reflect and document utilizing a brainstormed strategy in her classroom is another way to anatomize the collision between these two educational goals.

Researcher's journal. Another tool to gather data was a researcher's journal that I kept in two binders. The journal included notes about incidental observations and informal conversations with the participants about teaching, AZCCRS, and meeting the needs of gifted students, as well as memos, emerging themes, emerging theories, and field notes (Corbin and Strauss, 2008). Again, only number codes were used in the journal. Besides sections containing memos, themes, theories, and field notes about incidental observations and informal conversations, the binders also have sections with notes on the pre- and post semi-structured interviews, transcripts of these interviews,

notes about entries in the personal journals, documents created or shared from participants at group discussion sessions, worksheets from the analysis or unpacking of an AZCCRS by the participants, notes about this analysis or unpacking session, transcripts of the group discussion sessions, and notes about these sessions.

Additionally, the notebooks or binders include sections to house the research question, the proposal, copies of the signed informed consent forms, list of data analysis steps, timeline for the study, and correspondence concerning the study. There is also a section in the binders for me to make personal journal entries concerning the progress of the research study. The binders with all the notes, data, and other sections described above have been carefully kept either in my possession at all times or in a locked drawer.

Conclusion

The data gathering tools for this investigation include audiotaped recordings and transcriptions of pre- and post semi-structured interviews, profile questionnaire responses, audiotaped recordings and transcriptions of three group discussion sessions, personal reflective journal entries, and a researcher's journal. The participants are members of the gifted education department of the Kennedy Elementary School District, and volunteered for this study. Kennedy Elementary School District was purposefully chosen for this investigation (Crewsell, 2013). It met the requirements of (a) being an elementary school district with a pullout enrichment model gifted program, (b) it has quantitatively gifted students meeting as a class once per week with a gifted endorsed education specialist teacher, and (c) these same students maintain their attendance in the general education math class offered by a general education teacher.

This research project is a qualitative study which takes a phenomenological approach with a constructivist framework. A qualitative study is best because the data gathered are the interpretations, translations, and perceptions of the gifted education specialist teachers about the extent to which the Arizona College and Career Ready Standards, support the gifted curriculum and instruction mandated by the 2007 Revised Statutes of the State of Arizona, what the relationships are, if any, between the AZCCRS and gifted curriculum and instruction, and how these same gifted education specialist teachers negotiate, interpret, and translate the AZCCRS and modified curriculum and differentiated instruction simultaneously. It is about their experiences.

The best way to gather data from the participants was to ask them directly in semi-structured interviews as well as in reflections written in their personal journals, and during the three group discussion sessions (Corbin and Strauss, 2008). The semi-structured interview transcripts and collaborative group discussion session transcripts were checked for accuracy by the participants in a member check to add reliability or accuracy of the evidence (Saldana, 2012). All data collected by the various instruments were compared during analysis to all other data collected throughout this research in order to thoroughly study the phenomenon (Creswell, 2013). The process of this analysis will be described in chapter four "Data Analysis," the next chapter of this investigation.

CHAPTER 4

DATA ANALYSIS

To what extent, according to the perceptions of gifted specialists, do the Arizona College and Career Ready Standards support modified curriculum and differentiated instruction for gifted students which is commensurate with their academic abilities, potential, and intellect and which also complies with the mandated statutes in the State of Arizona concerning gifted education and gifted students; what are the relationships, if any, between the AZCCRS and curriculum and instruction modified and differentiated for use with gifted students, according to the perceptions of gifted education specialists; how do the gifted education specialist teachers, who are charged with meeting the academic and intellectual needs and potentials of their gifted pupils by the State of Arizona, interpret, negotiate, and implement the AZCCRS? It is the intent of this study to answer these questions with thoroughly analyzed data.

Preliminary Data Analysis

Preliminary data analysis to answer these investigation questions began as soon as any data was gathered in order to inform future data collections. As soon as the first round of semi-structured pre-interviews was completed, as well as the first group discussion session and first collection of personal journals, preliminary analysis for this study began. This preliminary analysis, which consisted of close readings of the transcripts and taking notes in my researcher's journal, was done because the results effected the direction and focus of both the second and the third group discussion sessions. Interpretations and translations of components of the AZCCRS by the participants were teased out of the data in order to ask the participants for clarification, as

well as if the questions, discussion topics, and reflection questions were revealing how the gifted education specialist teachers negotiate, interpret, and translate AZCCRS while implementing gifted curriculum and instruction commensurate with the abilities and potentials of their students and complying with the State of Arizona's mandates (Creswell, 2013). Adjustments were made to the agendas of both the second and third group discussion sessions to provide time for clarification of points made by the participants in either the pre-interviews, personal journal entries, or prior group discussion sessions. A more systematic data analysis began after all data had been collected. The data analysis steps are described below.

Data Analysis Steps

The pre-interview transcripts, questionnaire responses, three group discussion session transcripts, reflective journal entries, and post interviews transcripts were all analyzed using similar steps. I will describe in detail the exact steps taken to analyze the raw data from each of the data gathering tools used in this study.

Pre-interviews. My first step was to transcribe from audiotape all three of the pre-interviews from the three participants. The three interviews took place on December 20, 2013, December 23, 2013, and December 27, 2013. Each lasted for approximately thirty minutes. Each was audio recorded with a digital recorder. The interview recordings were then downloaded into a transcription program on a computer. I was able to visually see the sound in graph form, back up, move forward, slow down, and stop anywhere along the graph to listen to the interview. Using this digital program, I then typed what I heard, creating a transcription. This was also the beginning of the analysis because even as I transcribed the recorded interview I was forming possible initial codes (Creswell,

2013). After I transcribed the interviews from the audio recordings, I read through each transcription thoroughly to get an overview of the data gathered from this instrument. Next, I sent a copy of each participant's interview transcription to each participant and asked for a member check (Saldana, 2012). Specifically, they were asked to check if the intent of the transcription was correct and if there were any transcription or typing errors.

Stage 1. The first stage, after a thorough overview reading of the transcripts was complete, was to again read through all three transcriptions and chunk the data into useable summaries (Saldana, 2012). This was accomplished by reading semantic chunks of raw data about a particular topic or issue that were displayed on the far left of a page, and then summarizing each chunk in a middle column of the page (Saldana, 2012). During the writing of the summaries of semantic chunks, I also noted any possible initial codes that these summaries were centering around (see Appendix K for the details of this stage).

Stage 2. The second stage involved writing a codebook for the pre-interview transcripts (Creswell, 2013). After the summaries were written, I devised a preliminary codebook for the pre-interviews using the notes of possible initial codes from stage 1. I color-coded each code as well. This made it easier to decipher the amount of raw data that was written into the stage 1 summary chunks. After the preliminary codebook was written, I returned to stage 1 and added the color to the raw data as well as added the stage 2 initial code for each semantic chunk with its accompanying summary (again see Appendix K for further details). Next, I discussed the codes and summaries of the semantic chunks with my committee chair Dr. David Carlson. This created inter-rater reliability (Saldana, 2012). I adjusted and refined the codebook, based on the discussion

with Dr. Carlson, and then re-coded all three pre-interviews using the refined codebook (see Table 1 below).

Table 1

Stage 2 Codebook for Pre-Interview Transcripts

Code	Explanation of Code	Example from Raw Data
01.PERC.01	Perceptions of AZCCRS by teachers	"(Teachers) have a broad ability to choose curriculum that's going to fit what needs to be taught according to the standards that are for their grade level."
02.BEL.01	Beliefs about AZCCRS by teachers	"There are components (of AZCCRS) that will work and there's components that aren't going to work."
03.APR.01	Approaches to AZCCRS by teachers	"Sometimes in order for me to be able to use the Common Core I have to tweak them a little bit."
03.APR-ABGR.02	An approach in which teacher uses above grade level standards	"…because we have gifted kids we can take standards that are not necessarily at their grade level but are going to be above their grade level."
03.APR-DIFF-03	An approach in which teacher differentiates for gifted students, and may even further differentiate among gifted students	"…they're gifted at different levels, so that differentiation that I need to have for them has to be even at a higher level and maybe more tweaking involved."
03.APR-MON.04	An approach in which teacher monitors and adjusts as needed	"So for me, that's a feedback, and when I hit upon something like that then I use it to formulate the next activity…."
04.NEED.01	Curricular needs of gifted students	"…they need to be able to have a curriculum that is going to be useful for them, that is going to be something that they're going to want to invest their time in, so it's got to be fun."
05.RELA.01	Relationship between gifted education curriculum and AZCCRS	"But, teachers having the access, having access to not just their grade level, but grade levels above and below and above and below that. There's a direct relationship there with differentiation and modifying their curriculum."
06.IMP.01	Impact of AZCCRS on gifted education	"…they (AZCCRS) do have a big impact on, on how we teach and what we teach, the kind of curriculum we choose."
07.FRC.01	Friction, tension, or angst for teacher	"So I'm having a rough time with the correlation on it, with the relationship between the two (previous AZ standards and AZCCRS)."
07.FRC-MASK.02	Teacher intentionally masks actions to appear to be following district directives	Begins delineating how she chooses or creates curriculum and states that her first step is: "Ok, so I look at the standards that I know that they are going to need in the next three to five years." In truth, teacher looks at standards after curriculum is either chosen or written.
07.FRC-TRAN.03	Transition between previous state standards, AZCCRS; teacher has difficulty with and frustrations about differences among various standards	"…maybe in a year or two later, I'll be able to use the Common Core, the Arizona Common Core Standards to a greater extent then I would use say the regular national standards."
07.FRC-LAW.04	Teacher follows the legal perimeters for gifted students even if it conflicts with district directives and AZCCRS	"I will use a regular national Common Core or even a twenty-first century skill that will allow me to do what I need to do and still fall within the parameters of the law."
07.FRC-INAD.05	Teacher feels inadequate; wants more training on AZCCRS	"It might not be bad for me to have additional training…because initially when I was introduced to Common Core State Standards I was a grade level teacher…."
07.FRC-ASSE.06	Assessment (PARCC) involved with AZCCRS	"And I see that, not so much with the Common Core, but with the PARCC assessment and what it will be…."

Note. Common Core State Standards (CCSS), Partnership for Assessment of Readiness for College and Career (PARCC), Arizona's College and Career Ready Standards (AZCCRS).

Stage 3. At this stage in the analysis, I was ready to summarize each code individually for all the pre-interviews (Creswell, 2013). So, for example, I read through

all summaries of the olive colored codes “01.PERC.01,” and collected them under one heading (see Appendix L for further details of stage 3 summaries of codes). At this stage I also began to list possible assertions I might be able to make based on the pre-interview transcripts (Creswell, 2013).

Next I will describe the steps I used to analyze the information gathered from the second data gathering tool I used in this study, the responses to questions on the questionnaire.

Questionnaires. My first step was to read through each questionnaire thoroughly to get an overview of the data gathered from this instrument (Creswell, 2013). After that, I typed the responses to the questions on the questionnaire into the format I used to analyze the raw data using the strategies described in stage 1 below.

Stage 1. The first stage, after a thorough overview reading of the questionnaires was complete, was to again read through all three questionnaires and chunk the data into useable summaries (Saldana, 2012). This was accomplished by simply summarizing each response the participant wrote for each question. I displayed these responses, or raw data, on the far left of a page, and then summarized each answer in a middle column of the page, thus creating a participant profile for each participant in the study (Saldana, 2012). During the writing of the summaries of responses, I also noted any possible initial codes that these summaries were centering around (see Appendix M for the details of this stage).

Stage 2. The second stage involved writing a codebook for the questionnaire responses. After the summaries were written, I devised a preliminary codebook for the questionnaire responses using the notes of possible initial codes from stage 1 (Saldana,

2012). I color-coded each code as well. This made it easier to see repetition of particular codes. After the preliminary codebook was written, I returned to stage 1 and added the color to the raw data as well as added the stage 2 initial code for each response with its accompanying summary (again see Appendix M for further details). I discussed the codes and summaries of the responses to questions on the questionnaire with committee chair Dr. David Carlson. This created inter-rater reliability (Saldana, 2012). I refined the codebook and re-coded all three participant profiles that were created from the responses to the questionnaire using the refined codebook (see Table 2 below).

Table 2

Stage 2 Codebook for Questionnaire Responses

Code	**Explanation of Code**	**Example from Raw Data**
01.CRED.01	Teaching credentials, endorsements, and experience	"I earned my gifted endorsement about 3 years ago."
02.WHY.01	Why teaching profession; why gifted education specialty	"I became a teacher because I believed I could make a difference in the education of children."
03.TYP.01	Typical teaching day with quantitatively gifted students	"I will take some time to instruct and give a couple problems to check for understanding."
04.WHTQ.01	Feelings about what is taught and how it is taught to quantitatively gifted students	"I love the ability to teach them the way I do."
05.SAT.01	Satisfaction level of teacher's work with quantitatively gifted students	"I am very happy with my work with my quant. students."
06.CCPD.01	Amount of professional development on AZCCRS and information specifically about relationship between AZCCRS and gifted education	"I believe I have received at least 3 hours or more training."
07.SPPD.01	Specific areas of professional development on AZCCRS that participant would like more training in	"I do not believe I need additional training."

Note. Arizona College and Career Ready Standards (AZCCRS).

Stage 3. At this stage in the analysis, I was ready to summarize each code individually for all responses on the three questionnaires. So, for example, I read through

all summaries of the olive colored codes "01.CRED.01," and collected them under one heading (see Appendix N for further details of stage 3 summaries of codes). Additionally, I began to list possible assertions I might be able to make based on the responses to the questions on the questionnaires, now called participant profiles (Creswell, 2013).

Next I will describe the steps I used to analyze the results gathered from the third data gathering tool I used in this study, the reflective journal entries.

Reflective journals. My first step was to read through each reflective journal thoroughly to get an overview of the data gathered from this instrument (Creswell, 2013). Participants were asked to make at least four entries in their journals throughout the study, one after each of the three group discussion sessions and one after trying a gifted strategy to infuse one of the eight mathematical practice standards from the AZCCRS into a math lesson. Participants were also asked to make other entries as they wished, such as after the pre-interview or after an insight about the AZCCRS dawned on them. A list of prompts was provided to the participants to assist them in making journal entries (see Appendix J for the list of prompts). Then, I typed each entry into the format I used to analyze the entries using the strategies described below in stage 1.

Stage 1. The first stage, after a thorough overview reading of the entries in each reflective journal was complete, was to again read through all entries after I typed each entry on the far left of a page. Then I began to chunk the data into useable summaries. This was accomplished by reading semantic chunks of raw data about a particular topic or issue that were displayed on the far left of a page, and then summarizing each chunk in a middle column of the page (Saldana, 2012). During the writing of the summaries of

semantic chunks, I also noted any possible initial codes that these summaries were centering around (see Appendix O for the details of this stage).

Stage 2. The second stage involved writing a codebook for reflective journal entries. After the summaries were written, I devised a preliminary codebook for the reflective journal entries using the notes of possible initial codes from stage 1 (Saldana, 2012). I color-coded each code as well. This made it easier to decipher the amount of raw data that was written into the stage 1 summary chunks. After the preliminary codebook was written, I returned to stage 1 and added the color to the raw data as well as added the stage 2 initial code for each semantic chunk with its accompanying summary (again see Appendix O for further details).

I discussed the codes and summaries of the semantic chunks with committee chair Dr. David Carlson. This created inter-rater reliability (Saldana, 2012). Based on our discussions, I re-coded all entries from all three reflective journals using the refined codebook (see Table 3 below).

Table 3

Stage 2 Codebook for Reflective Journal Entries

Code	**Explanation of Code**	**Example from Raw Data**
01.PERC.01	Perceptions of AZCCRS by teachers	"Looking at these standards makes me wonder how classroom teachers are handling this challenge."
02.ARTC.01	Comments about articles or handouts read during group discussion sessions	"The article had a lot of meat in it and we were able to simplify and synthesize it for our use."
03.APR.01	Approaches to AZCCRS by teachers	"It is interesting to note, however, our approaches to teaching them are so similar. And it should be that way. Giftedness transcends economics."
03.APR-ABGR.02	An approach in which teacher uses above grade level standards	"Again highly motivated to apply math skills in very difficult logic problems for middle school level math students. Perseverance!"
03.APR-DIFF-03	An approach in which teacher differentiates for gifted students, and may even further differentiate among gifted students	"Though we differentiate even with our classes, it is for learning & teaching them at their own level."

03.APR-MON.04	An approach in which teacher monitors and adjusts as needed	"Whereas we challenge ourselves to think freely and out of the box when choosing curriculum, we also are free to modify what we do even as we are doing it—if it is best for our kids."
04.DISC.01	Comments on the discussion and group members	"This was a very interesting meeting. Since I didn't know what to expect it was very interesting. I enjoyed our discussions about common core…."
05.RELA.01	Relationship between gifted education curriculum and AZCCRS	"So, in essence C.C.R.S. standards are something we have always done & included, but we do them at a higher level and at a deeper investigation, as well as doing more of that at a time…."
06.IMP.01	Impact of AZCCRS on gifted education	"It dawns on me that, even though I am applying the standards, I am still doing it after the fact rather than having a standard & finding an activity to apply it to."
07.FRC.01	Friction, tension, or angst for teacher	"I actually feel sorry for teachers who graduated & were re-trained in the last 5-6 years. It seems there was no push for creative thinking and just a 'robotic' approach to teaching."
08.BRNS.01	Comments about brainstorming during group discussion sessions	"…I liked our Brainstorming session as we thought of ways we could implement the CCSS with our kids."
Note. Arizona College and Career Ready Standards (AZCCRS), Common Core State Standards (CCSS), College and Career Ready Standards (CCRS).		

Stage 3. At this stage in the analysis, I was ready to summarize each code individually for all reflective journal entries. So, for example, I read through all summaries of the olive colored codes "01.PERC.01," and collected them under one heading (see Appendix P for further details of stage 3 summaries of codes). I also began to list possible assertions I might be able to make based on the reflective journal entries (Creswell, 2013).

Next I will describe the steps I used to analyze the information gathered from the fourth data gathering tool I used in this study, the three group discussion sessions.

Audiotape recordings and transcripts of group discussion sessions. My first step was to transcribe from audiotape all three of the group discussion sessions. The three group discussion sessions took place on December 27, 2013, February 13, 2014, and

April 11, 2014. Each lasted between two hours and two and a half hours. Each was audio recorded with a digital recorder. The interview recordings were then downloaded into a transcription program on a computer. I was able to visually see the sound in graph form, back up, move forward, slow down, and stop anywhere along the graph to listen to the interview. Using this digital program, I then typed what I heard, creating a transcription. Some analysis took place at this point because even as I transcribed the recorded interview I was forming possible initial codes (Creswell, 2013). I noted these in my researcher's journal. After I transcribed the interviews from the audio recordings, I read through each transcription thoroughly to get an overview of the data gathered from this instrument. Next, I sent a copy of each participant's interview transcription to each participant and asked for a member check (Saldana, 2012). Specifically, they were asked to check if the intent of the transcription was correct and if there were any transcription or typing errors.

Stage 1. The first stage, after a thorough overview reading of the transcripts was complete, was to again read through all three transcriptions and chunk the data into useable summaries. This was accomplished by reading semantic chunks of raw data about a particular topic or issue that were displayed on the far left of a page, and then summarizing each chunk in a middle column of the page (Saldana, 2012). During the writing of the summaries of semantic chunks, I also noted any possible initial codes that these summaries were centering around (see Appendix Q for the details of this stage).

Stage 2. The second stage involved writing a codebook for the group discussion session transcripts. After the summaries were written, I devised a preliminary codebook for the transcripts using the notes of possible initial codes from stage 1 (Saldana, 2012).

Instead of color-coding each code and subsequently each semantic chunk in the raw data as I had done with the analyses of results from previous instruments, I bracketed the semantic chunks. This was done because of the large amount of raw data. The brackets worked the same as the color-coding, and made it easier to decipher the amount of raw data that was written into the stage 1 summary chunks. After the preliminary codebook was written, I returned to stage 1 and added the brackets to the raw data as well as added the stage 2 initial code for each semantic chunk with its accompanying summary (again see Appendix Q for further details). I discussed the codes and summaries with committee chair Dr. David Carlson, then re-coded all three transcripts with a refined codebook (Saldana, 2012). This created inter-rater reliability (see Table 4 below).

Table 4

Stage 2 Codebook for Group Discussion Session Transcripts

Code	**Explanation of Code**	**Example from Raw Data**
01.DIRC.01	Directions given by researcher	"Ok. We have our agenda and the first part of our agenda is to read what this study is about."
02.ARTC.01	Comments about articles or handouts read during group discussion sessions	"But it sounds like part of the front matter is what they're wanting the teachers to do up front as far as understanding the whole thing, the whole big picture, you know."
03.APR.01	Approaches to AZCCRS by teachers	"But we have an ability, we as PACE teachers, have an ability to go to a different grade level that will be fitting for our students."
04.CCSS.01	Comments about what teachers understand about the AZCCRS	"I don't think our unpacking will be any different, it's just what we do with the garments once they're out of the suitcase."
05.RELA.01	Relationship between gifted education curriculum and AZCCRS	"…that we are to, to look at what is needed over a long point of time and then implement it. And what I mean by that is, when we are looking at, like even our focus group stuff, I look at careers. And what it would take to become that career for these kids…."
06.IMP.01	Impact of AZCCRS on gifted education	"…we would have a different overarching understanding that we want to get out of that standard for our PACE kids then a regular classroom teacher would have for the general population."
07.FRC.01	Friction, tension, or angst for teacher	"And as a PACE teacher, this is a huge, daunting task if this is, because we're the experts in our field, if we have to unpack all of that and then implement all that. That's a, that's a lot."

08.BRNS.01	Comments about brainstorming during group discussion sessions	"Share puzzles or teach someone else how to solve a puzzle, they you're definitely doing number three, right, because they're going to say, so that could be one as, put it, they're teaching others."
Note. College and Career Ready Standards (AZCCRS), Tempe Elementary School District's gifted program Promoting Actualization through Creativity and Excellence (PACE).		

Stage 3. At this stage in the analysis, I was ready to summarize each code individually for all the group discussion session transcripts. So, for example, I read through all summaries of the first code "01.DIRC.01," and collected them under one heading (see Appendix R for further details of stage 3 summaries of codes). Additionally, I also began to list possible assertions I might be able to make based on the group discussion session transcripts (Creswell, 2013).

Next I will describe the steps I used to analyze the information gathered from the last instrument to gather data that I used in this study, the post interview transcripts.

Post interviews. My first step was to transcribe from audiotape all three of the post interviews. The three post interviews took place on May 16, 2014, May 20, 2014, and May 29, 2014. Each lasted approximately thirty minutes. Each was audio recorded with a digital recorder. The interview recordings were then downloaded into a transcription program on a computer. I was able to visually see the sound in graph form, back up, move forward, slow down, and stop anywhere along the graph to listen to the interview. Using this digital program, I then typed what I heard, creating a transcription. This was also the beginning of the analysis because even as I transcribed the recorded interview I was forming possible initial codes (Creswell, 2013). After I transcribed the interviews from the audiotapes, I read through each transcription thoroughly to get an overview of the data gathered from this instrument. Next, I sent a copy of each

participant's transcript to her and asked for a member check (Saldana, 2012). Specifically, they were asked to check if the intent of the transcription was correct and if there were any transcription or typing errors.

Stage 1. The first stage, after a thorough overview reading of the transcripts was complete, was to again read through all three transcriptions and chunk the data into useable summaries. This was accomplished by reading semantic chunks of raw data about a particular topic or issue that were displayed on the far left of a page, and then summarizing each chunk in a middle column of the page (Saldana, 2012). During the writing of the summaries of semantic chunks, I also noted any possible initial codes that these summaries were centering around (see Appendix S for the details of this stage).

Stage 2. The second stage involved writing a codebook for the post interview transcripts using the notes of possible themes from stage 1 (Saldana, 2012). I used a color for each code, and 1 and added the color to the raw data as well as added the stage 2 initial code for each semantic chunk (see Appendix S for further details). Next, I discussed the codes and summaries with my committee chair. This created inter-rater reliability (Saldana, 2012). Based on these discussions, I re-coded the post interviews (see Table 5 below).

Table 5

Stage 2 Codebook for Post Interview Transcripts

Code	**Explanation of Code**	**Example from Raw Data**
01.PERC.01	Perceptions of AZCCRS by teachers	"They (AZCCRS) are broad spectrum guidelines for driving curriculum and for driving instruction…."
02.APR.01	Approaches to AZCCRS by teachers	"so you compact it (curriculum), as you need it because you loop with them every year."
03.RELA.01	Relationship between gifted education curriculum and AZCCRS	"So I don't necessarily choose a standard and go forward. I choose a thing and then I go look for the standards."

04.NEED.01	Curricular needs of gifted students	"But, I'm going to be addressing it (AZCCRS), not as the classroom teacher, but in a more in depth way in a curriculum that fits more with their needs."
05.IMP.01	Impact of AZCCRS on gifted education	"…they (AZCCRS) are more applicable to us then the standards that we have had for the last fifteen years, or ten or fifteen years or however long we have had those."
Note. Arizona College and Career Ready Standards (AZCCRS).		

Stage 3. At this stage in the analysis, I was ready to summarize each code individually for all the post interview transcripts. So, for example, I read through all summaries of the olive colored codes "01.PERC.01," and collected them under one heading (see Appendix T for further details of stage 3 summaries of codes). I also began to list possible assertions I might be able to make based on the post interview transcripts (Creswell, 2013).

Next I will describe the results I found during stage three of my analysis of the information gathered from the five data gathering tools I used in this study, the three pre-interview transcriptions, the responses to questions on the three questionnaires, the three group discussion session transcripts, the entries from the three reflective journals and the three post interview transcripts.

Results

I discovered many results in the data that I collected. I concentrated mostly on the results that answered my three main research questions: to what extent, according to gifted education teachers' perceptions, do the AZCCRS support exemplary gifted curriculum, best practices for gifted education, and instructional strategies and techniques used with gifted students; according to the perceptions of gifted specialists what are the relationships, if any, between the AZCCRS and gifted education in Arizona; and how do

gifted education specialists interpret, negotiate, and implement the AZCCRS while simultaneously providing for the curricular needs of their gifted students? After reporting the results of the questionnaire entries that resulted in a profile of the participants, I concentrated on the results concerning the three main research questions. In order to report the results for the first question, how well, according to the perceptions of gifted specialists, do the AZCCRS support gifted education pedagogy, I counted the frequency of which the gifted education specialists stated or wrote that the AZCCRS do or do not support gifted education pedagogy. The specific results are reported below, after a description of the gifted specialists who volunteered for this study, based on the profile questionnaire.

Profile of gifted specialists in the study. Three gifted education specialists volunteered for this study. They are all members of the Kennedy Elementary School District, which was a purposefully chosen district for this study because its gifted education program includes a component of special pullout enrichment classes for only its quantitatively gifted students (Creswell, 2013). Following is a profile of these three participants.

The teachers ranged from possessing one degree to three degrees from institutes of higher learning. Their experience ranged from four years to twenty-six years in education and from six months to fourteen years specifically in gifted education. Besides all three once being general education teachers, their additional professional experience included being a school counselor, home schooling, and being a behavioral interventionist.

The reasons they went into the education profession included: because they wanted to make a difference, for patriotic reasons, and because they enjoy children and public service. The reasons they listed as why they were drawn to specialize in gifted education included: to support the gifted students in their general education classrooms when they were in general education, and to challenge the smartest students to assist those students in reaching their potentials. Also listed was the personal experience of being in a gifted education program as an elementary student.

When writing about how they feel about what is taught and how it is taught to their quantitatively gifted students they included that they love what they teach to them even though sometimes it is hard to find new curriculum to interest them. Also, they enjoy their class because their students are motivated and are having fun. They want their quantitatively gifted students challenged every day, not just the days they see them, which is on one day for one hour per week. They were also asked to list their satisfaction level of their work with their quantitatively gifted students on a scale from 1 to 5, with 5 being the highest. One responded with "4" happy because it is fun, engaging, promotes authentic learning, is readily applicable to the outside world, but sees some room for improvement. Another responded "3 ½" but sees room for improvement. The third wrote "4" happy but wants them challenged every day.

Finally, the three participants were asked about the amount of professional development they had received on AZCCRS and information specifically about the relationships, if any, between AZCCRS and gifted education. Their responses ranged from zero hours to twelve hours on AZCCRS, but specifically on AZCCRS and gifted education the ranges were from zero hours to one hour. When asked if there were specific

areas of professional development on the AZCCRS that they would like more training in, one participant noted that, "No more training was needed." Another wrote that she would like training in how to help general education teachers challenge their students while using the AZCCRS. The third participant did not answer this question.

AZCCRS do or do not support gifted pedagogy. I created a frequency chart and tallied every time I found a statement pertaining to whether the AZCCRS support gifted education pedagogy or not in the pre-interviews, first group discussion session, first half of the reflective journals (which were collected between the first and second group discussion sessions), the second group discussion session, the third group discussion session, the second half of the reflective journals, and the post interviews. I put each of these divisions across the top of the chart in the above order because they took place in that chronological order. I used the stage three summaries of the codes from the pre-interviews, reflective journals, group discussion sessions, and post interviews to count the responses. I returned to the raw data to find example quotes and to check where the reflective journal halves began and ended as well as where each of the three group discussion sessions began and ended. Below is the frequency chart:

Table 6

Frequency Count for Research Question 1

Research question #1: To what extent do the AZCCRS support exemplary gifted curriculum, best practices for gifted education, and instructional strategies and techniques used with gifted students?	**Pre-interviews**	**1st group discussion session**	**1st half of journals**	**2nd group discussion session**	**3rd group discussion session**	**2nd half of journals**	**Post interviews**	**Totals**
AZCCRS do not support gifted education pedagogy	////	///	/		///		///	

Total of tallies	4	3	1	0	3	0	3	14
AZCCRS do support gifted education pedagogy	~~///~~ ///	~~///~~ /	~~///~~ /	~~///~~ ~~///~~ /	~~///~~ ~~///~~ ~~///~~ ////	~~///~~ ////	~~////~~ ~~////~~ ~~////~~ ~~////~~	
Total of tallies	8	6	6	11	19	9	30	89
Grand total of responses	12	9	7	11	22	9	33	103
Note: Arizona College and Career Ready Standards (AZCCRS).								

Overwhelmingly, gifted education teachers stated or wrote that the AZCCRS support gifted education pedagogy. Only 13.6% of the total responses were that the AZCCRS do not support gifted education pedagogy while 86.4% were that the AZCCRS do support gifted education curriculum, practices, strategies, and techniques. Further, statements by gifted specialists that the AZCCRS do support gifted education pedagogy increased (a) as the study continued, (b) the teachers had more experience with the AZCCRS, (c) they were more focused on the AZCCRS, and (d) after they had compared them to gifted curriculum and best practices for gifted students (see figure 1 below).

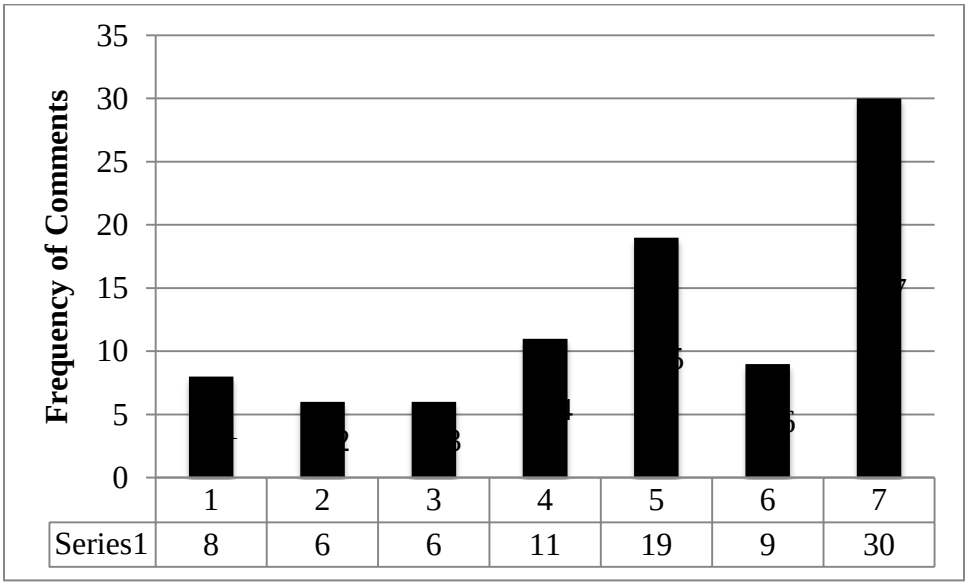

Figure 1. AZCCRS do support gifted education curriculum and pedagogy.
Note: 1=pre-interviews, 2=1st group discussion session, 3=1st half of journals, 4=2nd group discussion sessions, 5=3rd group discussion sessions, 6=2nd half of journals, 7=post interviews.

This positive response for the AZCCRS supporting gifted education is clearly in evidence when comparing the pre-interviews to the post interviews. The gifted education teachers said in their pre-interviews that the AZCCRS support gifted pedagogy 8 times, or 7.8% of all comments regarding the support of the AZCCRS that were made, and that AZCCRS do not support gifted pedagogy 4 times, or 3.9% of the total responses regarding AZCCRS's support. However, these same teachers in their post interviews said that the AZCCRS support gifted pedagogy 30 times, or 29% of the total comments made about AZCCRS's support of gifted education practices, and only 3 times, or 2.9%, that the AZCCRS do not support gifted education pedagogy. That is an increase of 22 more statements that AZCCRS support gifted pedagogy and actually one less comment that AZCCRS do not support gifted pedagogy from the pre-interviews to the post interviews. It appears that participation in the study has increased the participants' perceptions that the AZCCRS actually do support the exemplary gifted practices, gifted curriculum, and gifted strategies and techniques used by these gifted education teachers.

An example of a direct quote from a gifted education specialist's pre-interviews demonstrates that she thinks the AZCCRS do not support gifted education pedagogy is, "The Arizona Common Core Standards that sit on top of the regular Common Core Standards don't always address what I need to teach." An example of a direct quote from a gifted education specialist in her pre-interview that the AZCCRS do support gifted education pedagogy is, "The piece of the Common Core where they're being asked to be able to explain and to be able to articulate, I think, is something we've always done in PACE because we're about the metacognition there."

An example of a direct quote from the post interviews in which a gifted education teacher states that the AZCCRS do not support gifted education pedagogy is, "…these standards are great but they're too slow. They're too restrictive for PACE students because gifted kids go through them so much faster." An example of a direct quote from the post interviews in which a gifted education teacher states that the AZCCRS do support gifted education pedagogy is, "The format (of project-based learning) that we frequently use is well supported by the Common Core." One teacher at the very end of her journal entries wrote, "Common Core is Good for Gifted!"

According to the perceptions of these experts of Arizona's gifted student population, the Arizona College and Career Ready Standards support the exemplary gifted curriculum, best practices for gifted education, and instructional strategies and techniques used with gifted students.

Relationships between AZCCRS and gifted education. I created another frequency chart and tallied every time I found a statement describing a relationship or a comment that there is no relationship between the AZCCRS and gifted education pedagogy in the pre-interviews, first group discussion session, first half of the reflective journals (which were collected between the first and second group discussion sessions), the second group discussion session, the third group discussion session, the second half of the reflective journals, and the post interviews.

I put each of these instruments that I used to gather data across the top of the chart in the chronological order that they were collected. I used the stage three summaries of the codes from the pre-interviews, reflective journals, group discussion sessions, and post interviews to count the responses. I returned to the stage one raw data to find example

quotes and to check where the reflective journal first halves ended and second halves began in my stage three summary of codes as well as where each of the three group discussion sessions began and ended. Below is the frequency table:

Table 7

Frequency Count for Research Question 2

What are the relationships between the AZCCRS and gifted education pedagogy?	**Pre-interviews**	**1st group discussion**	**1st half of journals**	**2nd group discussion**	**3rd group discussion**	**2nd half of journals**	**Post interviews**	**Totals**
No relationships	////		//				/	
Total of tallies	4	0	2	0	0	0	1	7
AZCCRS is a guide when choosing, writing, and implementing	~~###~~ /	/		////	/		////	
Total of tallies	6	1	0	4	1	0	4	17
Both require metacognition and explaining thinking	////				//	//	~~###~~ //	
Total of tallies	4	0	0	0	2	2	7	15
AZCCRS allow for differentiation	~~###~~ ///			/	~~###~~ //		///	
Total of tallies	8	0	0	1	7	0	3	19
Both work toward long-term goals or transfer goals		/		/	~~###~~ /	/	~~###~~ /	
Total of tallies	0	1	0	1	6	1	6	15
Cornerstone tasks of AZCCRS match constructivist curriculum (PBL, PBL, guided discovery)		//		~~###~~ ~~###~~	~~###~~ /		~~###~~	
Total of tallies	0	2	0	10	6	0	5	23
8 practice standards in AZCCRS are similar to gifted pedagogy	/			~~###~~ /	/	~~###~~ ////	~~###~~	
Total of tallies	1	0	0	6	1	9	5	21
Both require justifying with evidence	/							
Total of tallies	1	0	0	0	0	0	0	1
Both require identifying parts of a problem such as in CPS	/	/		////	/		/	
Total of tallies	1	1	0	4	1	0	1	8
Both require depth with concepts and applications	//	~~###~~	/	~~###~~ ///	~~###~~		~~###~~ ~~###~~	
Total of tallies	2	5	1	8	5	0	10	31
Total of tallies stating a relationship	23	10	1	34	29	12	41	150
Grand total of tallies	27	10	3	34	29	12		157

Note: Arizona College and Career Ready Standards (AZCCRS), project-based learning (PBL), problem-based learning (PBL), creative problem solving (CPS).

Overwhelmingly, gifted education teachers stated or wrote that there are relationships between the AZCCRS and gifted education curriculum and pedagogy. Only 2.5% of the total responses stated that there are no relationships between the AZCCRS and gifted education pedagogy, while 95.5% stated that there are relationships between the AZCCRS and gifted education curriculum, practices, strategies, and techniques. Further, statements by gifted specialists that there are relationships between the AZCCRS and gifted education pedagogy increased (a) as the study continued, (b) the teachers had more experience with the AZCCRS, (c) they were more focused on the AZCCRS, and (d) after they had compared them more to the exemplary gifted curriculum and best practices for gifted students.

This positive response for relationships between the AZCCRS and gifted education is in evidence most dramatically when comparing the first half of the study, which includes the pre-interviews, 1st group discussion session, and 1st half of the reflective journals with the second half of the study which includes the 2nd and 3rd group discussion sessions, the 2nd half of the reflective journals, and the post interviews. The gifted education teachers said that there are relationships between AZCCRS and gifted curriculum and pedagogy 34 times, or 22.7% of all comments stating relationships in the first half of the study, and 75 times, or 50% of the total responses regarding relationships in the second half. That is an increase of 53 more statements that there are relationships between the AZCCRS and gifted curriculum and pedagogy in the second half. It appears that participation in the study has increased the participant's perceptions that there are relationships between the AZCCRS and exemplary gifted practices, gifted curriculum, and gifted strategies and techniques used by these gifted education teachers.

Delineation of three relationships. Three relationships were delineated by the gifted education specialists. The most referred to relationship was the depth that concepts are studied. The AZCCRS requires practitioners to take concepts deeper with students so students more fully understand these concepts and can apply them. This is also a common practice in gifted education curriculum and pedagogy in order to meet the curricular needs of gifted students (see chapter two: "Literature Review"). The gifted education teachers mentioned this particular relationship 31 times or 20.7% of the total positive comments made about various relationships that exist between gifted education pedagogy and the AZCCRS. One participant explained this relationship in her pre-interview as, "…the fact that we've (gifted education specialists) always talked about the differentiation you can go, you can go faster, but you can also go deeper. And I think that it (AZCCRS) seems to be trying to get teachers to go deeper in understanding, and so that's the connection, you know, that piece of it."

The second most referred to relationship between the AZCCRS and gifted education practices was how well the standards support constructivist curriculum, used often in gifted education (see chapter two: "Literature Review"). These were called cornerstone tasks in the article by McTighe and Wiggins entitled "From Common Core Standards to Curriculum: Five Big Ideas." Specifically mentioned were project-based learning, problem-based learning, inquiry-based learning and instruction, and guided discovery approaches. The gifted education teachers mentioned this relationship 23 times or 15.3% of the comments made about relationships between AZCCRS and gifted education. The teacher's comments mentioned often how the AZCCRS lent themselves so well to what McTighe and Wiggins call cornerstone tasks and how similar those are to

what they required of gifted students when choosing or creating curriculum and instruction. One gifted education teacher noted that because of the structure of the AZCCRS and cornerstone tasks, "We're going to start seeing, hearing, and we already have, more inquiry-based learning, the words, project-based learning. Those words are coming up from regular classroom teachers…. I think that…if teachers could figure out that project-based learning, inquiry-based learning, those kinds of ways of teaching, which is what we've been doing in gifted ed. forever, can be used in the regular classroom…."

The third most referred to relationship was the similarities between AZCCRS's eight mathematical practice standards and gifted education curriculum and instruction. The gifted education specialists mentioned this relationship 21 times or 14% of all the comments made about various relationships between the AZCCRS and gifted education pedagogy. One of the participants mentioned the ECCEL skills, which are the local version of the higher order thinking skills (E=evaluation, C=communication, C=creativity or synthesis, E=executive skills or management, L=logic or analysis), as being similar to the eight mathematical practice standards. She said, "You know what hit me on all of, with most of these (speaking about the eight mathematical practice standards in AZCCRS) is how well these line up with our ECCEL skills."

Six other relationships mentioned. Other relationships mentioned, in order of frequency, include: the ability to differentiate the AZCCRS (19 times), a mainstay in gifted education pedagogy; gifted education teachers use the AZCCRS as a guide or framework when choosing, writing, and implementing gifted education curriculum and instruction, and that they also use the AZCCRS to be sure they do not repeat concepts

from the general education curriculum (17 times); that both the AZCCRS and gifted education pedagogy require students to use metacognition or thinking about their thinking, as well as explain and verbalize their thinking (15 times); that both exemplary gifted education curriculum and instruction and the AZCCRS want students to work toward acquiring life-long, long term goals or transfer goals (15 times); that both AZCCRS and gifted education pedagogy requires identifying parts of a problem and utilizing problem solving techniques (8 times); and that gifted education curriculum, instruction, strategies, and techniques and the AZCCRS require students to justify their answers, reasons, and decisions with evidence (1 time). According to the perceptions of the gifted education specialists in this study who are some of the experts on Arizona's gifted student population, the Arizona College and Career Ready Standards have at least nine positive and distinct relationships with exemplary gifted education curriculum and pedagogy.

How gifted education specialists negotiate and implement the AZCCRS. Another frequency chart helped to answer the third research question in this study. Again using the stage three summaries of codes from the pre-interviews, first group discussion session, first half of the reflective journals (which were collected between the first and second group discussion sessions), the second group discussion session, the third group discussion session, the second half of the reflective journals, and the post interviews, I tallied every time I found a statement describing how a teacher negotiates and implements the AZCCRS.

I put each of these instruments to gather data across the top of the chart in the chronological order that they were collected. I used the stage three summaries of the

codes from the pre-interviews, reflective journals, group discussion sessions, and post interviews to count the responses. I returned to the stage one raw data to find example quotes and to check where the reflective journal first halves ended and second halves began in my stage three summary of codes as well as where each of the three group discussion sessions began and ended. Below is the frequency table:

Table 8

Frequency Count for Research Question 3

How do gifted education teachers interpret, negotiate, and implement the AZCCRS?	**Pre-interviews**	**1st group discussion session**	**1st half of journals**	**2nd group discussion session**	**3rd group discussion session**	**2nd half of journals**	**Post interviews**	**Totals**
Begins with AZCCRS, finds or creates gifted education curriculum to teach that standard—teaches to the standard	////			/				
Total of tallies	4	0	0	1	0	0	0	5
Begins with topic or curriculum (chosen or written), checks which AZCCRS is involved afterwards—aligns to standards	~~###~~ /		///	~~###~~ ///	~~###~~ ~~###~~	///	~~###~~ /	
Total of tallies	6	0	3	8	10	3	6	36
Interprets or unpacks AZCCRS same—micro level		/						
Total of tallies	0	1	0	0	0	0	0	1
Interprets or unpacks AZCCRS differently—macro level	/		//	///	~~###~~		///	
Total of tallies	1	0	2	3	5	0	3	14
Deepens the level of understanding of the AZCCRS	///		/	~~###~~ ~~###~~ /	////		~~####~~ ~~##~~ ///	
Total of tallies	3	0	1	11	4	0	13	32
Accelerates or implements above grade level AZCCRS	~~###~~	//	/	~~###~~ ~~###~~ /	///	/	~~###~~ ///	
Total of tallies	5	2	1	11	3	1	7	30
Concentrates on 8 mathematical practice standards from AZCCRS	/		/		///	////	~~###~~ ///	
Total of tallies	1	0	1	0	3	4	7	16

Implements multiple AZCCRS in clusters			/	///	////		////	
Total of tallies	0	0	1	3	4	0	4	12
Implementation, products, application of AZCCRS look different		/		/	///	//	~~////~~ ///	
Total of tallies	0	1	0	1	3	2	8	15
Note: Arizona College and Career Ready Standards (AZCCRS).								

Working backwards. Overwhelmingly, gifted education teachers stated or wrote that they begin with a topic of interest to gifted students or choose exemplary gifted education curriculum and then check which, if any, of the AZCCRS are involved in the curriculum. Some form of this response was recorded 36 times. This would be aligning their curriculum to the standards, but not actually teaching to each individual standard. Teaching to the standards, or choosing particular standards to teach and then choosing or creating curriculum that would allow teaching to those standards individually was only mentioned as a practice 5 times, mostly in the pre-interviews.

During group discussion session #2, the Director of Curriculum and Instruction, along with two other district level administrators, were invited to participate with the researcher and the three gifted education specialists. During this session, it was explained to the Director that the gifted specialists usually find a topic or theme first and then check what standards could be implemented in that unit, not the other way around. She was asked if this method was the wrong direction to develop curriculum, that is, backwards.

Her response was, "If you'd asked me that question two years ago, I would have said yes. That is backwards from what you should be doing." She further commented that,

> What Common Core is doing for regular ed. is why they're now coming to you (meaning the gifted education specialists)…because it's allowing them to think more on a macro level and then saying, how can we go about doing this? Well,

> how are you doing it over there? And what does that look like, and that looks interesting. And so you're hearing things like project-based learning, and you're hearing content inquiry learning and instruction, and those words are coming forward that are not new to you all, but are being refreshed in the regular ed. classroom. And that's why I think you're going to have even more teachers coming to you and saying well how did you do that and what does that look? I mean I think you're going to have even more of that collaboration. And I think our very gifted students are going to become…more comfortable in their own skin in their regular classrooms, should we put it that way? And so suddenly that's happening not just in one place in their world, it's happening in…more than one place in their world.

Working backwards and at more of the macro level to unpack and implement AZCCRS was not only approved by the Director of Curriculum and Instruction, but she encouraged the gifted education teachers to continue this practice. She was predicting that the gifted education specialists would become an important commodity of experience for other teachers in the district as they move toward this new way of implementing standards. Moreover, she thinks all students will benefit, but the gifted students in particular are going to be better off, "more comfortable in their own skins," in the general education classrooms because the way they best learn will be implemented more by not just their gifted education teachers, but also by their general education teachers with whom they spend the majority of their instructional time.

After the Director finished, one of the participants said,

> I feel I have a different responsibility from the classroom teachers too, as far as feeling guilty about doing it our way versus their way. And I'm, I'm glad my, my life's path took me where it took me, and this is where my focus is, you know. My focus, I feel like, is keeping that fire burning in these kids. Is keeping them excited about learning and excited about the wonder of the world and all those kinds of things, while I'm supporting what's happening in the classroom and while I'm making sure they move forward. But I don't feel like I'm so tied to you know, check, check, check, check, check. It's okay. They've got those checks there already. Now what can I help them do with it, so they can stay excited about learning this way.

One of the other district administrators, the Coordinator of Mathematics, stated to the gifted education specialists that, "The implication for your practice is that really…we're kind of narrowing the gap between classroom teachers and gifted teachers. And you've become a very, very high commodity. Or you will become a very high commodity." He further commented that, "As soon as the teachers see, see those tests you all of a sudden will, will carry great weight because they will come to you asking how, how do we, it's really how do we apply it? How do we teach kids to persevere? How do we teach kids how to reason abstractly? It's always been a very, very straight forward algorithm. And it's no longer an algorithm, it's really teaching students to think."

Then a participant, speaking about this study and unpacking a mathematical content standard in particular, commented, "And that's what this has done for me, is make me feel good because I know that for all those hours that I'm not with these kids, they, you know, everybody is going to be pushing them. Their classroom teachers are going to be thinking more along those lines."

Unpacking differences. During the study, the gifted education specialists noted that they unpack the AZCCRS differently than the general education teachers. I found that they actually stated this 14 times while stating that they unpack the standards the same way as general education teachers only once. The direct quote from the participant that said she unpacks standards the same way is, "But why would we need to unpack them any differently? I mean the way it's going to look in our curriculum will be different, but the final goal is the final goal, that these kids can exist in the world and do certain things in the world, as far as the transfer goals go. I don't think our unpacking will be any different, it's just what we do with the garments once they're out of the suitcase."

Another participant responded with, "I think it would, when we unpack them…I think it will look different…. Perhaps, perhaps it would be unpacked differently. Maybe it would look differently. The application of it will be different."

Both of these quotes were made before the gifted education specialists actually unpacked a mathematical content standard together, which was a task during the second group discussion session. Additionally, the participant that stated that she unpacks the goals the same as the general education teacher also said in the third group discussion session that, "…because of the fact that we don't have the pressure of the standards, it's, by nature, it's going to be different because our ultimate goal isn't the standard…. Our focus isn't the same." In fact, the gifted education specialists actually stated or wrote 14 times throughout the study that the implementation and application of the AZCCRS will look different for them then the general education teacher, and the products they ask for will be different as well. Most of these comments (13) were stated in the later part of the study during the third group discussion session, the second half of their journal entries, and the post interviews. With that in mind, specifically what differences of implementation did the gifted education teachers see themselves incorporating in their practice?

Implementation differences. Throughout the study, the gifted education teachers specifically mentioned four ways they perceive that they implement the AZCCRS differently from the general education teachers. These four implementation practices include: deepen the level of understanding of AZCCRS, implement above grade level AZCCRS or accelerate in some way, concentrate on the eight mathematical practice standards, and implement multiple AZCCRS in clusters. A total of 90 statements were

made by the gifted education teachers about implementing AZCCRS differently from the general education teachers.

Specifically, they mentioned that they deepen the level of understanding of AZCCRS 32 times in the data gathered. One participant explained that "Their homeroom teacher has been working on problem solving, and so I then took that problem solving and pulled more rigorous problems that applied to (what) we're exploring, the Rubik's Cube. So they had some concrete knowledge because we had been working with the Rubik's Cube…and they're trying to solve it, and so. But, also applicable to what they're, what they're doing in their homeroom class."

The gifted education teachers mentioned or wrote 30 times in the data gathered during the interviews, the journal entries, and the group discussion sessions that they seek AZCCRS that are above the grade level as they are designing and implementing curriculum, or accelerate in some fashion. One participant explained it as, "We have an ability, we as PACE teacher, have an ability to go to a different grade level that will be fitting for our students. But the classroom teachers don't get that opportunity to go to a different grade level even when they're trying to differentiate the material in the classroom, which I think for them is a huge problem. For us it isn't because if you can't find it at a fifth or sixth grade level for your third graders, you just go until you can find it."

The third way that gifted education specialists implement the AZCCRS differently than the general education teachers is by concentrating on the eight mathematical practice standards. They stated or wrote that this is what they do 16 times in the data gathered using the various instruments. In one of her journal entries, a

participant explained that, "The curriculum in my 2nd gr. Program provides a great deal of practice persevering, very abstractly & quantitatively, they are asked to build arguments…I feel it addresses all 8 standards very well."

The last way mentioned by the specialists was that they implement multiple CCSS or in clusters simultaneously in their curriculum. This implementation practice was noted 12 times in the data gathered using the data gathering tools. One participant described in detail exactly how she implements multiple standards in her gifted curriculum. When discussing standards, she stated that, "When I was in the classroom it drove instruction. You found a standard, you said this is how I'm going to teach it, then you went and taught it. We don't teach our gifted kids that way." Further, she explains that,

> We have multiple standards and multiple ways of applying those. So, I don't necessarily choose a standard or set of standards or even a grade level of standards and say I'm going teach this. But, I find myself more and more finding topics that to me say oh here is a really good career for a student. It will give them a flavor of this career and in the meantime, I'm going to be covering all of these different standards. So I go through them and I say, oh look here's English standards, here's this, here's that, and applying a whole variety of them into one thing that I'm going to be teaching. And I, I just can't, I can't pull myself back into that oh here's a standard I'm going to teach. In my classroom it would be, here's the standard I'm going to teach for the first five seconds and then we're going to move on to another one. So in one hour and a half time period, I'm going to cover probably, and cover them in depth, probably ten or fifteen of them.

Conclusion

This meticulous and systematic analysis continued until the last piece of data had been thoroughly summarized, coded, re-summarized and re-coded in order to answer the research questions: to what extent, according to the perceptions of gifted education specialists, do the Arizona College and Career Ready Standards support gifted curriculum and instruction, what are the relationships, if any, between the Arizona College and

Career Ready Standards and gifted curriculum and instruction, according to the perceptions of gifted education teachers, and how do gifted education specialist teachers interpret, translate, negotiate, and implement the Arizona College and Career Ready Standards while simultaneously adhering to the State of Arizona's mandates concerning gifted education and gifted students?

Gifted education teachers' perceptions are that AZCCRS support gifted education pedagogy that meets the curricular needs of their gifted students. Gifted education teachers increased their perception that AZCCRS support gifted education pedagogy over the time they were involved in the study, which is in evidence especially when comparing the pre-interviews to the post interviews. The participants were asked the identical questions in both interviews with the exception that the post interviews included one final question asking the participants to compare the current AZCCRS to the previous Arizona standards.

Gifted education specialists stated or wrote in the data gathered using instruments of interview transcripts, journal entries, and group discussion transcripts about nine distinct relationships between the AZCCRS and gifted education curriculum and practices, strategies, and techniques. Again there was an increase in statements that there are relationships rather than statements that there are no relationships over the time the participants were involved in the study in the data gathering instruments. This increase is seen especially when comparing their comments in the data gathered during the first half of the study to the second half of the study.

Three relationships in particular were delineated by the gifted specialists during the data gathering. The most referred to was the practice of deepening students'

understandings of concepts studied. The second most referred to relationship between AZCCRS and gifted education curriculum and pedagogy was the support of constructivist curriculum and methods such as project-based learning and guided discovery approaches (see chapter two: "Literature Review"). The third most referred to relationship was the similarities between the AZCCRS's eight mathematical practice standards and gifted education curriculum and practices.

The gifted specialists also briefly discussed in the data gathered six other relationships between gifted education practices and the AZCCRS. These included: ability to differentiate the AZCCRS; using the AZCCRS as a guide when choosing, writing, or implementing gifted curriculum and instruction; both require students to utilize metacognitive strategies and express their thinking; both want students to work toward life-long, long term goals or transfer goals; both require utilizing problem solving strategies; both require students to justify responses with data or evidence.

Gifted teachers in this study also stated or wrote in the data gathered that they implement and negotiate the AZCCRS differently than the general education teachers. They perceive a difference between aligning their curriculum to the AZCCRS and teaching to each individual standard. They begin with the topic or theme and only after the unit is written seek standards that apply, which is backwards from the general education teachers. The general education teachers, in the gifted teachers' perceptions, often use the standards as a checklist of what they have to teach and go down the checklist one by one until all are taught, thus teaching to the standards or allowing the standards to drive their curriculum.

Further, the gifted education teachers perceive a difference in how they unpack standards as compared to the general education teachers. They stated that they unpack the standards at a macro level more than a micro level because they have a different responsibility to students. They are trying to feed a hunger or keep a fire for knowledge burning in their students instead of preparing them for an assessment. They specifically mentioned four ways the implementation of AZCCRS differ for them: depth of understanding of AZCCRS, acceleration or using above grade level standards, concentrating on the eight mathematical practice standards, and implementing multiple standards in a cluster simultaneously.

Of course, how well these research questions were answered and the assertions that can be made depended on the reliability and validity of the research study. Besides listing the assertions about this investigation, I will discuss the research approach used for this study and the reliability and validity of this study. Additionally, I will discuss the strengths and limitations of the research design, threats to validity, and implications for further research in the next chapter, "Findings."

CHAPTER 5
FINDINGS

This chapter will list the findings of my research. It is my intent to report here the findings on my study concerning to what extent the Arizona College and Career Ready Standards support or do not support exemplary gifted curriculum and instruction, according to the perceptions of gifted education specialist teachers, the possible relationships between the AZCCRS and gifted education pedagogy, as perceived by gifted specialists, and exactly how gifted education specialists interpret, negotiate, and implement the standards in their practice while simultaneously adhering to the State of Arizona's mandates concerning gifted education and gifted pupils. I will include the assertions I formulated, the research approach I utilized, the reliability and validity of the data gathered for the research study, the strengths and limitations of the research approach and design, and any threats to the validity. I will end by delineating implications for further research this study may have generated.

Assertions

During the analysis, and particularly toward the end of the analysis, I began to formulate assertions about the findings. These were noted in my researcher's journal, and then the data was combed through again to validate or disconfirm these assertions about to what extent, according to the perceptions of gifted education specialists, the AZCCRS support gifted curriculum and instruction, what the relationships are, if any, between the AZCCRS and gifted education in Arizona, as perceived by gifted education teachers, and how the gifted education specialist teachers negotiate and implement both simultaneously.

Throughout the analysis of the data gathered for this research study, I sought triangulation among each participant's individual data and among the data of the various participants (Denzin and Lincoln, 2013). Documenting triangulation demonstrated validity of the assertions that emerged by establishing converging lines of evidence. Using multiple instruments to gather data and uncovering triangulation made the findings of the study very robust and as valid and reliable as possible.

Four assertions developed from this investigation of the AZCCRS and gifted education pedagogy used with quantitatively gifted students. Three of the four assertions answer the three research questions investigated in this study, respectively, and are (a) do the AZCCRS support exemplary gifted curriculum and pedagogy as perceived by gifted specialists, (b) what are the relationships, if any, between the AZCCRS and exemplary gifted curriculum, methods, strategies, and techniques, as perceived by gifted specialists, and (c) how do gifted education specialists interpret, negotiate, and implement the AZCCRS while simultaneously providing curriculum and instruction that is commensurate with the academic abilities and potential of gifted students and complies with the State of Arizona's mandates concerning gifted students and their education. The fourth assertion is evinced by the participants who, through participation in tasks for the research study, reflected on and subsequently felt validated in their gifted education practices.

Assertion 1. The AZCCRS support exemplary gifted curriculum, best practices for gifted education, and instructional strategies and techniques used with gifted students in the State of Arizona, according to its statutes as perceived by gifted education teachers. Further the AZCCRS support what gifted education specialists know they need

to do to meet the curricular needs of their gifted math students (see chapter two: "Literature Review"), according to the perceptions of three practicing gifted education specialists who served as volunteer participants in this study. The evidence to support this assertion is the frequency count I performed on the statements made by the gifted specialists that pertained to whether the AZCCRS do or do not support gifted education curriculum and pedagogy implemented with quantitatively gifted students. Triangulation of this assertion was demonstrated because not only did all three participants state or write several times that the AZCCRS supported their gifted pedagogy to meet the curricular needs of their gifted students, but they stated or wrote about this support in all the instruments to gather data, the pre- and post semi-structured interview transcripts, all three of the group discussion session transcripts, and in both the first and second halves of their reflective journal entries.

Overwhelmingly, the specialists stated or wrote that as they learned more about the AZCCRS, they perceived how these standards support gifted education curriculum and instruction. The percentages of the frequency counts were 13.6% of the total statements about support being that the AZCCRS do not, while 86.4% being the AZCCRS do support gifted education pedagogy. As the district's Coordinator of Gifted Education stated, "It pairs nicely with what we do." Further, she agreed with one of the participant's sentiments when she added that, "…this has been our approach all along, prior to the Arizona College and Career Ready Standards, this is how we operate and we know that those are best practices for our students."

Further, the supportive statements are clearly seen to increase from the pre-interviews to the post interviews. When comparing the supportive responses from the

specialists during their pre-interviews and their post interviews, the difference is dramatic. Only 11.7% of all statements about support, one way or the other, were made in the pre-interviews, and of those 7.8% were that the AZCCRS do support gifted education practices. However, 31.9% of all statements made throughout the data gathered for this study concerning support, one way or the other, were made in the post-interviews, and of those 29% were that the AZCCRS support gifted curriculum and pedagogy.

One participant went from stating that the AZCCRS are really just what general education teachers had to worry about, to signing up to take a Saturday professional development class on how to unpack the AZCCRS, and then actually unpacking and writing mathematics curriculum with general education teachers over the summer so their end product would include gifted education pedagogy that aligns with the AZCCRS. She also planned to do more unpacking of AZCCRS to include in her own gifted mathematics curriculum and instruction. Her last comment in her reflective journal was, "Common Core is Good for Gifted!"

Assertion 2. There are three main relationships between the AZCCRS and gifted education pedagogy implemented with quantitatively gifted students as perceived by gifted education specialists: requiring that concepts be learned in depth for understanding and application, recommendation that constructivist curriculum be implemented, and the similarities between the eight mathematical practice standards and exemplary gifted education pedagogy. Additionally, the gifted education teachers discussed or wrote about six other relationships that they perceived between the AZCCRS and the gifted education pedagogy that they follow. Triangulation surfaced for this assertion because all three participants expressed several relationships between the AZCCRS and gifted curriculum

and pedagogy, and comments were recorded about relationships existing in all instruments to gather data, both pre-and post semi-structured interview transcripts, all three group discussion session transcripts, and both halves of the reflective journal entries.

Depth. The first relationship, depth of understanding concepts, was mentioned by the gifted education teachers 31 times or 20.7% of the total positive comments made about various relationships that exist between gifted education pedagogy and the AZCCRS. As one gifted teacher put it, the AZCCRS are "intended to go more in depth each year rather than cover a wide span of information, go more in depth with fewer, fewer topics."

When comparing the previous Arizona standards to the AZCCRS, another gifted education specialist stated that, "…the ones previous to this were so much more about the skills that they needed to have as opposed to…the Common Core seems to guide a little bit more about how you're supposed to present it. You know it gives more of an understanding of, yes they need to know how to do these things, but in this context or this context. And they need to know how to do it deep enough to explain it." The third gifted education participant said that, "the Common Core Standards because they spiral the way they do, and because they can be built on…because of the way they're worded, and because they…have a built in relationship to be an end game at the high school level, there's an ability for them to be stretched and an ability for them to be deepened."

Constructivist curriculum. The second main relationship between the AZCCRS and gifted curriculum and instruction that the three participants perceived was the ease with which constructivist curriculum could be implemented. This is mostly due to the

requirement from constructivist curriculum for students to have to think through their own work, to make their own discoveries, and to apply those discoveries in authentic, real world situations. These are outlined clearly in the cornerstone tasks that McTighe and Wiggins recommend to take the AZCCRS from statements to actual curriculum in their article entitled "From Common Core Standards to Curriculum: Five Big Ideas." The three gifted education specialists also perceived this relationship. The gifted specialists made 23 statements, or 15.3% of the total 150 statements made about relationships existing, about this particular relationship between the AZCCRS and constructivist curriculum such as project-based learning, problem-based learning, and inquiry based learning, all used widely in gifted education pedagogy (see chapter two: "Literature Review").

Eight mathematical practice standards. The third main relationship perceived by the specialists, the similarity between the AZCCRS eight mathematical practice standards and gifted education pedagogy, was mentioned by the participants 21 times out of the 150 relationship statements made, or 14% of the relationship statements made were made about the eight mathematical practice standards and gifted education practices and goals.

In her reflective journal, one of the gifted education teachers wrote, "I simply feel affirmation…Feels like all along we've been practicing teaching habits & planning instruction that is supportive of strengthening & developing the 8 mathematical practices for our students." At another point in her journal she wrote, "One thing I've realized with the CCSS as they are set up, with the 8 MP that cycle throughout, in working with Gifted Ed. students, if I focus on the Mathematical Practices, I can easily differentiate based on their level while still strengthening skills at their 'grade' level. Hence—going deeper."

This same gifted education specialist, during her post interview, explained that, "what the Common Core State Standards have that's the same among every grade level are the practices. (The previous) Arizona State Standards didn't necessarily have practices…when I think of practices I think of methods and ways of learning or kind of like life styles. You know, it's a life skill…. Common Core has it."

Six others. Six other relationships were also perceived and recorded in the data gathered from the gifted education participants throughout this study, but not as frequently as the three described above. These include: ability to differentiate the AZCCRS; using the AZCCRS as a guide when choosing, writing, or implementing gifted curriculum and instruction; both require students to utilize metacognitive strategies and express their thinking; both want students to work toward life-long, long term goals or transfer goals; both require utilizing problem solving strategies; both require students to justify responses with data or evidence. However, when taken altogether, the gifted teachers perceived and talked about being a relationship between AZCCRS and gifted education 150 times while simultaneously stating that there is no relationship between the two only 7 times in the data gathered for this study.

Assertion 3. Gifted education teachers perceive that they implement the AZCCRS in at least four distinct ways. Additionally, they translate or unpack the standards differently from the way general education teachers translate and unpack standards, and they negotiate the standards backwards from the way teachers have been taught in this district, in their perceptions. Triangulation occurred once again for this assertion because all three participants contributed comments about the various ways they interpret, negotiate, and implement the AZCCRS in their practice. In addition, all four of

these ways of interpreting, negotiating, and implementing appeared in all instruments to gather data used in this study, which included the pre-and post semi-structured interview transcripts, all three group discussion session transcripts, and both halves of the reflective journal entries.

Deepens standard. The most frequently mentioned way that gifted education teachers perceive they implement the AZCCRS is deepening the level of understanding and application of the standards for their students. Gifted specialists mentioned this 32 times. For example, when the gifted education teachers were asked to unpack a mathematic content standard of their choice during the second group discussion session, they immediately went to a deeper level with it, according to the Coordinator of Mathematics who was also in attendance. He had just heard all three participants describe math lessons that included strategies to embed the eight mathematic practice standards into their lessons and therefore had some knowledge of how the participants negotiate the standards in their quantitative gifted classes. The gifted specialists began the unpacking by all stating that perhaps an activity to teach the standard would be estimating when shopping. But, they didn't stop there, they brainstormed how this standard about place value, rounding, and estimation could be taken deeper by applying it to a situation where rounding might not be appropriate such as with medication doses, busses needed for a field trip, people attending a wedding dinner reception. They continued with Olympic race outcomes, baseball statistics and reaching out to a current baseball player through an analysis of his hitting statistics and asking if he might need a new agent, stock market analyses, and even political polls that can be skewed one way or another and the moral implications which could be debated by the students. This was for the third grade

mathematics content standard that the specialists had chosen to unpack.

The Coordinator of Mathematics then shared a sample question from the PARCC and explained that these very situations that would cause a student to have to think through a problem while using math skills, rather than just robotically perform an algorithm to get an answer, will be what all students will be asked to do on the coming assessments. Speaking to the gifted specialists, he said, "The implication for your practice is that really…we're kind of narrowing the gap between classroom teachers and gifted teachers." During the third group discussion session, when reviewing the list of brainstormed ideas that could take the unpacked standard deeper, all of the participants commented on how each idea on the list could be written up as a unit they felt would be pretty good. One participant commented, "I'm looking at all these, thinking wow, how many of these could be written up for us to use? I mean, we could write up any of these into an InterAct (commercially published gifted curriculum mostly written by practicing gifted education specialists). Guys we could do this!" Further, she stated, "Some of these like political polls when rounding to sway voting opinions and the implications of it. We've never done anything like that, but we could."

Implements above grade level standard. The second most frequently mentioned way that gifted education teachers perceive they implement the AZCCRS, is implementing above grade level standards with their students, or some form of acceleration of the standards such as increasing the pace of the implementation. Gifted specialists mentioned this 30 times in the data gathered.

When explaining her practices during the pre-interview, one specialist said, "I guess it's the, the fact that we've always talked about the differentiation you can go, you

can go faster…." In her journal, this same participant described several math units that involved above grade level math standards that she used with her quantitatively gifted third graders. One was a mystery that involved solving math problems to get clues to unravel the mystery. She wrote, "3rd graders loved solving the problems to get to the final solution to the mystery. Students used multiplication/division, fractions, area of odd shapes. When students got to the area problem, critical area for math in upper grades, they couldn't solve. A mini-lesson was taught. Students were highly motivated to learn, reason abstractly, how to find the area—a necessary step to finding the silver claim & earning their reward—a silver wrapped Andes mint."

When describing another example with her 3rd grade quantitatively gifted class she wrote, "Lost in Bonkers. Kids loved the wild goose chase through the city. Students were eager to learn about squaring numbers, prime numbers, number patterns, practice finding fractions of whole numbers—saw relationship between that and division." Finally she wrote about a third example she used again with students in her 3rd grade gifted math class, "M&M Math. Valentines addition. Again highly motivated to apply math skills in very difficult logic problems created for middle school level math students. Perseverance!"

Concentrates on eight mathematical practice standards. The third most frequently mentioned way that gifted education teachers perceive they implement the AZCCRS is concentrating on the eight mathematic practice standards that are intended to spiral through the grade levels. Gifted specialists mentioned this 16 times. When writing in her reflective journal at the very beginning of the study, one participant wrote, "Something I found interesting though was in reflecting on what we do as PACE teachers

and discussing Common Core. I feel like we meet/cover/exceed those 8 Mathematical Practices that are recycled among the grade levels."

Later in the study, while describing a complicated math game that she has been using with her quantitatively gifted class she wrote in her journal, "All in all, the students are highly motivated. What they potentially forget is that they're practicing in-depth math practices (meaning the eight AZCCRS mathematic practice standards) along the way." In her next reflective journal entry, she made a plus/delta chart for this particular game she has been implementing with her students. Under the plus heading she listed, "student collaboration and discussion—using math vocabulary and critical thinking, it's fun! For both student & teacher, aligned w/CCSS 8 Mathematical Practices."

Toward the end of the study this same participant wrote in her reflective journal that, "After hearing, sharing & discussing with the other PACE teachers & district admins, I simply feel affirmation. Feels like all along we've been practicing teaching habits & planning instruction that is supportive of strengthening & developing the 8 mathematical practices for our students."

Implements multiple standards simultaneously. The fourth most frequently mentioned way that gifted education teachers perceive they implement the AZCCRS is by implementing multiple standards in clusters simultaneously. Gifted specialists mentioned this 12 times. In her reflective journal, one of the participants noted, "In planning our focus groups and in our semester themes we have always used the long term goals, understandings, EQ's, and cornerstone tasks, although we don't call the C.T. that term. So, in essence C.C.R.S. standards are something we have always done & included, but we do them at a higher level and at a deeper investigation, as well as doing more of

them at a time, because the kids can do more at a time."

During the third group discussion session the participants were discussing how many of their units are interdisciplinary units, even in math. When writing up the units, this same participant explained that this practice, "is why our units end up with five and six pages of standards that we've been covering." Later, when describing how she implements the AZCCRS during her post interview, this participant stated, "So, I would typically start with, I guess kind of an, an overview and then go to the standards. But what we've found is that in doing that, it's huge, we're usually covering multiple standards with the units that we have."

Unpacks and negotiates standards differently. Besides perceiving that they implement the AZCCRS in four distinct ways, the gifted education teachers perceive that they unpack and negotiate the AZCCRS differently than the way teachers in this district have been taught. When describing through the various data gathering tools how they unpack and negotiate the AZCCRS, the gifted specialists in this study overwhelmingly stated that first they create or chose topics or themes of interest to their students, write up the unit, and then search through the standards to find individual ones that align with the unit. They specifically mentioned this practice 36 times throughout the study. They perceive this is backwards from the way the teachers have been taught to negotiate the AZCCRS in this district.

They perceive the way the district personnel have assisted teachers in unpacking and navigating their way through the standards is to first become very familiar with all the standards for one grade level and then choose or create curriculum that allows implementation of those standards, one by one, making sure that each one has been

implemented with every student. This is implementing standards at a micro level. The gifted education specialists perceive that they implement standards at a more macro level. The participants mentioned in the data gathered that they unpack the standards differently than general education teachers 14 times.

In one of the participant's reflective journal entries, she wrote, "I think the biggest take away I got from this is that whereas we have focused upon a broad category of learning for a semester at a time, then decided what we want the students to know—then the standards which reflect that learning—classroom teachers don't." In the third group discussion session, this same participant stated, "When we're looking at any unit, or any unit we want to write up, or anything that we, we think that our kids could benefit from or with, we, we do a lot of that backwards filling in. We'll look at it. We'll say this is the end product. This is what I want them to know, now let me find a standard that supports that even if we have to go to different grade levels that are higher."

Another participant, also during the third group discussion session stated, "We have an idea, and we then try, we look at the standards and we say, okay what, which ones will I cover with this awesome idea, this amazing unit that I have planned." Later she added, "So, I think we start with the, start with the end and then we look back at the standards."

Likewise, when asked how she negotiates the AZCCRS during her post interview, one of the participants stated, "Well, just as in the past, we have things that we've been using that I know are good for kids and it's good thinking that's going on. And just making sure that I am meeting the standards. So kind of working backwards from what I'm doing and make sure there are standards that it meets." Another gifted education

teacher during her post interview stated, “So the Common Core Standards, yes I like them…. I feel really sorry for the classroom teachers. I wish they could teach like us. But this is how I do it. So I don’t necessarily choose a standard and go forward. I choose a thing (topic, theme, or unit) and then I go look for the standards.”

Besides working backwards when they negotiate the AZCCRS in their perception, the gifted education participants in this study also perceive they unpack or translate the standards differently. They perceive they have a different focus or purpose than the general education teachers. During her post interview one participant summed up the way gifted education specialists interpret, negotiate, and implement the Arizona College and Career Ready Standards when she stated,

> I think one of the big things, yeah, going quicker. You know, giving them an opportunity to learn something new just as other kids learn something new. So, the excitement of learning something new. Letting them, to some extent they come to me and say this is something I’m curious about. You know, so satisfying their need to know has been a big part of it…. So moving quicker and deeper and also having an understanding of, you know, what this means in their future life. Giving them an exposure to the different types of jobs that they could have or careers that they could have that their quantitative giftedness would make them good candidates for. Things like that.

Specifically, the participants commented or wrote that they perceive that they unpack or interpret the AZCCRS differently, more on a macro level, than the general education teachers 14 times.

One participant explained the difference in how she would interpret and negotiate a standard differently from a general education teachers. She stated during her post interview that,

> Well they’ve got science. Well so do we. Our science is going to be at a different l level. Ok, they’re learning the scientific method. That’s great. Let’s make the scientific method work for us. Ok, yes we’re going do to an experiment. Ok, they

> do an experiment maybe on a film or in a book or whatever. We're going to take the chemicals and we're going to make it. Ok, so when we're applying it, we're applying it in a different way, in a deeper way, in a more investigative way. But you still have the standards that can be applied in the classroom in a way, and yet they can be applied to us in a very different way.

Further into the interview she revisited this idea and said, "Here's the everyman standard or the every-child standard that every child needs to know. And then we take it and…explore it in a way that's going to make it so that your brain is going to want to absorb it at a deeper level and be able to apply it at a deeper level and maybe even apply it for the rest of your life…. Career. I call it career oriented. Authentic learning. Same thing."

Another participant stated that the eight mathematic practice standards are what the AZCCRS have that the previous Arizona standards did not, and that concentrating on these standards is how she perceives that she interprets and negotiates the AZCCRS in a different way then when she was a general education teacher. She stated, when speaking about the eight mathematical practices, that, "When I think of practices I think of methods and ways of learning or kind of like life styles. You know, it's a life skill. So, that was missing out of Arizona State Standards. Common Core has it."

Because she perceives that the needs of her gifted students and implementing a curriculum and pedagogy with them that meets these unique curricular needs is the most important criteria in choosing and implementing any curriculum, one of the gifted specialists stated that, "I think that the students impact the curriculum more than the, more than the Common Core impacts the curriculum."

One of the participants even became a bit frustrated when describing what she perceives her quantitatively gifted students need that they don't get in the general

education class because of the differences in the interpretation, negotiation, and implementation of the AZCCRS. She stated in her pre-interview,

> I think they need to be given an opportunity to use their knowledge, you know, use their mathematic understanding in a variety of ways, you know project-based, that kind of stuff. But I also think that to keep that, that fever in them they deserve to learn new concepts when they're ready for them. And I think that's one of the, the things, the most frustrating things that I feel that I see arising in the quantitatively gifted kids is that need to move forward and their frustration when they're not allowed to.

This same participant, during the second group discussion session iterated to the Director of Curriculum and Instruction and the Coordinator of Mathematics that she does not feel guilty about negotiating and implementing the AZCCSS differently from the general education teachers because, as she put it,

> I feel like I have to make sure that what I'm doing supports what's happening in the regular classroom. And it's not like it's oh, it's their responsibility, it's on them, but I don't feel the same level of, of probably I'm going to use the word pressure, but that's probably not the right word. For them it is about I need to make sure I've covered each and every one of these standards, where I make sure that what I'm doing, my focus is more on the thinking part of it, and the experiential part of it, and the interaction part of it, and all the stuff we want for the gifted-land, and I make sure that I also support the teachers in their pursuit of making sure the kids have learned the standards.

Later, in the third group discussion session, this same participant explained that, "because of the fact that we don't have the pressure of the standards, it's by nature, it's going to be different because our ultimate goal isn't the standard. We're going to make sure it's there, in my mind, but I'm not held to the same level of scrutiny, or whatever can't think of the right word, as a teacher is to make sure those standards are there." And she added, "Our focus isn't the same…. We're aware of it but because we teach it at such a variety of levels, we're not, we don't go through the checklist of, oh I'm teaching 5th grade quant. so what's the 5th grade quant. stuff going to need?"

Another participant is in agreement and states, “I would agree that there’s a big difference between teaching to the standards and aligning our curriculum to the standards.” Later she adds when remembering what the district level administrators said during the second group discussion that, “maybe it’s going beyond saying they would like to see more of the aligning, maybe they’d like to see more authentic learning, maybe they’d like to see more thinking outside of the textbook.”

Assertion 4. Through reflection of their own practices due to the tasks they were asked to perform for this research study, the gifted education specialists felt validation and affirmation in their gifted education practices. One participant thinks the AZCCRS are closer to the way gifted specialists teach, so AZCCRS validates her way of teaching more than it impacts it. But another participant thinks that the AZCCRS do impact the gifted curriculum that she chooses because she measures the value of what she is teaching to the AZCCRS. Further, she states that the AZCCRS are more applicable to gifted education curriculum than the previous Arizona standards, and she appreciates that. She feels that many important life concepts are in the AZCCRS. All three participants felt that what they do for their gifted students was similar and apparent within the framework of the standards, at least for the mathematics division, and the message to them was to keep doing what they have been doing. Triangulation surfaced again for this assertion because all three participants not only made comments about the research study helping them to reflect on their practice, but that through the research study they came to certain realizations about their gifted education curriculum and instruction, practices, and pedagogy.

In her post interview, one of the gifted education teachers, when reflecting on her pedagogy and comparing it to general education, said, "But it has also given me thought about how I present the information. You know, in doing the games and doing the real life situations and those kind of things. The lesson, the instruction looks different, the expectations, the products are different. The focus is different." Later in her post interview she also stated,

> Raising the awareness. I think that, that, well for me, you know, I guess it is as much about your study as it is about the Common Core itself, but I think it is important for me to understand the expectations of not only the classroom teachers but of the students so that when they come to me for support, for curriculum support, I can help support them. So, I think that's a big part of, of how the standards help me do my job is by giving me a framework to start with for the classroom teachers. I know this is something you're responsible for. This is how I can help you run with it for my kids.

In another gifted teacher's post interview she stated, "Thank you for allowing me to participate. It was a nice reflection…. Through our conversations I felt validated in what we're doing. And, and I got some great ideas, brainstorming with all of you. So, thank you!"

Another participant also felt that the study was a valuable use of her time. She stated, "What I said in my notebook too is that it's been a good experience because it has, I was forced to look at the standards with you, and really look at them and tease them apart and it made me realize this is a valuable use of your time and that's why I'm going to do the kindergarten standards this summer." This participant wrote in the first entry of her reflective journal that she, "realized how little I knew about the Common Core. I read through the standards previously—or should say—skimmed over…felt that I had not focused enough, saw them as what the reg. ed. teachers had to worry about." In the last

entry of her reflective journal she wrote, “I guess the best thing I can say about this process is—it worked! I am def. much more aware of the CCSS & see it as something I need to focus on to support my students and their teachers.” She ended her journal entries with, “Common Core is Good for Gifted!”

Another participant, also while reflecting in her journal and after the second group discussion session, which was attended by the Director of Curriculum and Instruction as well as the Coordinator of Mathematics, wrote, “ Reflect on Group Discussion. Some great things came out…It’s such a relief to know we’re doing what CCSS ‘expects…’ After hearing, sharing & discussing with the other PACE teachers & district admins, I simply feel affirmation…Feels like all along we’ve been practicing teaching habits & planning instruction that is supportive of strengthening & developing the 8 mathematical practices for our students.”

All three participants felt validation in some way for the way they interpret, negotiate, and implement the AZCCRS, based on this study and the tasks they were asked to perform. One gifted education specialist stated,

> And so I’m really glad that you did this…. But this is a topic, I think, that’s really, it’s really futuristic…because it’s something that needs, it needs to be done for gifted kids. And I think that if you, doing this it will allow more people to realize what we in gifted education go through and do because I don’t think they understand what we do. I really, really don’t…. And that’s kind of a sad state of affairs. And yet, it just is going to take these kinds of things that you’re doing to keep bringing it to the fact that professors in college need to focus more on it as well, and I don’t think that they do.

Research Approach

This research project used a qualitative approach. This approach is best because the data gathered are the interpretations, translations, and perceptions of the gifted

education specialist teachers about the extent to which the Arizona College and Career Ready Standards, support the gifted curriculum and instruction mandated by the 2007 Revised Statutes of the State of Arizona, the relationships, if any, between the AZCCRS and gifted curriculum and instruction, and how these same gifted education specialist teachers negotiate, interpret, and translate the AZCCRS and modified curriculum and differentiated instruction simultaneously.

The best way to gather this data from the participants was to ask them directly in semi-structured interviews as well as in reflection entries written in their personal journals, and in group discussion sessions. The semi-structured interview transcripts and collaborative group discussion session transcripts were checked for accuracy by the participants in a member check to add reliability or accuracy of the evidence (Saldana, 2012). All data collected by the various instruments were compared during analysis to all other data collected throughout this research, which resulted in triangulation (Denzin and Lincoln, 2013).

Reliability and Validity

Since I am a member of the district's faculty and a member of the gifted education department of this district, the reliability or confidence level of the data gathered is fairly high. The participants have known me for many years as a valued colleague, thus they feel quite at ease to discuss and record actual interpretations and perceptions about the needs of gifted students and how well the AZCCRS support gifted curriculum and instruction, for example. I do not have to work at becoming an insider observer-participant because I already am an insider observer-participant (Creswell, 2013). Plus, there was outcome validity, process validity, and catalytic validity in

evidence throughout this research study (Lather, 1986). Finally, the member checks performed lent additional reliability (Saldana, 2012).

Researcher's credibility. I have been a gifted education specialist for over twenty-five years with a full gifted endorsement from the State of Arizona. Gifted education has been my passion and career choice, teaching identified gifted students from kindergarten through eighth grade, for the past twenty-seven years. I have attended over twenty state-level conferences specifically focused on gifted education, made over one-hundred presentations on the characteristics and needs of gifted students to parents and educators, held parent workshops concerning the characteristics, academic needs, and social and emotional needs of gifted children, attended dozens of workshops on every subject associated with gifted and talented students, subscribed to and read the most prominent gifted education journals, attended a week long gifted summer institute (Confratute) at the University of Connecticut which is the headquarters of the National Research Center of the Gifted and Talented, been a member of the Arizona Association of Gifted and Talented (AAGT) for over twenty-six years, been a presenter at the annual AAGT conference on four occasions, taught ten university level courses to teachers who are seeking their gifted endorsements, and raised a gifted child. I have invested years of my adult life to promoting the actualization of children's potential. This life-long experience and dedication to the field of gifted education gives me a deep sensitivity to the topic of gifted students and to gifted education that meets their specific needs. My experience, dedication, sensitivity, passion, and promotion of gifted students and their education adds to the credibility of the findings I discovered during this investigation.

Additionally, I am dedicated to researching answers to the three questions in this study in order to advance the knowledge base surrounding gifted students, their specific academic needs, and gifted education as a field. Specifically, I want to add to the knowledge base surrounding the relationships between gifted education pedagogy and the Arizona College and Career Ready Standards, if the AZCRRS support exemplary gifted curriculum and instruction, and how the gifted education specialists interpret, negotiate, and implement the AZCCRS while simultaneously providing for the needs, as outlined by the statutes in the State of Arizona, for their gifted students.

The participant pool that I have chosen includes all gifted endorsed specialist teachers who are equally dedicated to providing academic experiences commensurate with the academic and intellectual needs of their identified gifted students. All potential participants from this pool promote actualizing the potential of their identified gifted students. Additionally, all participants from this pool have been colleagues of mine for many years in this district and in the gifted education department of this district. The strong relationships built by mutually pursuing the same goal for gifted students adds to the reliability of the data gathered and the analysis and findings from this data.

I kept a researcher's journal and wrote frequent memos about my reactions and feelings during the data collection and analysis phases of this study in order to aid in recognizing the influence that I may have on the data and analysis as well as the influence the data and analysis may have had on me. This practice adds to the credibility of the findings and helps reflect my and the participants' experiences with the educational phenomenon of whether the Arizona College and Career Ready Standards support gifted curriculum and instruction while meeting the mandates outlined in the State of Arizona

statutes concerning gifted students and gifted education, what the relationships are, if any, between gifted education in Arizona and the Arizona College and Career Ready Standards as perceived by gifted education teachers, and how gifted education specialist implement the AZCCRS and gifted education curriculum and instruction simultaneously.

In addition to triangulation of the evidence and my credibility, several forms of validity surfaced during this research investigation including outcome validity, process validity, and catalytic validity (Lather, 1986). These forms of validity added to the robustness of this study, as did the member checks that were performed on the transcripts of this study (Saldana, 2012).

Outcome validity. A test if outcome validity or trustworthiness, according to Anderson, Herr, and Nihlen (2007), is present in a study is whether the issue being researched leads to a resolution or deeper understanding of the problem. Using this measurement, there is outcome validity present within this research study because all three of the major research questions were answered and in the answering of these research questions the three participants clearly came away with a better understanding of the AZCCRS and their own gifted practices, as did I the researcher.

All three of the participants wrote or stated that they better understood the relationships between the AZCCRS and their gifted pedagogy. They described relationships between these two 150 times in the data gathered for this investigation. All three of the participants wrote or stated in some way in the data that the AZCCRS support exemplary gifted curriculum and instruction. They noted this support 89 times in the data throughout the study. All three of the participants felt they clearly interpret or unpack, negotiate, and implement the AZCCRS uniquely. They described this interpretation,

negotiation, and implementation 155 times in the data gathered throughout the research project. Clearly the three major research issues were resolved and clearly the participants and I ended the study with a much better understanding of our positions as gifted educators in this district.

Process validity. Another form of validity I found during the analysis portion of this research study was process validity. Anderson, Herr, and Nihlen describe process validity or trustworthiness as how the problems or research questions are framed and if the individuals or participants involved could experience ongoing learning because of the way the questions are solved (2007). Further they explain that process validity must include evidence that supports the major assertions.

Clearly in this study the four assertions were substantiated with evidence. The evidence or data, in this research study, were the number of times the participants wrote or stated answers to the three main research questions throughout the investigation. Frequency tables 6, 7, and 8 in the data analysis chapter outlined these responses, which were complicated and open-ended. For example, table 7 charts the various relationships that participants perceived between the AZCCRS and their gifted pedagogy. There turned out to be nine relationships discussed in the data gathered for this study by the participants, but there was no limit, hence open-ended, to the amount of relationships that might have been found.

Table 8 charts the perceptions the participants mentioned that they interpret, negotiate, and implement the AZCCRS. There turned out to be four distinct ways they perceive themselves implementing the standards and two ways they perceive themselves negotiating the standards, but these were both open-ended and there could have been

more or less of either. Additionally, the participants perceived that they interpret and unpack the standards differently than the way general education teachers do.

There was triangulation present in the comments made regarding all three research questions and within all data gathering instruments: the pre-interview transcripts, the reflective journal entries, the three group discussion session transcripts, and the post interview transcripts (Denzin and Lincoln, 2013). Additionally, all three participants stated that they want to know even more about the AZCCRS. I too feel that there is more room for understanding the AZCCRS as they relate to my practice as a gifted education specialist.

Catalytic validity. Comparing the interpretations and perceptions at various times during the study, uncovered changes in the interpretations and perceptions of the participants. Catalytic validation surfaced in the evidence gathered (Lather, 1986).

This was found, for example, when one of the gifted education specialist teachers stated she did not use the AZCCRS before the study, but now does because the research study itself has influenced her. This participant's interpretation of the AZCCRS changed in her own data. This new or changed perceptions of her interpretation and implementation of AZCCRS is so positive that she is expanding the implementation of AZCCRS into her curriculum and instruction, especially since she did not implement AZCCRS before and she noted this in her own data.

Another example of catalytic validity is that a participant's confidence about the AZCCRS supporting gifted curriculum and instruction became so positive that she sought out participating in professional development activities to learn even more about how to implement the AZCCRS into her gifted curriculum and pedagogy (Lather, 1986). She

stated in a reflective journal entry that she plans to expand her knowledge and use of the AZCCRS and that she is going to reflect more now in all areas that she teaches, in regards to the AZCCRS. In her post interview she also stated that she knows more now about the AZCCRS but still not enough, and that becoming more aware of the AZCCRS through this research study has allowed her to get better at being sure to include the math content standards in her teaching and working with her quantitatively gifted students. Additionally, she decided to work alongside general education teachers in unpacking the AZCCRS over the summer in order to increase her knowledge about how the AZCCRS can be interpreted and implemented for her gifted students both when they are with her and when they are with the general education teachers. This decision exemplifies catalytic validity.

The third participant also exhibited catalytic validity in her data, but more mildly and more subtly (Lather, 1986). At the end of her journal entries, reflecting on how she interprets, negotiates, and implements the AZCCRS she wrote, "I still wonder how the classroom teachers are working this out. I feel they need to do it more like us, but they probably can't. This might be something I check out…. I've learned a lot about applying the CC Standards." Further, when speaking about the AZCCRS during her post interview this participant commented that, "And now we have these, which I really like and I'm really, really hoping that the classroom teachers can embrace the way that we do it with the things that they're doing. I think it would make teaching much more fun for them because I really. I look at them now and I think, wow, there's so much more that you could be doing and it would be so much more fun for you and the kids. They would love learning."

Member checks. I asked the volunteer participants to perform member checks on the transcripts of the semi-structured pre-interviews and post-interviews and transcripts of the group discussion sessions (Saldana, 2012). Specifically, they were asked to check all transcripts for accuracy of the transcribed words and phrases as well as accuracy of the meaning and intent by the participants. These member checks increase the robustness of the study and contribute to the overall validity and reliability of the data gathered, the analysis of the data, and the findings of the data (.

Strengths and Limitations of Approach and Design

There are several strengths to this research study including: the approach as a strength, the design as a strength, the thoroughness of the data analysis as a strength, the contributions to the knowledge base this study makes as a strength, the findings as a strength, and the researcher as an insider observer participant as a strength. There are some limitations to this research study as well including: the small sample size of participants and my role as an insider observer participant.

Approach as strength. The main strength of this research study is that it is a qualitative approach. The development of interpretations and perceptions can be documented much more easily with a qualitative approach than with a strictly quantitative approach because the nuances of why the interpretations and perceptions change, why they are positive, why they are negative, or why they are neutral was extracted from the data during analysis while a statistic, such as a percent of participants that answered a survey about their perceptions, might not explain this as well. A qualitative approach yielded rich and deep explanations for the interpretations and perceptions. This information could be quite valuable as this district, or other districts,

look at the way they serve their gifted students as well as the professional development needed for their gifted education specialist teachers. It could mean that changes are necessary in order to meet the needs of gifted students to be in compliance with the State of Arizona's statutes regarding the education of these students as well as complying with the AZCCRS initiative. Using a qualitative approach simply explained more clearly what was going on with the education of quantitatively gifted students in this district as far as the implementation of the Arizona College and Career Ready Standards are concerned.

Design as strength. The design of the study, which uses semi-structured pre-interview transcripts, responses to profile questionnaires, personal reflective journal entries, audio recordings and transcriptions of group discussion sessions, and semi-structured post interview transcripts is another strength because not only can these tools be used to gather direct answers to the research questions, but they represent a variety in data gathering instruments. Using five different data gathering tools, along with my researcher's journal, opened up the possibility of triangulation among the data of a single participant as well as among all the participants' data (Denzin and Lincoln, 2013). Requesting member checks of the semi-structured interview transcripts and transcripts of the group discussions sessions by the participants is another strength of the design because these led to more confidence in the accuracy of the findings or reliability of the results ((Saldana, 2012).

Conducting both pre- and post interviews was another strength of this design. An increase in the statements made by the participants about certain practices was demonstrated between the pre- and post interviews. Collecting the reflective journals at the half way point and again at the end as part of the design had the same effect and was

also part of the design strength of this study. Finally, the collaborative aspect of the three group discussion sessions which included tasks such as reading and discussing articles together, brainstorming strategies together, categorizing the strategies into the eight mathematical practice standards together, and unpacking a single mathematical content standard together yielded very rich discourse about the AZCCRS and the gifted practices of the gifted education specialists because they fed off each others' ideas, perceptions, concerns, and practices. This was another example of the strength of the research study's design. This research project was well designed.

Thorough data analysis. Another strength of this research investigation is the thoroughness of the data analysis. The raw data went through three distinct stages of analysis, including initial summarizations, initial coding, re-summarizations, and recoding (Saldana, 2012). Then the data were even further analyzed in the reporting step of the project. My researcher's journal was very valuable as it housed concerns, memos, field notes, lists, and beginning drafts of every stage of the research and these were referred to often during the analysis stages (Corbin and Strauss, 2008). The raw data and various stages of analysis were shared with my committee chair, Dr. David Carlson, who provided inter-rater reliability as he and I discussed and debated various categories, codes, and summaries of the data (Saldana, 2012). The data were analyzed thoroughly and meticulously.

Contribution to the knowledge base. This research contributed to the knowledge base of gifted education, and perhaps general education as well. There are no studies, as yet, involving the way gifted education specialists perceive that they interpret, negotiate, and implement the newly adopted Arizona College and Career Ready

Standards. There are no studies, as yet, involving the relationships, if any, between gifted education curriculum and instruction and the AZCCRS as perceived by gifted education specialist teachers. There are no studies, as yet, of whether the AZCCRS support exemplary gifted pedagogy including curriculum, instruction, strategies, techniques, and other practices that meet the curricular needs of Arizona's gifted students and the State of Arizona's statutes concerning gifted education and pedagogy, as perceived by gifted specialists. It is vital to Arizona's gifted students that these questions and others be answered if the goal is to educate the gifted learners commensurate with their academic abilities and potential, as the Arizona State Statutes mandate. Addressing these questions, opening a door to further research, and adding to the current knowledge of these issues is a strength of this research study.

Findings as strength. The findings are a strength of this research investigation. Not only were all three of the main research questions answered with reliability and validity, but the participants themselves are experiencing a change in their role within the district. During the second group discussion session, it was pointed out to them by the Director of Curriculum and Instruction and the Coordinator of Mathematics that the way they interpret, negotiate, and implement the AZCCRS is the way general education teachers will have to learn how to interpret, negotiate, and implement the standards in this district. The Director of Curriculum and Instruction predicted that the gifted education specialists in this district will become commodities of experience for general education teachers to consult.

The Coordinator of Gifted Education, when speaking about this consultative piece said to the gifted specialist participants during the second group discussion session that,

> What I'm hearing from you (meaning the gifted education teachers) is that more teachers, teachers are starting to come to you more now because of the Arizona College and Career Ready Standards, and they want more strategies and they do want to raise the bar for their kids. And so I think that's a plus, that you're an asset to them and the more you can reach out to them, to provide those ideas and strategies that you, you, know, you naturally you've been doing, providing that for years. But for some of them, they need some other tools for how to differentiate and challenge those kiddos. So I think you're a vital piece to their success.

The Coordinator of Mathematics also saw this new role in the future of the gifted education teachers in the district. During the second group discussion session, he said, "I think the other kind of shock that might come is when they (meaning general education teachers) see the PARCC assessment or they see the requirements, the cognitive demands that are now being asked of all students. It's what, when I first saw it I thought this is what we asked our gifted students to do and now it's being asked of all students." Later in the discussion he returned to this idea and speaking to the gifted education specialists stated, "The implication for your practice it that really we've, we've, we're kind of narrowing the gap between classroom teachers and gifted teachers. And you've become a very, very high commodity, or you will become a very high commodity." And he added, "As soon as the teachers see, see those tests you all of a sudden will, will carry great weight because they will come to you asking how, how do we, it's really how do we apply it? How do we teach kids to persevere? How do we teach kids how to reason abstractly?"

Insider Observer Participant. Finally, having insider observer participant status is yet another strength of this research project (Creswell, 2013). Without my insider status, the participants may not have been as open about sharing their procedures and comments concerning their perceptions about the AZCCRS, and especially their gifted

education pedagogy. I am a trusted colleague and member of the gifted education department of this school district. I have worked alongside two of the three participants on an equal basis for many years. I have even been a team teacher of gifted students with both of them, sharing in the most intimate moments a teacher can have with her students. I also participated in all three of the group discussion sessions, including doing all the tasks such as brainstorming strategies, reading and discussing the articles, and unpacking the mathematical content standard right alongside the other participants. My insider observer participant status is a strength for this research study as the barriers to their actual perceptions and ideas were not blocked due to needing to "save face" or feeling uneasy about the unfamiliar.

Limitations. However, there is also the possibility that my insider status was a limitation. Another limitation could be the small sample size of participants in the research study.

Insider observer participant. If a participant wanted to please me because of our relationship, the participant might have reported perceptions and interpretations that she thought I wanted to hear instead of her true perceptions and interpretations. This would be especially so if the participant's true perceptions and interpretations were what she believed to be the opposite of mine. The fact that the participants were asked the identical questions in both their pre- and post interviews helped to counteract this because six months had passed between these two interviews yet the participants, for the most part, answered the questions similarly, just with more confidence and frequency in the post interviews.

There was one notable exception to this, one participant's answer on one question. This participant answered one question during the pre-interview with what we have been told by district level personnel during professional development workshops as the correct way or the way the district wanted all teachers to interpret and implement a standard and incorporate it into their curriculum. However, I knew as an insider that she was answering the question, not necessarily how she really implemented standards into her curriculum, but how the district personnel have instructed her to do so. I would not have known this had I not had insider status. Later in the study, in fact during the next part of the study which was the first group discussion session, she answered basically the same question in much more detail and more in her own words. Her answer, in fact, was what I knew to be, as an insider who had actually written gifted curriculum with her, how she integrated the AZCCRS into her curriculum.

The use of a personal reflective journal also counteracted the possible limitation of the researcher being an insider observer participant. The journal was a much more private place for the participants to reflect and record their perceptions, ideas, and insights. My influence, if any, was felt much less, if at all, during these private times when the participants were making entries in their journals. However, the journals substantiated what the participants were saying in their interviews and in the three group discussion sessions. Asking the same basic questions of the participants with a variety of data gathering tools and allowing time between the utilization of data gathering instruments counteracted the limitation of me being an insider observer participant in this study.

Sample size. Another possible limitation is that the design relied heavily on a small representative participant sample. I invited all eleven of this district's gifted education program members to participate in this study. Three volunteered. I accepted all who volunteered. This was a convenient sample of participants (Creswell, 2013).

I choose this district purposefully because it has a unique program model of a "double pullout." All students who qualify for gifted services are pulled out and meet as a class with a gifted education specialist to study an integrated, multidisciplinary theme or topic together, regardless of the area or areas each student qualifies for gifted services in. Additionally, all students who qualify in just the quantitative area for gifted services meet as another separate class with the gifted educational specialist. This quantitative class was the focus of this study because it was an enrichment class for these students and not just an accelerated version of the general education math class.

All of these students attend their general education math classes as well. But this pullout class allows the gifted education specialist to differentiate the gifted math class in ways that meet the needs of these quantitatively gifted students. This class is modified from their general education class, thus allowing me the opportunity to research exactly how gifted education specialists perceive the AZCCRS as supportive or non-supportive to their gifted curriculum and instruction, the possible relationships they perceive between the AZCCRS and their gifted pedagogy, and how they perceive they interpret, negotiate, and implement the AZCCRS into their gifted practices.

The fact that only three of the eleven gifted education teachers from this district volunteered has to take into account the make-up of the three that did volunteer. One has

many years of experience in education, gifted education, other areas of education such as being a school counselor and a behavioral interventionist.

The second participant has substantial experience in education, but came into the field of education and gifted education late in life. She was initially trained as a special education teacher, but worked as a manager of a medical office for many years before returning to education by home schooling her own children and participating in a home school co-op. Only after her own children were in college did she become a general education classroom teacher for the first time, and then she moved into being a gifted education specialist for the past four years.

The third volunteer was a new member of the gifted education program in this district. In fact, this was her first year as a gifted education specialist. So the experience levels of the three participants were varied. The newest member has not worked in the field of gifted education for years, yet her answers to many of the questions in the data gathering tools were similar to the answers of the other two. She had many of the same comments and had similar perceptions and insights about her gifted pedagogy. So even with the small sample size, they were representative of the gifted education specialists in this district.

Even with these possible limitations, the overall approach and design of this research project to examine the interpretations and perceptions of expert gifted endorsed specialist teachers as they negotiate, interpret, and implement the Arizona College and Career Ready Standards to meet the mandated requirements of the curriculum and instruction implemented with gifted students in the State of Arizona, is still quite strong. This research did yield valuable findings for many audiences, including the school board

of the district featured in the study, other school boards of districts in Arizona who are examining the Arizona College and Career Ready Standards and how well they support and match or mismatch the mandated modified curriculum and differentiated instruction to be implemented with gifted students, parents of this district's gifted student population, and district level personnel in this district who want to know more about this district's gifted education department and how its practices meet the state requirements for these students. Additionally, other researchers may be interested in this study as a subtopic to their study of the Arizona College and Career Ready Standards. Possibly, Arizona's educational policy makers would be interested in how well the Arizona College and Career Ready Standards support gifted curriculum and instruction, at least in one district. Finally, other gifted education specialists may be interested in the findings of this research study because parts of it may be generalized to their own circumstances.

Threats to Validity

How well did the data I gathered from the gifted education specialists actually measure what I intended the data to measure is validity. Striving to have the most validity in my research project was a goal, but there will always be the possibility of threats to validity in any research endeavor. Three possible threats to validity, the experimenter effect, the Hawthorne effect, and the selection of participants, are discussed as well as how I attempted to counteract them (Creswell, 2013).

Experimenter effect. A possible threat to the validity of my investigation is the experimenter effect (Creswell, 2013). This happens if the researcher allows his or her desire to have positive results influence the actual data gathered or the analysis of the data. During the entire data gathering process, I was very careful not to talk to the three

participants about the research questions, issues relating to the research questions, or the research data gathered so far. Concerning the research project, I only spoke to them to set up dates, times, and places for various stages of the research gathering such as when and where we would conduct a pre-interview or group discussion session. I did not want them to be influenced by "how the data gathering was going" if I mentioned that it was very positive or very negative. I did not want them to try to feed me the kind of data that they thought I wanted to receive.

At one point, in fact, during a participant's post interview when asked what made her confident that certain pedagogy was the best approach to take, she mentioned that,

> It's hard to put, I guess, you have nothing else to go off with besides my word with this but, when a student comes to you, and you hear the conversations among the students about, thank you for getting me out of there, or oh, you should have seen what we were doing in Ms. So-and-so's class. Can you believe she's having us do? Or fifth graders say, we did that in third grade. It's like a feeling that's in the classroom, a feeling of, of wonder. And you can like feel them thinking about things, mathematical, and otherwise! I feel that my students are happy being challenged. They're motivated too, they want to do this because it's something new. It's invigorating to them. So, there's an, you can't really, I guess, attach a, you know, we don't have data to necessarily support that, but that's when I feel like I know.

The participant wasn't even aware that what she was telling me was the data, let alone that it might be what I was hoping to hear.

I was also very careful to stay in the role of observer as much as possible. I conducted semi-structured interviews, which did allow me some freedom in my questions; however, I did have the questions pre written. I took notes during the interview while the participants were answering, partially to allow them plenty of freedom to speak as long as they felt necessary and to go off topic if they felt the need. I did not jump in and guide their answers with my comments or questions. I also audiotaped all of the

interviews. During the group discussion sessions, I planned out an agenda and stuck it as much as possible, but did allow the participants to speak freely as well. Asking the participants to keep a reflective journal may also have reduced the experimenter effect because I was not present when they wrote in their journals. They were directed to make entries in their journals at any time they wanted, but at least once after each of the three group discussion sessions and once after the trial experiment in their quantitative gifted class. All three participants made more entries than the minimum. I had no control over their journal entries, yet the journal entries did yield very positive results for the study.

Hawthorne effect. Another possible threat to the validity of this research investigation might be the Hawthorne effect which occurs when people know they are being studied, observed, or given attention and therefore act differently than they might otherwise (Creswell, 2013). Because I was an insider observer participant, I was not very threatening to the participants. Two of the three I have known and worked alongside for many years. In my estimation, they did not act differently during the pre- and post interviews than at any other times I have discussed issues surrounding gifted education with them.

The third participant is a new member to the gifted faculty and she did mention in her journal when making an entry about the first group discussion session that, "I remember this group session rather clearly though. I remember us having a lot to say! However, I also remember DD saying 'Try not to speak over one another.' So, I tried not to which resulted in not saying much." This was her first journal entry. She did not repeat having this experience at any other time during the research period or in any of the other

data gathering instruments, and her data amounted to approximately as much as the other two by the end of the study. She did not hold back throughout the study.

The three participants might have acted a bit more formally during the second group discussion session when the district administrators were present, but that would be because these additional people were their bosses, not because they were being researched.

Selection. The participants who were selected for this research study could be viewed as a threat to the validity of the study's outcome, known as selection, if they were selected because they were sympathetic to the researcher and the researcher's project Creswell, 2013). However, the pool of potential participants was the entire gifted education faculty in the purposefully chosen school district. They were all invited to participate equally at a faculty meeting. They were all give the exact same information about the research study and the exact same opportunity to make the choice to become a participant prior to volunteering. There was no limit as to how many of the gifted faculty members would have been allowed to participate. If all eleven had volunteered, then all eleven would have been in the study. Three did volunteer, along with myself who was an observer participant, which means that one fourth of the faculty was represented, or one third if I am also counted. I had no idea how many of the faculty members would choose to become participants; therefore, I did not select them because I thought they might be sympathetic to me or to my research project. I did not choose them. They volunteered.

Implications for Further Research

Many implications for further research occurred to me throughout this research study. There are six, however, that warrant mention.

AZCCRS and language arts. The first concerns the other division of the Arizona College and Career Ready Standards, the language arts side. This investigation was about to what extent the standards support state mandated exemplary gifted education curriculum and instruction, strategies, and techniques implemented with gifted students as perceived by gifted education specialist teachers; what are the relationships, if any, between the standards and gifted pedagogy as perceived by gifted education specialist teachers; and how the gifted education specialist teachers interpret, negotiate, and implement the standards from the mathematic division of the standards while simultaneously complying with the state statutes concerning gifted education. What about these same research questions for the language arts division of the AZCCRS? Would the results be similar? The structures of these divisions are not similar. Would that change the results? One of the participants, in her journal under "Final Reflections" even mentioned that she needs to consider what she does with her verbal, spatial, and integrated groups which are the other groups of gifted students, besides the quantitative group, that she meets with, and she wrote, "Kids benefitted so that means I need to process more with all my groups about what I do."

Differences between gifted and general education teachers. A second implication for further research that occurred to me during this study was in what areas of the education phenomenon and in what ways do gifted educational specialists' practices differ from general education teachers? If so, to what extent are the differences? Do gifted education specialists have different personal characteristics from general education teachers such as more creativity, higher intelligence, more tolerance for ambiguity? Do these differences, whatever they may be, make them better suited to teach gifted

students? Should gifted students only be taught by fully endorsed gifted education specialists? Do administrators with gifted education experience differ from administrators that don't have gifted education experience? In what areas and in what ways? To what extent? One of the participants even mentioned this in her post interview, "So as a gifted teacher you are expected and taught to think in a different way. And, which is, again why I think that gifted teachers ought to teach the gifted and non gifted teachers ought not teach gifted because I think a gifted teacher gets it and they know that they are thinking differently, they've examined their own thinking."

Differences between perceptions of the AZCCRS. A third implication for further research would be to do a comparative study between the perceptions of the Arizona College and Career Ready Standards by general education teachers and by gifted education teachers. This study only explored the perceptions of gifted education specialists of the AZCCRS. A comparative study of the perceptions of the two groups of educators would illuminate the differences, if any, and allow the two groups to perhaps learn from each other.

Clusters of standards. A fourth implication for further research came from one of the ways noted by the participants that gifted education teachers perceive they implement the AZCCRS. The gifted education teachers mentioned 12 times that they implement multiple AZCCRS in clusters simultaneously. This phenomenon was also discussed by the Coordinator of Mathematics and the Director of Curriculum and Instruction during the second group discussion session as well as in the NAGC position paper on suggestions for navigating the Common Core State Standards in gifted education (see Appendix I and chapter two: "Literature Review").

So, how exactly do the gifted education teachers discover recurring themes throughout the standards, for a grade level or for various grade levels, to allow standards in a discipline to be clustered or grouped in order to develop curriculum that is more complex or deeper? Or, how is this accomplished throughout the disciplines for interdisciplinary studies, which was also mentioned by the participants? Both of these practices, clustering multiple standards to teach in a discipline and throughout disciplines were mentioned as necessary gifted pedagogy in the Arizona State Statutes as ways to modify and differentiate curriculum for gifted students in Arizona as well.

The Coordinator of Gifted Education said this was the next step in developing gifted curriculum during the second group discussion session. She stated that,

> When we write our gifted curriculum our focus is more on aligning our curriculum to the standards as opposed to teaching to it…. As you all know our students are typically functioning at least one or two grade levels above, and so it's a good starting point for us, but we're embedding multiple standards and typically at a higher level…. That's exactly what we do to plan our theme and our units every year…. We have embedded multiple standards addressed in and across multiple content areas…. This has been our approach all along, prior to the Arizona College and Career Ready Standards, this is how we operate and we know that those are best practices for our students.

This topic goes even deeper into what McTighe and Wiggins call micro and macro unpacking of standards in their article "From Common Core Standards to Curriculum: Five Big Ideas" (see Appendix G and chapter two: "Literature Review). What exactly is the difference between unpacking standards at micro and macro levels? In the second group discussion session, when gifted education teachers spoke out about being uncomfortable unpacking a single mathematic content standard (one of the tasks they were asked to do as part of this research investigation) because they don't do it that way, the Director of Curriculum and Instruction stated that, "What they're talking about

(meaning McTighe and Wiggins in their article) aligns with what we're talking about, which is the whole difference in macro and mirco." She further iterated to the gifted education specialists present that instead of unpacking standards one by one, "you have to back off, and you almost have to, at least in my opinion, in your roles, you really have the opportunity, with your planning of your curriculum, to take the overarching, that macro look."

The Coordinator of Mathematics added that, "The way the new common core standards are written is different from the way they used to be written. So, using this idea of domains to drive unit building as opposed to standards could be a shift as well. And so if the domain is numbers and operations using place value understanding and properties of operation for multi-digit arithmetic, all of the standards under that domain achieve, or try to achieve that. So, where we used to be unpacking the standards, now you may be at this gifted level, it would be unpacking the domain."

Gifted education's influence. One of the aspects of the gifted educator's job in this district is to consult with the general education teachers to better provide curriculum and instruction that is commensurate with the academic abilities and potential of gifted students, when students are in their general education classes as well as in their gifted education classes. If the prediction comes true from the Director of Curriculum and Instruction, the Coordinator of Mathematics, and the Coordinator of Gifted Education that more general education teachers will seek consultation with the gifted education specialists because they have more experience teaching curriculum and instruction that implements the intent of the AZCCRS, then to what extent will the gifted teachers' practices influence the general education teachers? How, exactly, will their pedagogy be

utilized by the general education teachers? How effective will the influence be? Can that influence be measured with newly adopted Arizona MERIT standardized assessment which is intended to measure if the goals of the AZCCRS have been met?

Complications of identifying students as gifted. A sixth implication for further research might be a study about the pitfalls or complications of identification of gifted students and their placement in gifted programs. Some may even call these dangers. One is that the child may feel that he or she does not have to continue to work at accumulating knowledge, learning how to analyze, problem solve, or improve critical and creative thinking because he or she has already attained the highest level of mental prowess.

This danger or complication may be resolved by grouping like-minded age peers, that is, those that have also been identified as gifted, together for part of their educational experience in a gifted program or class where their specific curricular, social, and emotional needs can be addressed, but an empirical study should be conducted. Perhaps it will be discovered that it doesn't take very long before the child who feels he or she does not have to work and study anymore finds out that by remaining on some educational plateau he or she will soon be left far behind the other like-minded peers. Since mental prowess is part of the child's identity, the natural desire to keep up or even go beyond the like-minded peers takes over and the child is once again working and studying, although at a pace and capacity that outstrips most of his or her age peers who are not identified as gifted.

This fear, danger, or complication, however, may only be found in the minds of the adults associated with the gifted child. A characteristic that appears prevalently with identified gifted children is their insatiable thirst for knowledge. Many will pursue any

manner necessary to find answers to their questions, if they are interested. The main problem for the surrounding adults is to keep up and to continually expose the identified gifted child with enough raw topics to keep him or her interested in learning. It may appear to an outsider that the parent is "pushing information" at the child continuously whether the child wants the constant stimulation or not. This behavior by the parent may be where the idea of a stage-mom might have been created. These are women, usually, who push their children to excel by any and all means, even at the cost of the child's natural social development and inclinations.

In the realm of gifted children, a study to find out if stage-moms exist would be helpful and add to the literature. Some parents of gifted children claim they never have to "push" their children, and that life with them is more like the children dragging the parents along. Further, this complication, if it exists, could actually damage a gifted child, if it kept the child from participating in a gifted program or other learning situation that would provide the necessarily rich academic environment that would stimulate the child's learning processes in the appropriate ways and keep the child mentally developing commensurate with the child's abilities.

Another possible danger or complication with identifying a child as gifted is what happens if the child does not "stay" gifted? There are many things that might cause a change in an IQ score. If a child is identified as gifted at age five and therefore is eligible to receive gifted services and placement through high school in Arizona based on this identification, but due to many possible circumstances does not maintain this high level of mental prowess, then this could set the child up for failure unnecessarily, a true danger.

Hypothetically, for example, what if a child is identified as gifted in kindergarten, but the majority of the school's population is below meets or below passing on Arizona's state proficiency exams? This identified gifted child is an anomaly or extreme outlier in this population. The educational staff spends most of their time attempting to move the other children into the meets or pass category in math and reading. Because of this emphasis, the identified gifted child, who may even be receiving gifted services, does not encounter even a simple idea such as the decimal point by the time he or she is leaving the school to enter a middle school.

At the middle school, he or she will be put in a 6^{th} grade pre-algebra math class due to his or her identification as gifted. However, the child has never encountered the concept of a decimal point because the math curriculum level at his or her elementary school never got to that abstract concept. The educators were too busy teaching more basic mathematical concepts, even in the highest math group. The fact that the child could have understood everything about a decimal point rapidly, and which is what prompted his or her referral for testing and ultimate identification as gifted, isn't the issue. The danger and complication is that this child will fail pre-algebra because he or she is unprepared, even though he or she is identified as gifted. Being identified gifted does not preclude the necessity for an appropriate curriculum. This is a case of a child truly being left behind. This is a case, albeit hypothetical, where the gifted not really needing help or attention or appropriately differentiated curriculum and instruction has surfaced and could destroy a child's educational potential. This possibility warrants further research.

Being identified as gifted often comes down to the child's IQ score and whether a child's score is above or below a cut off point, such as the 97%ile which the State of Arizona uses. The danger is missing the child in the 96%ile that could also benefit from gifted education commensurate with his or her abilities because this child too might not reach his or her full potential, educationally, if curriculum is not modified, instruction is not differentiated, and services are not provided. Again, further research in this area seems urgent.

Another complication with identifying gifted children is that then, legally, the school or district must provide them a modified curriculum, differentiated instruction, and supplemental services commensurate to those students' abilities and unique capabilities (Ariz. Rev. Stat., 2007). This requires time in the educational day, week, or semester for this curriculum or service to be offered, physical space for this curriculum or service, and funds to support appropriate course offerings. Special course offerings require grades for those course offerings (Wormli, 2006). What grades to assign gifted students has its own set of complications when the students' curriculum is more rigorous than the general curriculum in order to match the students' abilities, potentials, and interests. What, then, would constitute an "A" for example? Do these students automatically receive an "A" because they have already demonstrated proficiency in the general education curriculum, or is there another standard, and how exactly does that other standard compare to an "A" received in the general curriculum as well as translate to the next educational level for the child? Research is needed in this area.

Providing a modified curriculum, differentiated instruction, and supplemental services that will allow the identified gifted students to develop their unique potentials

and abilities also requires appropriately trained staff and teachers, another complication. In the State of Arizona, according to its statutes, "all district teachers who have primary responsibility for teaching gifted pupils have obtained or are working toward obtaining the appropriate certification endorsement as required by the state board of education" (2007, n.p.). The Arizona state board of education certification unit will only accept university or college graduate level coursework in gifted education when applying for the gifted endorsement (Arizona Dept. of Ed., 2013). That means that teachers and staff who seek a gifted endorsement must take university or college graduate level coursework in gifted education, which in turn means that these courses must be offered by some university or college, yet another complication among many and one worthy of further research.

Even with all the complications involved in identifying students as gifted, it is the right thing to do, especially if a school district wishes to stay in compliance with the Arizona State Statutes. From an ethical standpoint, all students, including gifted students, should have the appropriate level of learning available to them at every stage of their education. For gifted students, this means curriculum, instruction, and services that are differentiated from the curriculum offered in the general education classrooms and is commensurate with their abilities, potentials, and interests.

Providing the appropriately modified curriculum and differentiated instruction to all identified gifted students is further complicated by the fact that each gifted child has his or her own profile of giftedness. For example, a child may score at the 97%ile in the quantitative area on a test accepted by the state, but at the 50%ile in the verbal area of the same test. That means this child should only receive gifted services in the quantitative or

math area and general education curriculum and instruction in the verbal domain, which translates to reading, writing, speaking, and listening or what is commonly called the language arts area. A gifted child's profile may also demonstrate profound giftedness in one domain and only mild giftedness in another. The domain that the child is profoundly gifted in would require an even more modified curriculum and instructional differentiation than the domain the child is mildly gifted in. Yet another complication, but with profound implications if the local educational agency (LEA) is attempting to truly provide an education commensurate with the child's abilities, potentials, and interests, as required by state statutes.

According to the State of Arizona, school age students meeting the requirements of scoring or exceeding the 97%ile ranking in any one or more of the three areas, verbal, nonverbal, or quantitative reasoning, on a state approved, nationally norm referenced test, must be provided gifted services or placement in a gifted program. This, then, becomes the legal parameter for giftedness in the State of Arizona. Further, those students who fit inside the legal parameter for giftedness, in the State of Arizona, must receive modified curriculum, differentiated instruction, and supplemental services commensurate with their intellect and ability, at least in the three areas of verbal, nonverbal, or quantitative reasoning, but not necessarily in all three areas. The child should receive gifted services or placement in a gifted program in the domains he or she is gifted in, otherwise the child may experience unnecessary failure, a serious complication. Further investigations should be conducted into how to provide gifted education and services that are specific to an identified child's educational needs according to that child's individual profile.

Another complication is that "giftedness" is elitist because all children are gifted

in something. There are more areas of giftedness than verbal, nonverbal, or quantitative reasoning. Giftedness can be seen as any behavior, including reasoning, that a human can exhibit extraordinary prowess in, at least for that human's age group. So, a two-year old being reared in a highly industrialized society and without physical, brain, or emotional trauma, who can add and subtract two-digit numbers could be considered gifted while an otherwise equivalent eight-year old who can add and subtract two-digit numbers could not. A five-year-old who can perform ballet at an adult level would also be considered gifted. However, the State of Arizona only provides funds for and requires identification of and modified curriculum, differentiated instruction, and supplemental services for children found with gifts in one or more of the verbal, quantitative, or nonverbal areas. There is no argument that children may be gifted in other areas, indeed it may even be discovered that all children and people may be gifted in something, but the parameters set by the State of Arizona only provide for special programming for giftedness in these three domains. However, there are implications for further research surrounding this idea of all children or all people possessing a gift of some type.

Conclusion

The results, findings, and assertions made in this research project are only the beginning. There is still much work to be done to understand the differences between gifted education pedagogy and general education pedagogy. There could be mutual benefits if each of these areas of education could better understand and grow from the other. The Arizona College and Career Ready Standards is only one vehicle that can be used to better link the two educational fields. The unanswered questions raised in this study are not only rich in perspectives and possibilities for research for gifted education,

but speak to the urgency of research needed in gifted pedagogy. Bringing gifted education closer to the center of educational discourse and less on the fringes or margins might begin to be accomplished through the vehicle of the AZCCRS, but much more research needs to be done. Further, the new AZCCRS are too immature to have been researched enough yet, particularly the effectiveness of the AZCCRS for deep learning by students, for either gifted or general education.

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APPENDIX A

PRE-INTERVIEW PROTOCOL

Pre-Interview Questions

Participant's number: _____

Primary questions:

- What do you know about the Common Core State Standards?
- How, exactly, do you use the CCSS when choosing or creating curriculum for your quantitatively gifted students?
- How do you use the CCSS when implementing curriculum with your quantitative students?
- To what extent do you think the CCSS support the curriculum and instruction you choose and create to implement with your quantitatively gifted learners?
- Are there components of the CCSS that support your efforts to modify curriculum and differentiate instruction for your quantitatively gifted students, and if so please explain how these components assist you in this task?
- What relationships do you see between the CCSS and the modified curriculum and differentiated instruction that you choose and create to implement with your gifted students?

Secondary questions:

- What are some of the curricular needs of quantitatively gifted students?
- Do you recommend or use certain curriculum models, programs, instructional strategies, or techniques that meet the curricular needs of your quantitatively gifted learners?
- What characteristics, components, or traits do these curriculum models, programs, instructional strategies, or techniques have that make you confident

that they meet the curricular needs of your quantitatively gifted learners?

- How do you think the CCSS impact the kind of curriculum and instruction you implement with your quantitatively gifted students?

Probing questions:

- Why?
- Tell me more.
- Can you explain that answer?
- Will you elaborate on that please?

APPENDIX B

POST INTERVIEW PROTOCOL

Post Interview Questions

Participant's number: _____

Primary questions:

- What do you know about the Common Core State Standards?
- How, exactly, do you use the CCSS when choosing or creating curriculum for your quantitatively gifted students?
- How do you use the CCSS when implementing curriculum with your quantitative students?
- To what extent do you think the CCSS support the curriculum and instruction you choose and create to implement with your quantitatively gifted learners?
- Are there components of the CCSS that support your efforts to modify curriculum and differentiate instruction for your quantitatively gifted students, and if so please explain how these components assist you in this task?
- What relationships do you see between the CCSS and the modified curriculum and differentiated instruction that you choose and create to implement with your gifted students?
- How do you think the CCSS impact the kind of curriculum and instruction you implement with your quantitatively gifted students?

Secondary questions:

- What are some of the curricular needs of quantitatively gifted students?
- Do you recommend or use certain curriculum models, programs, instructional strategies, or techniques that meet the curricular needs of your quantitatively gifted learners?

- What characteristics, components, or traits do these curriculum models, programs, instructional strategies, or techniques have that make you confident that they meet the curricular needs of your quantitatively gifted learners?
- How do you think the CCSS impact the kind of curriculum and instruction you implement with your quantitatively gifted students?
- How would you compare the previous Arizona standards to the new Arizona College and Career Ready Standards?

Probing questions:

- Why?
- Tell me more.
- Can you explain that answer?
- Will you elaborate on that please?

APPENDIX C

PROFILE QUESTIONNAIRE

Gifted Students and the Common Core State Standards

(also knows as Arizona College and Career Ready Standards)

Profile Questionnaire

Participant's number _____

Please answer the following questions:

• Describe your teaching credentials and experience:

• Why did you become a teacher?

• Why did you specialize in gifted education?

• Describe a typical teaching day with your quantitatively gifted students.

• How do you feel about what you teach and how you teach your quantitatively gifted students?

• How satisfied are you about your work with quantitatively gifted students on a scale of 1 to 5 with 5 being extremely satisfied? Please explain your rating.

• How many hours of professional development have you received about the Common Core State Standards and what information did you get specifically about the relationship between CSSS and gifted education?

• Are there specific areas of the Common Core State Standards that you would like professional development in and what are these areas?

APPENDIX D

AGENDA FOR GROUP DISCUSSION SESSION 1

Agenda for First Group Discussion Session

Gifted Students and the Common Core State Standards

Dianna Dohm

Arizona State University

December 27, 2013

This study examines the similarities between the curricular needs of gifted students (according to the Arizona State Statutes) and the dictates of the Common Core State Standards. Additionally, this study examines how gifted education specialist teachers negotiate the Common Core State Standards in Arizona as they translate and implement the CCSS, also knows as the Arizona College and Career Ready Standards, for their gifted students' curriculum. The questions guiding this investigation are:

- In what ways do the CCSS address the needs of gifted students?
- What is the relationship between the CCSS and gifted education?
- To what extent do the CCSS support exemplary gifted curriculum, best practices for gifted education, and instructional strategies and techniques used with gifted students?

• Read the three research questions for this study as a focusing activity

• Explain cycle: group session/reflection in personal journal/trying out a strategy/reflection in personal journal/group session/reflection in personal journal/group session/reflection in personal journal.

* Explain member checks

• Read and discuss the five big ideas from McTighe and Wiggins in regard to translating the CCSS into curriculum and instruction

- Read the eight mathematical practices of the CCSS
- Discuss the eight CCSS—What do they mean to us/to our practice with gifted students? List key understandings of each
- Brainstorm ways to apply any of these eight practices to the curriculum being used in current quantitative classes
- Choose one or two strategies to try in quantitative class before the next group session as an experiment
- Bring in any artifacts related to this experiment to the next group session to share
- Make at least two entries in your person journals before next group session—first is to be a reflection on this group session, second one is a reflection on the experiment tried in quantitative class
- Explain the personal journals and expectations
- Feel free to make additional entries in personal journal
- Decide on tentative meeting date/time/place for second group discussion session which will include three administrators as resources

APPENDIX E

AGENDA FOR GROUP DISCUSSION SESSION 2

Agenda for Second Group Discussion Session

Gifted Students and the Common Core State Standards

Dianna Dohm

Arizona State University

February 13, 2014

This study examines the similarities between the curricular needs of gifted students (according to the Arizona State Statutes) and the dictates of the Common Core State Standards. Additionally, this study examines how gifted education specialist teachers negotiate the Common Core State Standards in Arizona as they translate and implement the CCSS, also knows as the Arizona College and Career Ready Standards, for their gifted students' curriculum. The questions guiding this investigation are:

- In what ways do the CCSS address the needs of gifted students?
- What is the relationship between the CCSS and gifted education?
- To what extent do the CCSS support exemplary gifted curriculum, best practices for gifted education, and instructional strategies and techniques used with gifted students?

- Read the three research questions for this study as a focusing activity
- Review cycle: group session/reflection in personal journal/trying out a strategy/reflection in personal journal/group session/reflection in personal journal/group session/reflection in personal journal.
- Review member checks
- Clarify incorrect concepts from last group discussion

-- AIMS this year, all grades using CCSS this year, PARCC next year.

-- Rumor that the State is suspending letter grades for schools for one year.

-- What is the difference between transfer goals and unwrapping because it sounded on the transcript from last time that these might be interchangeable?

-- What is the difference, for gifted education at least, between teaching "to the standards" and "aligning our curriculum to the standards," if any?

- Share successes and challenges of strategy implemented in quantitative focus groups. Include any artifacts collected.
- Read and discuss the section titled "What are the approaches to use in differentiating the mathematics standards?" from the National Association for Gifted Children's position paper entitled "CCSS and Gifted Education NAGC Position Paper."
- Read and discuss the section titled "How do we align the Common Core State Standards to gifted education programming standards?" from the National Association for Gifted Children's position paper entitled "CCSS and Gifted Education NAGC Position Paper."
- Is there a relationship, and what does that relationship look like if there is one, between the CCSS and the three suggested strategies to marry gifted curriculum and instruction with the CCSS?
- How might the gifted education teachers in our district connect the CCSS for Mathematics content standards and practice standards to the gifted curriculum implemented with our quantitatively gifted students?

• What are the implications of the connections for our gifted math students, and what does all of this mean to us in our practice?

• Review the five big ideas from McTighe and Wiggins in regard to translating the CCSS into curriculum and instruction, particularly Big Idea #3—Standards need to be "unpacked" according to four broad categories: 1) Long term Transfer Goals, 2) Overarching Understandings, 3) Overarching Essential Questions, and 4) a set of recurring Cornerstone Tasks.

• Read titles for 3rd grade standards and choose a domain.

• Read the content standards for the chosen domain and choose a standard to focus on.

• Read the parts that delineate this standard.

• Unpack the standard for **long term transfer goals**: identify the effective uses of this content standard's understanding, knowledge, and skill that we seek in the long run, or what do we want students to be able to do when they face novel challenges with this content standard, both inside and outside the realm of school?

• Unpack the standard for **overarching understandings** and **overarching essential questions**: what would skilled mathematicians need in order to transfer this content standard into any situation and what would be the set of questions that engage learners in making meaning and deepening their understanding of this content standard?

• Unpack the standard for **cornerstone tasks**: what tasks would allow learners to apply their newly gained knowledge and skills associated with the content standard to authentic, relevant, and realistic contexts and integrate the 21st

Century skills into the task as well?

- Using checklist, comment and discuss how the pieces actually meet specific needs of gifted students.
- Discuss what all of this might mean for our practice.
- You should have at least three entries in your person journals (reflection on the pre-interview, reflection on the first group discussion session, and reflection on the experimental strategy tried in your quantitative focus group), and you should now make a fourth entry after this group discussion. I will need to collect the journals next week. I am happy to come pick them up from you. I will review them and return them to you for the final entries of the study.
- Feel free to make additional entries in personal journal at any time.
- Decide on tentative meeting date/time/place for third and final group discussion session.

APPENDIX F

AGENDA FOR GROUP DISCUSSION SESSION 3

Agenda for Third Group Discussion Session

Gifted Students and the Common Core State Standards

Dianna Dohm

Arizona State University

April 11, 2014

This study examines the similarities between the curricular needs of gifted students (according to the Arizona State Statutes) and the dictates of the Common Core State Standards. Additionally, this study examines how gifted education specialist teachers negotiate the Common Core State Standards in Arizona as they translate and implement the CCSS, also knows as the Arizona College and Career Ready Standards, for their gifted students' curriculum. The questions guiding this investigation are:

- In what ways do the CCSS address the needs of gifted students?
- What is the relationship between the CCSS and gifted education?
- To what extent do the CCSS support exemplary gifted curriculum, best practices for gifted education, and instructional strategies and techniques used with gifted students?

• Read the three research questions for this study as a focusing activity.

• Review cycle: group session/reflection in personal journal/trying out a strategy/reflection in personal journal/group session/reflection in personal journal/group session/reflection in personal journal.

• Review member checks.

• Clarify concepts from last group discussion:

-- What is the difference between transfer goals and unpacking? We still do

not have clarification, from gifted education point of view, on the differences, if there are any.

-- What is the difference, for gifted education at least, between teaching "to the standards" and "aligning our curriculum to the standards," if any?

- Look again at the section titled "How do we align the Common Core State Standards to gifted education programming standards?" from the National Association for Gifted Children's position paper entitled "CCSS and Gifted Education NAGC Position Paper."
- How do we, as gifted education specialists, interpret and apply the three suggested strategies to "marry" gifted curriculum and instruction with the Arizona College and Career Ready Standards?
- How do we, the gifted education teachers in our district, negotiate the Arizona College and Career Ready Standards for Mathematics (content standards and practice standards) while simultaneously implementing exemplary gifted curriculum with our quantitatively gifted students?
- Unpack the standard for **cornerstone tasks**: what tasks would allow learners to apply their newly gained knowledge and skills associated with the content standard to authentic, relevant, and realistic contexts and integrate the 21st Century skills into the task as well? See attached brainstormed list from Second Group Discussion Session. (See p. 5 of *From common Core Standards to Curriculum: Five Big Ideas* by McTighe and Wiggens.)
- Look again at the Gifted Checklist while keeping the 3rd grade Arizona College and Career Ready Standards for Mathematics content standards in mind.

- Using checklist, comment and discuss how the cornerstone tasks actually meet specific needs of gifted students.
- Discuss what all of this might mean for our practice. Re-examine the three main questions of this study. See above.
- You should have at least four entries in your personal journals (reflection on the pre-interview, reflection on the first group discussion session, reflection on the experimental strategy tried in your quantitative focus group, reflection on the second group discussion session), and you should now make a fifth entry after this final group discussion session. Your final entry will be after your post interview. I will collect them after that final entry.
- Feel free to make additional entries in personal journal at any time.
- Who would like to set up our post interview dates and times?

APPENDIX G

FROM COMMON CORE STANDARDS TO CURRICULUM: FIVE BIG IDEAS BY J. MCTIGHE AND G. WIGGINS

From Common Core Standards to Curriculum: Five Big Ideas

by

Jay McTighe and Grant Wiggins

In this article, we explore five big ideas about the Common Core State Standards and their translation into a curriculum. As with most big ideas, these Standards are in some ways obvious but may also be counter-intuitive and prone to misunderstanding. We highlight potential misconceptions in working with the Standards, and offer recommendations for designing a coherent curriculum and assessment system for realizing their promise.

Big Idea # 1 – The Common Core Standards have new emphases and require a careful reading.

In our travels around the country since the Common Core Standards were released, we sometimes hear comments such as, "Oh, here we go again;" "Same old wine in a new bottle;" or "We already do all of this." Such reactions are not surprising given the fact that we *have* been here before. A focus on Standards is not new. However, it a misconception to assume that these Standards merely require minor tweaks to our curriculum and instructional practices. In fact, the authors of the Mathematics Standards anticipated this reaction and caution against it: "These Standards are not intended to be new names for old ways of doing business." (p 5) Merely trying to retrofit the Standards to typical teaching and testing practices will undermine the effort.

A related misconception in working with the Common Core is evident when teachers turn immediately to the grade level Standards listed for their grade or course to plan their teaching. Such an action is reasonable; after all, isn't that what they are supposed to teach? While understandable, we advise against zeroing in on the grade-level Standards *before* a careful examination of the goals and structure of the overall documents.

To invoke a construction analogy: Think of the grade level standards as building materials. As a construction supervisor, we wouldn't simply drop off materials and tools at a worksite and have the workers "go at it." Instead, we would begin with a blueprint – an overall vision of the desired building to guide its construction. Without an overall end in mind, teachers can create wonderful individual rooms that won't necessarily fit together within and across floors or achieve the intended results.

The Common Core Standards have been developed with long-term outcomes in mind (e.g., College and Career Anchor Standards in English Language Arts), and their components are intended to work together (e.g., Content *and* Practice Standards in mathematics). This point is highlighted in a recently released publication, *Publishers' Criteria for the Common Core State Standards for Mathematics* (July 2012):

> " 'The Standards' refers to all elements of the design – the wording of domain headings, cluster headings, and individual statements; the text of the grade level introductions and high school category descriptions; the placement of the standards for mathematical practice at each grade level. The pieces are designed to fit together, and the standards document fits them together, presenting a coherent whole where the connections within grades and the flows of ideas across grades..."

It is imperative that educators understand the intent and structure of the Standards in order to work with them most effectively. Accordingly, we recommend that schools set the expectation and schedule the time for staff to read and discuss the Standards, beginning with the "front matter," *not* the grade-level Standards. We also recommend that staff reading and discussion be guided by an essential question: *What are the new distinctions in these Standards and what do they mean for our practice?* Since the Standards are complex texts and demand a "close" reading, we recommend that staff carefully examine the table of contents and the organizational structure; the headers (e.g., Design Considerations; What is Not Covered, etc.), the components (e.g., Anchor Standards and Foundational Skills for ELA; Standards for Mathematical Practice), and the Appendices (ELA).

Following a thorough reading of these introductory sections, discuss the changing instructional emphases called for by the Standards and their implications. For example, the ELA Standards demand a greater balance between reading informational and literary texts, and stress the use of text-based evidence to support argumentation in writing and speaking. The Mathematics Standards accentuate the focus on a smaller set of conceptually larger ideas that spiral across the grades (as opposed to simply "covering" numerous skills) with an emphasis on meaningful application using the Practices.

We cannot overemphasize the value of taking the time to collaboratively examine the Standards in this way. Failure to understand the Standards and adjust practices accordingly will likely result in "same old, same old" teaching with only superficial connections to the grade level Standards. In that case, their promise to enhance student performance will not be realized.

Big Idea # 2 – Standards are not curriculum.

A Standard is an outcome, not a claim about how to achieve an outcome (i.e. a curriculum). Thus, the Introduction to the Common Core State Standards (CCSS) for Mathematics states that, "These Standards do not dictate curriculum or teaching methods" (p 5). A similar reminder is found in the ELA Standards: "The Standards define what all students are expected to know and be able to do, not how teachers should teach. For instance, the use of play with young children is not specified by the Standards, but it is welcome as a valuable activity in its own right and as a way to help students meet the expectations in this document… The Standards must therefore be complemented by a well-developed, content-rich curriculum consistent with the expectations laid out in this document." (p 6)

Indeed, these statements highlight the intent of *any* set of Standards; i.e., they focus on outcomes, not curriculum or instruction. The implication is clear – educators must translate the Standards into an engaging and effective curriculum. So, what is the proper relationship between the Standards and curriculum? Consider another analogy with home building and renovation: The standards are like the building code. Architects and builders must attend to them but they are *not* the purpose of the design. The house to be built or renovated is designed to meet the needs of the client in a functional and pleasing manner – while also meeting the building code along the way.

Similarly, while curriculum and instruction must address established Standards, we always want to keep the long-term educational ends in mind – the development of important capabilities in the learner as a result of engaging and effective work. In other words, a curriculum works with the Standards to frame optimal learning experiences. To shift analogies, the Standards are more like the ingredients in a recipe than the final meal; they are more like the rules of the game rather than a strategy for succeeding at the game.

So then, what *is* a curriculum? In research for our initial book, *Understanding by Design*® (Wiggins and McTighe, 1998), we uncovered 83 different definitions or connotations for the word, curriculum, in the educational literature! Such a variety of meanings confer an unhelpful ambiguity on the challenge of moving from Standards to curriculum. Worse, most definitions focus on inputs, not outputs – what will be "covered" rather than a plan for what

learners should be able to accomplish with learned content. This is a core misunderstanding in our field. Marching through a list of topics or skills cannot be a "guaranteed and viable" way to ever yield the sophisticated outcomes that the Standards envision.

The ELA Standards underscore this idea clearly by framing everything around "anchor standards," all of which highlight complex abilities and performances that students should master for college and workplace readiness. The Mathematics Standards' emphasis on the need to weave the Content and Practice Standards together in a curriculum makes the same point.

Big Idea # 3 – Standards need to be "unpacked."
As suggested above, the first step in translating the Common Core Standards into engaging and outcome-focused curriculum involves a careful reading of the documents in order to insure clarity about the end results and an understanding of how the pieces fit together. This idea is not new. Over the years, we have suggested various ways of unpacking standards in conjunction with our work with the *Understanding by Design* framework®. (See, for example, Wiggins and McTighe 2011, 2012).

When working with the Common Core, we recommend that educators "unpack" them into four broad categories – 1) Long term Transfer Goals, 2) Overarching Understandings, 3) Overarching Essential Questions, and 4) a set of recurring Cornerstone Tasks.

The first category, Transfer Goals, identifies the effective *uses* of content understanding, knowledge, and skill that we seek in the long run; i.e., what we want students to be able *to do* when they confront new challenges – both in and outside of school. They reflect the ultimate goals, the reason we teach specific knowledge and skills. Unlike earlier generations of standards where transfer goals were implicit at best, the Common Core Standards have made them more overt. Indeed, the College and Career Anchor Standards in ELA specify long-term transfer goals, while the Mathematics Standards strongly suggest a goal such as, *Students will be able to use the mathematics they know to solve "messy," never-seen-before problems using effective mathematical reasoning.*

The second and third unpacking categories – overarching Understandings and Essential Questions – are like two sides of a coin. The Understandings state what skilled performers will need in order to effectively transfer their learning to new situations, while explorations of the Essential Questions engage learners in making meaning and deepening their

understandings. Here are examples for Mathematics and English Language Arts, respectively:

	Overarching Understandings	Overarching Essential Questions
Mathematical Modeling	• Mathematicians create models to interpret and predict the behavior of real world phenomena. • Mathematical models have limits and sometimes they distort or misrepresent.	• *How can we best model this (real world phenomena)?* • *What are the limits of this model?* • *How reliable are its predictions?*
Determining Central Ideas in Text	• Writers don't always say things directly or literally; sometimes they convey their ideas indirectly (e.g., metaphor, satire, irony).	• *What is this text really about? (e.g. theme, main idea, moral)* • *How do you "read between the lines?"*

The term *overarching* conveys the idea that these understandings and questions are not limited to a single grade or topic. On the contrary, it is expected that they be addressed across the grades with application to varied topics, problems, texts and contexts.

The fourth category, Cornerstone Tasks, are curriculum-embedded tasks that are intended to engage students in applying their knowledge and skills in an authentic and relevant context. Like a cornerstone anchors a building, these tasks are meant to anchor the curriculum around the most important performances that we want learners to be able to do (on their own) with acquired content knowledge and skills. Since these tasks are set in realistic contexts, they offer the natural vehicle for integrating the so-called 21st century skills (e.g., creativity, technology use, teamwork) with subject area content knowledge and skills. They honor the intent of the Standards, within and across subject areas, instead of emphasizing only the content measured more narrowly on external accountability tests. These rich tasks can be used as meaningful learning experiences as well as for formative and summative purposes.

Cornerstone tasks are designed to recur across the grades, progressing from simpler to more sophisticated; from those that are heavily scaffolded toward ones requiring autonomous performance. Accordingly, they enable both educators *and* learners to track performance and document the fact that students are getting progressively better at *using* content knowledge and skills in worthy performances. Like the game in athletics or the play in theater, teachers teach toward these tasks without apology.

The four categories that we recommend are initially unpacked at the "macro," or program, level to establish the equivalent of a curriculum blueprint. More specific course and grade level curriculum maps are then derived from backward from them, just as rooms in a building are constructed using the architect's blueprint as a guide. Practically speaking, this macro level work is best undertaken at the state, regional or district levels by teams of content experts and experienced teachers. Currently two states, Massachusetts and Pennsylvania, have assembled teams of content experts to unpack their Common Core state standards in this very manner, and the Next Generation Arts Standards, presently in development, are using this same construct to frame the Standards from the start!

While we strongly advocate this type of unpacking and have witnessed its benefits, we have also seen the process become way too narrow and granular when applied at the "micro" level. Thus, we concur with the important cautionary note offered by the Kansas Department of Education about a misapplication of Standards unpacking:

> "'Unpacking' often results in a checklist of discrete skills and a fostering of skill-and-drill instruction that can fragment and isolate student learning in such a way that conceptual understanding, higher order thinking, cohesion, and synergy are made more difficult. Too often, the process of 'unpacking" is engaged in an attempt to isolate the specific foundational or prerequisite skills necessary to be successful with the ideas conveyed by the overall standard and is a common precursor to test preparation and reductive teaching. Although this process may be important work in some instances and can certainly be enlightening, it also poses substantial problems if those completing the work never take the time to examine the synergy that can be created when those foundational or prerequisite skills are reassembled into a cohesive whole. Metaphorically speaking, 'unpacking' often leads educators to concentrate on the trees at the expense of the forest."

Big Idea # 4 – A coherent curriculum is mapped backwards from desired performances.

The key to avoiding an overly discrete and fragmented curriculum is to design backward from complex performances that require content. A return to the linguistic roots of "curriculum" reveals the wisdom in this outcome-focused view. The Latin meaning of the term is a "course to be run." This original connotation helpfully suggests that we should think of a curriculum as the pathway toward a destination. As mentioned above, our conception is that curriculum should be framed and developed in terms of worthy *outputs*; i.e., desired performances by the learner, not simply as a listing of content *inputs*.

This is not a new idea. Ralph Tyler made this very point more than 60 years ago (Tyler, 1949). He proposed a curriculum development method involving a matrix of content and process components that would guide teachers in meshing these two elements into effective performance-based learning. As Tyler points out, the "purpose of a statement of objectives is to indicate the kinds of changes in the student to be brought about… Hence it is clear that a statement of objectives in terms of content headings… is not a satisfactory basis for guiding the further development of the curriculum." Indeed, the Mathematics Standards recommend just such an approach:

> "The Standards for Mathematical Practice describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years. Designers of curricula, assessments, and professional development should all attend to the need to connect the mathematical practices to mathematical content in mathematics instruction." (p 8)

Thus, the first question for curriculum writers is not: *What will we teach and when should we teach it?* Rather the initial question for curriculum development must be goal focused: *Having learned key content, what will students be able to do with it?*

Our long-standing contention applies unequivocally to the Common Core Standards as well as to other Standards: The ultimate aim of a curriculum is independent transfer; i.e., for students to be able to employ their learning, autonomously and thoughtfully, to varied complex situations, inside and outside of school. Lacking the capacity to independently apply their learning, a student will be neither college nor workplace ready.

The ELA Standards make this point plainly in their characterization of the capacities of the literate individual:

> "They demonstrate independence. Students can, without significant scaffolding, comprehend and evaluate complex texts across a range of types and disciplines, and they can construct effective arguments and convey intricate or multifaceted information… Students adapt their communication in relation to audience, task, purpose, and discipline. Likewise, students are able independently to discern a speaker's key points, request clarification, and ask relevant questions... Without prompting, they demonstrate command of standard English and acquire and use a wide-ranging vocabulary. More broadly, they become self-directed learners, effectively seeking out and using resources to assist them, including teachers, peers, and print and digital reference materials." (p. 7)

These points underscore a potential misunderstanding resulting from a *superficial* reading of the Standards documents (especially in Mathematics). One could simply parcel out lists of discrete grade-level standards and topics along a calendar while completely ignoring the long-term goal of transfer. A curriculum envisioned and enacted as a set of maps of content and skill coverage will simply not, by itself, develop a student's increasingly autonomous capacity to *use* learned content effectively to address complex tasks and problems. Such traditional scope-and-sequencing of curriculum reinforces a "coverage" mentality and reveals a misconception; i.e., that teaching bits of content in a logical and specified order will somehow add up to the desired achievements called for in the Standards.

A related misconception is evident when teachers assume that the Standards prescribe the instructional sequence and pacing. Not so! To assume that the layout of the documents imply an instructional chronology is as flawed as thinking that since a dictionary is helpfully organized from A to Z, that vocabulary should therefore be taught in alphabetical order. While the grade-level Standards are certainly not arbitrary and reflect natural long-term "learning progressions," a rigid sequence within each grade level was never intended. The authors of the Common Core Mathematics Standards explicitly call attention to this misconception and warn against it:

> "For example, just because topic A appears before topic B in the standards for a given grade, it does not necessarily mean that topic A must be taught before topic B. A teacher might prefer to teach topic B before topic A, or might choose to highlight connections by teaching topic A and topic B at the same time. Or, a teacher might prefer to teach a topic of his or her own choosing that leads, as a byproduct, to students reaching the standards for topics A and B." (p. 5)

The implications of these points are critical not only for curriculum mapping but for the very nature of instructional practice. Consider this advice from a non-academic source – the United States Soccer Coaches Federation. In *Best Practices for Coaching Soccer in The U.S.*, the Federation recommends a change in the soccer "curriculum" of practice:

> "When conducting training sessions, there needs to be a greater reliance on game oriented training that is player centered and enables players to explore and arrive at solutions while they play. This is in contrast to the 'coach centered' training that has been the mainstay of coaching methodology over the years. 'Game centered training' implies that the primary training environment is the game as opposed to training players in 'drill' type environments. This is not to say that there is not a time for a more 'direct' approach to coaching. At times, players need more guidance and direction as they are developing. However, if the goal is to develop creative players who have the abilities to solve problems, and interpret game situations by themselves, a 'guided discovery' approach needs to be employed." (pp 62-64)

We propose that this recommendation applies equally to teachers of academics as to coaches of soccer. In other words, if we want students to be able to apply their learning via autonomous performance, we need to design our curriculum backward from that goal. Metaphorically speaking, then, educators need to ask, what is the "game" we expect students to be able to play with skill and flexibility? In other words, we need clarity and consensus about the *point* of content learning – *independent* transfer. Then, we can build the curriculum pathway backward with those worthy performances in mind.

To design a school curriculum backward from the goal of autonomous transfer requires a deliberate and transparent plan for helping the student rely less and less on teacher hand-holding and scaffolds. After all, transfer is about *independent* performance in context. You can only be said to have fully understood and applied your learning if you can do it without someone telling you what to do. In the real world, no teacher is there to direct and remind you about which lesson to plug in here or what strategy fits there; transfer is about intelligently and effectively drawing from your repertoire, independently, to handle new situations on your own. Accordingly, we should see an increase, by design, in problem- and project-based learning, small-group inquiries, Socratic Seminars, and independent studies as learners progress through the curriculum across the grades.

Our point here is straightforward: if a curriculum simply marches through lists of content knowledge and skills without attending to the concomitant goal of cultivating independent performance, high-schoolers will remain as dependent on teacher directions and step-by-step guidance as 4th graders currently are. The resulting graduates will be unprepared for the demands of college and the workplace.

Big Idea #5 – The Standards come to life through the assessments.
A prevalent misconception about standards in general is that they simply specify learning goals to be achieved. A more complete and accurate conception, in line with the colloquial meaning of the term, recognizes that standards also refer to the desired *qualities* of student work and the degree of *rigor* that must be assessed and achieved.

Think about what we mean when we talk about "high standards" in athletics, music or business: we refer to the quality of outcomes, not the inputs. We ask if work is up to standard, not whether we "covered" such standards as teachers. In this sense, the standards are at their core a set of criteria for building and testing local *assessment*. They tell where we must look and what we must look for to determine if student work is up to standard. Such information is crucial to guide local assessments and insure that these are validly anchored against national standards.

Ironically (and unfortunately), this important point is not made in the main body of the ELA Common Core Standards but in Appendices B and C. These Appendices are arguably the most important sections of the ELA Standards because there the authors describe the degree of text difficulty that students must be able to handle, the features that need to be evident in student writing, and the kinds of performance tasks that will provide the needed evidence. Accompanying samples of scored work illustrate the qualities of performance that must be attained to meet the Standards.

This performance-based conception of Standards lies at the heart of what is needed to translate the Common Core into a robust curriculum and assessment system. The curriculum and related instruction must be *designed backward* from an analysis of standards-based assessments; i.e., worthy performance tasks anchored by rigorous rubrics and annotated work samples. We predict that the alternative – a curriculum mapped in a typical scope and sequence based on grade-level content specifications – will encourage a curriculum of disconnected "coverage" and make it more likely that people will simply retrofit the new language to the old way of doing business.

Thus, our proposal reflects the essence of backward design: Conceptualize and construct the curriculum back from sophisticated "cornerstone" tasks, reflecting the performances that the

Common Core Standards demand of graduates. Indeed, the whole point of Anchor Standards in ELA and the Practices in Mathematics is to establish the genres of performance (e.g., argumentation in writing and speaking, and solving problems set in real-world contexts) that must *recur* across the grades in order to develop the capacities needed for success in higher education and the workplace.

Our recommendation to construct curriculum around assessments may lead to a related misunderstanding; i.e., that we need to assess *each* grade-level Standard in isolation, one by one. We think that this view is due in part to the layout of grade-level Standards and to the look and feel of traditional standardized tests, in which very discrete objectives are the subject of most test items. This confuses means and ends; it conflates the "drill" with the "game." The authors of the Common Core E/LA Standards wisely anticipated this misconception and they caution against it: "While the Standards delineate specific expectations in reading, writing, speaking, listening, and language, each standard need not be a separate focus for instruction and assessment. Often, several standards can be addressed by a single rich task." (p 5)

In sum, moving from Standards to curriculum requires careful reading and thoughtful interpretation to avoid the predictable misunderstandings noted above, while building the curriculum backward from worthy tasks offers the pathway to the performances envisioned by the Common Core.

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APPENDIX H

EIGHT CCSS PRACTICE STANDARDS FOR MATHEMATICS

Mathematics | Standards

for Mathematical Practice

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important "processes and proficiencies" with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council's report Adding It Up: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy).

1 Make sense of problems and persevere in solving them.

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or

change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

2 Reason abstractly and quantitatively.

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

3 Construct viable arguments and critique the reasoning of others.

Mathematically proficient students understand and use stated assumptions,

definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

4 Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are

comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

5 Use appropriate tools strategically.

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and

deepen their understanding of concepts.

6 Attend to precision.

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

7 Look for and make use of structure.

Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x2 + 9x + 14$, older students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see $5 – 3(x – y)2$ as 5

minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.

8 Look for and express regularity in repeated reasoning.

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y – 2)/(x – 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x – 1)(x + 1)$, $(x – 1)(x2 + x + 1)$, and $(x – 1)(x3 + x2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

Connecting the Standards for Mathematical Practice to the Standards for Mathematical Content

The Standards for Mathematical Practice describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years. Designers of curricula, assessments, and professional development should all attend to the need to connect the mathematical practices to mathematical content in mathematics instruction.

The Standards for Mathematical Content are a balanced combination of procedure and understanding. Expectations that begin with the word "understand" are often especially good opportunities to connect the practices to the content. Students who lack understanding of a topic may rely on procedures too heavily. Without a flexible base from which to work, they may be less likely to consider analogous problems, represent problems coherently, justify conclusions, apply the mathematics to practical situations, use technology mindfully to work with the mathematics, explain the mathematics accurately to other students, step back for an overview, or deviate from a known procedure to find a shortcut. In short, a lack of understanding effectively prevents a student from engaging in the mathematical practices.

In this respect, those content standards which set an expectation of understanding are potential "points of intersection" between the Standards for Mathematical Content and the Standards for Mathematical Practice. These points of intersection are intended to be weighted toward central and generative concepts in the school mathematics curriculum that most merit the time, resources, innovative energies, and focus necessary to qualitatively improve the curriculum, instruction, assessment, professional development, and student achievement in mathematics.

APPENDIX I

CCSS AND GIFTED EDUCATION NAGC POSITION PAPER

CCSS and Gifted Education NAGC Position Paper

How do we align the Common Core State Standards to gifted education programming standards?

All differentiation is based on an understanding of the characteristics of gifted and high-potential students and the content standards within a domain. The new Common Core State Standards (CCSS) require the field of gifted education to examine its practices and align them more fully to the NAGC Pre-K-Grade 12 Gifted Programming Standards for curriculum, instruction, and assessment. Since the gifted programming standards in curriculum require us to engage in two major tasks in curriculum planning—alignment to standards in the content areas and the development of a scope and sequence—using the CCSS is a natural point of departure. The effort must occur in vertical planning teams within districts and states in order to ensure consistency and coherence in the process. There are three major strategies that may be employed to accomplish the task for gifted education:

1. Provide pathways to accelerate the CCSS for gifted learners.

Some of the CCSS address higher-level skills and concepts that should receive focus throughout the years of schooling, such as a major emphasis on the skills of argument in English Language Arts and the skills of patterning and problem-solving in Mathematics. However, there are also more discrete skills that may be clustered across grade levels and compressed around higher-level skills and concepts for more efficient mastery by gifted students.

2. Provide examples of differentiated task demands to address specific standards.

Standards like the research standard in English Language Arts and the data interpretation standard in Mathematics lend themselves to differentiated interpretation through demonstrating what a typical learner on grade level might be able to do at a given stage of development versus what a gifted learner might be able to do. The differentiated examples should show greater complexity and creativity, using a more advanced curriculum base. While typical learners might interpret a grade-level graph to satisfy the data interpretation standard in Mathematics, the gifted learners might use real world and multiple data sets to interpret and show trends in data over time. In English Language Arts, while typical learners might learn the parts of speech and practice their application across grades K-8, gifted learners might instead explore the relationship of these parts of speech and their function in different sentence patterns at an earlier stage of development. Other degrees of differentiation may take place by adding complexity to the task and using enrichment techniques that address student needs and district demographics.

3. Create interdisciplinary product demands to elevate learning for gifted students and to efficiently address multiple standards at once.

Since English Language Arts and Mathematics standards can be grouped together in application, much of the project work that gifted educators might already use could be revised to connect to the new CCSS and show how multiple standards could be addressed across content areas. For example, research projects could be designed that address the research standard in English Language Arts and the data representation standard in Mathematics by delineating a product demand for research on an issue, asking researchable questions, using multiple sources to answer them, and then representing findings in tables, graphs, and other visual displays that are explained in text and

presented to an audience with implications for a plan of action. Such a project might be possible for the gifted learner at an earlier grade than for a typical learner.

Teachers who serve gifted students in pullout models, where gifted students spend a portion of their school day (or week) in a setting other than their general education classroom, are encouraged to consider how their infusion of literacy and numeracy address the CCSS and how the experiences offered in the pull-out setting offer advanced learning experiences beyond those that would be provided in the general education classroom. Teachers of the gifted in pull-out classrooms are encouraged to remain informed of the content and scope of literacy experiences afforded students in the regular classroom setting so that gifted program experiences provide opportunities for greater depth, complexity, critical-thinking opportunities, creative production, and research based on the individual needs of gifted students as reflected in the use of ongoing assessment information.

The models of delivery are largely not addressed in the CCSS, allowing teachers and schools to implement services based on the needs of gifted students with the CCSS as a basis. Though gifted program design and delivery will be informed by these Standards, programs and services for the gifted should be largely guided by assessment data on the ability levels of students as well as best practices for serving gifted students in each of the core subject areas.

What are the approaches to use in differentiating the Mathematics standards?

The Common Core State Standards (CCSS) in Mathematics have significant implications for the teaching of Mathematics in grades K–12. Our collective future lies in the individual development of students with mathematical promise, students who will

fulfill their own potential and also provide leadership for others. This individualized developmental approach includes students who traditionally have been identified as gifted, talented, advanced, or precocious in Mathematics as well as those students with potential who may have been excluded from the rich opportunities that might accompany this recognition. As with all students, these students with special needs deserve a least restrictive learning environment that lifts the ceiling, fuels their creativity and passions, pushes them to make continuous progress throughout their academic careers, and supports them in the fulfillment of their personal potential.

When considering the implications of the CCSS for the development of mathematical talent, it is important to take into account the eight Standards for Mathematical Practice that educators should seek to develop in their students as well as the individual Mathematics content standards. For example, the Standards for Practice expect proficient students to reason abstractly and quantitatively, persevere in solving difficult problems, and construct and critique viable arguments to support their reasoning. Students need a chance to experience the joy of investigating rich concepts in depth and applying innovative mathematical reasoning and justification to a variety of scientific, engineering, and other problems.

The instructional pace is also a critical consideration in the education of gifted students in mathematics. Advanced learners may demonstrate rapid or early mastery of some of the mathematics standards, especially those involving skill at computation and mastery of algorithms, requiring accelerative opportunities at key stages of development. Appropriate pacing for these students, including in accelerated courses, means that students have the time and opportunity to delve deeply and creatively into

topics, projects, and problems of interest. It's important therefore that advanced learners receive their instruction from well-prepared teachers who are knowledgeable regarding mathematics and strategies to use with advanced learners.

Teachers of the gifted also should be mindful of the importance of providing problem finding and problem-solving skills and strategies to stimulate mathematical reasoning, spatial reasoning, and work with number theory. As applied skills to conducting meaningful research, early exposure of gifted learners of probability, statistics, and logic are viable approaches to be used.

APPENDIX J

REFLECTIVE JOURNAL PROMPT QUESTIONS

Reflective Journal Prompt Questions

- What went well in the group discussion session?
- What did I find interesting or intriguing in the group discussion session?
- What would I change about the group discussion sessions if I could and why?
- Describe the relationship between the CCSS and gifted education, gifted students, and modified curriculum and differentiated instruction implemented with quantitatively gifted students, if there is one in my opinion.
- What ideas, feelings, stories, thoughts, or revelations do I need to write down so I don't forget them about using the CCSS while implementing modified curriculum and differentiated instruction which meets the needs of my gifted learners?
- How did I differentiate or modify curriculum and instruction for my gifted learners that made their learning set apart from the standard curriculum and instruction and did it also address a quantitative CCSS for Mathematics standard? Which one? Was this by design and if so, how did I negotiate this?
- What have I learned about myself or my students lately because of teaching or implementing quantitative curriculum and instruction with the CCSS in mind?
- What have I done, accomplished, changed, or learned lately that has improved my abilities as a gifted education specialist teacher? Explain.
- Exactly which curriculum or instructional need of gifted students (higher order thinking skills, authenticity, student driven, choice, 21st century skills, differentiation of content, process, product, assessment, or environment, critical thinking skills, creative thinking skills, problem solving skills, interdisciplinary

study) did I implement lately with my quantitatively gifted students that I am particularly proud of? Explain.

- Do I feel that focusing on the CCSS has changed the curriculum or instruction I implement with my quantitatively gifted students? Explain.
- Have the CCSS enriched or supported my teaching experience or my quantitatively gifted students' learning experiences in any way? Explain.
- Describe some of the down sides of the CCSS for my gifted students.

APPENDIX K

STAGE 1: PRE-INTERVIEWS

Pre-Interview with participant #1, 12/20/13

Raw Data		Stage #1 Summary Chunks	Stage #2 Codes
Re:	What do you know about the Common Core State Standards?		
1:	They are designed to allow teachers to have a broad ability to choose curriculum that's going to fit what needs to be taught according to the standards that are for their grade level. They are to look at the standards and then develop a method for teaching it whatever the standard would be for teaching that within boundaries of Arizona standards which sit on top of those standards.	Description of teachers using CCSS within boundaries of AZ standards	01.PERC.01
Re:	How, exactly, do you use the CCSS when choosing or creating curriculum for your quantitatively gifted students?		
1:	Ok, so I look at the standards that I know that they are going to need in the next three to five	Looks at standards first, then chooses curriculum that facilitates teaching those standards	07.FRC-MASK.02

	years, and I decide what category or what curriculum I can use in order to facilitate that, so that those things that need to be taught are going to be taught, and they're also going to be continued to be taught over the next several years because they're going to need to have it reinforced at different levels. And then I look for a curriculum that will allow me to do what I need to do to teach it to them.		
Re:	How do you use the CCSS when implementing curriculum with your quantitative students?		
1:	Well, the Arizona standards are a little bit different than the Common Core, and I do take those into consideration when I am looking at them, but sometimes the Arizona State standards are not applicable to the grade level that I'm	Believes AZ standards are different that CCSS or AZCCRS Looks at above grade level standards	02.BEL.01 03.APR-ABGR.02

	teaching, so I look at a higher level. And so sometimes we have to go into the junior high or high school level in order to find a state standard that will sit on top of a Common Core or even vice versa. So when I look for that, and if I don't find a common Arizona Common Core Standard then I will look around to see if I can find something that will work in place of it. Does that answer your question?	Will "replace" a CCSS with something	03.APR.01
Re:	Yes. To what extent do you think the CCSS support the curriculum and instruction you choose and create to implement with your quantitatively gifted learners?		
1:	The Arizona Common Core Standards that sit on top of the regular Common Core Standards don't always address	Doesn't believe that either the AZ standards or the CCSS always address what she needs to teach	02.BEL.01

	what I need to teach. And so to the extent of that I would have to say maybe 75 to maybe to down 50 percent of the Arizona standards are going to sit on top nicely with the regular Common Core Standards that the rest of the country uses. And, so to that extent, if I don't find one then I will...then I don't use it obviously, and I will use a regular national Common Core or even a twenty-first century skills that will allow me to do what I need to do and still fall within the parameters of the law.	Explains that 50-75% of the AZ standards "sit on top nicely with" CCSS If she can't find an AZ standard that suits her and matches what she wants to teach, she uses a national CCSS or a 21st century skill Duty to students according to AZ law	01.PERC.01 03.APR.01 07.FRC-LAW.04
Re:	Are there components of the CCSS that support your efforts to modify curriculum and differentiate instruction for your quantitatively gifted students, and if so please explain how these components		

	assist you in this task?		
1:	There are components that will work and there's components that aren't going to work.	Components of CCSS that won't work, components that will work	02.BEL.01
	Sometimes in order for me to be able to use the Common Core I have to tweak them a little bit, and so in the tweaking of the Arizona standards that sit on top, sometimes I don't address them every year, and sometimes in the years that I do address them I might address more than one of them, but overall because I that know I'm going to have the kids for a longer period of time, I know that maybe in a year or two later, I'll be able to use the Common Core, the Arizona Common Core Standards to a greater extent then I would use say the regular national standards. And I need you to	Tweaks AZ standards and CCSS and does not address them every year	03.APR.01
		Plans and uses standards over several school years because has same students for multiple years	03.APR,01
		She uses AZ standards more than the national CCSS	07.FRC-TRAN.03

	read that to me again because I have a second part that I think I need to put in on that.		
Re:	Are there components of the CCSS that support your efforts to modify curriculum and differentiate instruction for your quantitatively gifted students, and if so please explain how these components assist you in this task.		
1:	Ok. So, because we can go to different levels, and because I'm not stuck on one grade level the way the classroom teachers are stuck on one level, but because we have gifted kids we can take standards that are not necessarily at their grade level but are going to be above their grade level, and we can take those standards and we can implement them on top of what needs to be done. So the last	Uses advanced grade level standards	03.APR-ABGR.02

thing I want to do is to repeat what they're learning in the classroom. And because I don't want to do that, then I'm going to be choosing standards that I know that they're not going to be getting in the classroom, but that are what they need according to their level. And, within that parameter, I know that some of the kids in my classroom that are in the quantitative because I have 3, 4, and 5, third, fourth, and fifth graders in the classroom, they are going to need different things at their levels because even though they are gifted, they're gifted at different levels, so that differentiation that I need to have for them has to be even at a higher level and maybe more tweaking involved. Some of it they're going to pick up and some of it they're not	Uses advanced grade level standards so as not to repeat what students get in their regular classroom for math	03.APR-ABGR.02
	Uses advanced grade level standards because students are ready/need more advanced curriculum	03.APR-ABGR.02
	Differentiates even the advanced grade level standards because she has multiple grade levels together	03.APR-DIFF.03

	going to pick up. And the ones that are in the fifth grade that are way above the third grade level are able to do more things at a deeper level than third graders are, but I can tweak what ever lesson I'm doing so that one gets it deeper than the other. Even though they're working at the same time in the same classroom they're working on different stuff which is, I mean we have to differentiate even for our gifted kids too.	Curriculum differentiation even within gifted classes	03.APR-DIFF.03
Re:	What relationships do you see between the CCSS and the modified curriculum and differentiated instruction that you choose and create to implement with your gifted students . . . what relationships do you see?		

1:	Ok, so what I see is that the Common Core that the, Common Core that Arizona has is at a much lower level than what they really need. And so, and it's frustrating for me because I know that the things that they would have been learning on other standards they're not necessarily going to be getting, so there's also holes that I need to fill. And so, when I see that correlation between the two and I see that some of the things that the kids need they're not getting nor are they going to get or they skipped over from grade to grade, then I fill that. But I see that the relationships between what they need are just at a huge diverse level. The Common Core Standards are not necessarily addressing what they need at	AZ's CC is lower than her students need She fills holes in students' learning that she thinks have happened due to changing from old standards to CCSS and ACCRS The CCSS are not addressing needs	02.BEL.01 07.FRC-TRAN.03 MEMO: she appears to be talking about three different standards—the national Common Core State Standards, the old Arizona State Standards, and the Arizona College and Career Ready Standards which she is calling the AZ Common Core 02.BEL.01

	their age. So, I'm assuming that they're going to get it in the classroom and that I'm assuming that what I give them is going to give them a leg up on what they need to know, but I'm not seeing a huge relationship, quite frankly. I'm just not. I'm having a really rough time trying to decide what these kids are going to get that I don't want to duplicate. So I'm having a rough time with the correlation on it, with the relationship between the two.	No relationship between CCSS and gifted education curriculum	05.RELA.01
		Struggling with transition between old AZ standards and new CCSS/AZCCRS, and because of transition, doesn't see much relationship between curriculum she implements with gifted and CCSS/AZCCRS	07.FRC-TRAN.03
Re:	What are some of the curricular needs of quantitatively gifted students?		
1:	They need . . .they need to be able to have a curriculum that is going to be useful for them, that is going to be something that they're going to want to invest their time in, so it's got to be fun. And it has to be able to hit	Gifted students need curriculum that is useful, worth their investment of time, is fun, is creative, stimulates their interests, reinforces known concepts, includes new concepts, points to a possible career, and is above grade level	04.NEED.01

their creativity as far as their number sense and their relationship with having fun with numbers. And when I'm looking for curriculum I'm looking for something that is going to stimulate their interest, it's going to reinforce what they already know, introduce them to something that they don't know in a field, and even maybe even in a career, that they could potentially have with numbers because they're going to they're going be probably making a decision on what they want to be when they grow up a lot earlier than a lot of other kids. And so if we can provide them with quantitative careers that are going to be fun careers, then I think it helps them be just become a better person because they now have a bigger field to say oh I'd like to do this as a

career, and I got to be able to do it in PACE. So like the baseball statistics is one. That's a career. Even the Rubik's Cube that we're doing this year has potential careers in it. And it covers a huge variety of geometry and other algebraic thinking that they're not going to get in the classroom at their age level now. They're just . . . it's going to be probably middle school before they get this information. By then they'll be on to something else. So when I'm looking for curriculum, I'm looking for something that's going to allow them to choose or even think about a career in maybe a potential field.

Re: Do you recommend or use certain curriculum models, programs, instructional strategies, or techniques that

	meet the curricular needs of your quantitatively gifted students?	Looks for curriculum that is useful to students and teacher	03.APR.01
1:	Well I hope I do (laughter). I'm really thinking that I do. And I'm. When I look at the curriculum, I'm looking at things that can be, can be used by them, obviously. And I'm looking for things that are going to be useful for me that are going to be able to give them their. . . . what they need to know.	Need curriculum to give them what they need to know	04.NEED.01
Re:	Do you recommend any certain models or programs?	Trusts a few vendors to provide appropriate gifted curriculum and seeks out curriculum on the Internet	03.APR.01
1:	I do like the InterAct just because I think they're well written because most of them are written by teachers who've taught whatever it is in their respective field, and so they know a lot about what they are doing. So I like InterAct and I		

like Prufrock, and most of the other vendors that we've been using for a long period of time in our program, I think are vendors that have shown us that they have tried and true programs that we only need to tweak a little bit. And yet there are still some ones that are on the Internet that are just as good, such as the baseball statistics, and I saw one the other day for golfing statistics which looked like fun. So yes, I would say that those vendors, and there are probably a few more that I'm not thinking of right now, I would look at their stuff before looking at other stuff.

Re: What characteristics, components, or traits do these curriculum models, programs, instructional strategies, or techniques have that make you

	confident that they meet the curricular needs of the quantitatively gifted learners?		
1:	Ok, so when I look at these things that make me think that they are going to fit the needs of the kids, I'm looking for something that is going to engage all their senses, preferably at the same time. That are going to stimulate their desire to want to learn, that are going to stimulate their brains in an area that they need to learn in, and that are going to engage their creativity. So it needs to have something that is going to be hand on. I don't like worksheets. I won't use worksheets. If they have to make their own worksheet to collect data, that's one thing, but filling in the blanks is not going to work for them. So I'm looking	Gifted students need curriculum that engage senses, stimulate their desire to learn, stimulate their brains, engage their creativity, hands on, no worksheets, allows for analysis and synthesis, and interests them.	04.NEED.01

for something that they can use to pick apart, that they can put back together, that's going to engage their hands and their brain at the same time, that's going to also be tactile, and that is something that will stick with them that they're going to want to do even when they're not in the classroom. So feedback for me is when they come to class and they want to do whatever activity we're doing, they want to do it at home on the weekend, or they want to take whatever it is we're working on home to do more of it. So for me, that's a feedback, and when I hit upon something like that then I use it to formulate the next activity or the next curriculum when we start something new.

High level of motivation by students, *i.e.* students beg to do more of activity or do activity at home on the weekends, is her justification to continue that curriculum

03.APR-MON.04

Re: How do you think the CCSS impact the kind of curriculum

	and instruction you implement with your quantitatively gifted students?		
1:	Ok, I'm not sure really impacts it other than I use it as a guideline and I use it to try to find curriculum that's going to implement them because you don't want to take a curriculum that has nothing to do with what they need to learn. But most curriculum, nowadays, is written with the Common Core in mind, and so because of that, they're going to tweak it little bit so that it does satisfy the needs of teachers because no one wants to write a curriculum that no one's going to buy because it doesn't meet the standards. So when I'm looking for that and I'm looking for something that's going to	Uses CCSS as a guideline when choosing curriculum	06.IMP.01
		Most curriculum written today has CCSS embedded automatically	01.PERC.01
		Chooses curriculum that reinforces the CCSS	06.IMP.01

reinforce the standards of the Common Core, then I look for that and then I choose that particular curriculum.

Re: Ok. That was the last question.

1: Oh good. Excellent.

Re: Thank you very much.

Pre-Interview with participant #2, 12/27/13

Raw Data		Stage #1 Summary Chunks	Stage #2 Codes
Re:	Ok. What do you know about the Common Core State Standards?		
3:	That's such a big question!		
Re:	Yeah!		
2:	I know that Arizona is moving towards Common Core State Standards and each school and district is at different place with the Common Core State Standards. Ideally, the Common Core State Standards would be adopted nationwide and then all schools would be, well it would be common. It would be the same for all of our, all of our students on a national level.	Arizona in transition between old and CCSS Ideal to be same nationwide	07.FRC-TRAN.03 02.BEL.01
Re:	Anything else?		
2:	Well in comparing them with the Arizona State Standards they seem like, sounds like the intention is that they would go	CCSS more in depth than old AZ standards	07.FRC-TRAN.03

	more in depth. Rather than covering a wider range of standards and concepts at each grade level, it would go more in depth at the grade levels. It would build a stronger foundation for students as they're moving up.	CCSS stronger foundation	02.BEL.01
Re:	Ok. How, exactly, do you use the CCSS when choosing or creating curriculum for your quantitatively gifted students?		
2:	Well, how I've used them is that I've looked at the, the grade level standards of the grade level that those students are technically in, and then I look beyond and I'm looking up at the higher grade levels, so maybe one, two, three grade levels beyond where they're at. And I'm looking for any, any areas that I can focus on that would still be applicable to what, where they're at without	Looks at 1, 2, 3 above grade level standards	03.APR-ABGR.02

	going, you know, skipping too much, or, so. I've used them as a . . . in looking at the continuum of where, of any standards that repeat or cycle and the bigger concepts, those. Well in math, the pillars. So looking at how I can continue those and strengthen those. And then, basically, looking at how we can tie it to what we're, I guess the content that I want to focus on.	Looks for bigger concepts that repeat Looks to continue pillars with content she wants to focus on in math	03.APR.01 03.APR.01 Memo: Pillars she is talking about are the "practice standards" in CCSS math rather than the "content standards" in the CCSS math
Re:	Ok. Applicable to where they're at now, so you're looking at standards that you can use, application? Can you give me a little more on that?		
2:	Well in, so in 5th grade, for example, can I do that? Their teacher, their homeroom teacher has been working on problem solving, and so I then took that problem solving and pulled more rigorous problems that applied to, we were, we're	Example: classroom working on problem solving, she found more rigorous problems that also applied to content she wanted to explore, but was still an extension of what was being worked on in regular classroom	03.APR-DIFF.03

	exploring the Rubik's Cube. So that they had some, some concrete knowledge because we had been working with the Rubik's Cube, and, and it applied to that cube and what they've been exploring, and they're trying to solve it, and so. But, also applicable to what they're, what they're doing in their homeroom class.		
Re:	Ok, so it's an extension of . . .		
2:	Um, hum.		
Re:	How do you use the CCSS when implementing curriculum with your quantitative students?		
2:	Hum, I guess just in my mind always thinking what those, those standards are and what the goal is, what they should be striving to master and show mastery of. This year I did post the standard that we were	Being aware of standard and posting it on board	06.IMP.01

	focusing on, I posted it on the board. Aside from posting it, I guess, being aware, and I don't know.		
Re:	That's fine. To what extent do you think the CCSS support the curriculum and instruction you choose and/or create to implement with your quantitatively gifted learners?		
2:	Hum. Well, the, those pillars that are the . . . I think that's what they're called. I keep referring to them as pillars. Those seem to . . . I liked focusing on those because they seemed vague enough that you could interpret it differently and . . . but, I mean maybe, I feel like, and this question kind of leads into this. It might not be bad for me to have additional training on how to . . . you know	Focus on pillars because vague	03.APR.01
		May need more training in implementing because was regular education teacher when trained, now in gifted education	07.FRC-INAD.05

where to . . . where I can . . . how far I can go with it and where I can go because initially when I was introduced to Common Core State Standards I was a grade level teacher, and the, the message that I got was you really need to stay within your grade level. In order for this to work appropriately and properly, you need to stay within your grade level that way you can . . . you know it's, you're building that foundation for that next grade level and if you go beyond there could potentially be holes that were missed in that grade level. So, you know, continuing within that grade level. Well, for our gifted, our quantitatively gifted students, what does that look like? So, maybe it was the message, maybe the message that I got was just one person's,	In her training, message was to stay within grade level so no holes created	
	Should look differently for quantitatively gifted students	03.APR-DIFF.03
	Perceives CCSS from trainer's perspective	01.PERC.01

	you know, from such-and-such district, their opinion on Common Core State Standards. But, that's why, then, I focused on those pillars because I noticed that they were the same, and I thought, well if I stayed within this it's still, you know, their grade level and I can extend here and . . .	Focused on pillars because they were the same at every grade level	03.APR.01
Re:	You mean they're the same, they're the same across the grade levels?		
2:	Huh hum. Yep, they're the same. I think it was . . . is was definitely it was third through, it goes up to high school. I don't know if it goes down, if it's all the way down to kindergarten or not.	Believes pillars are the same for every grade level	02.BEL.01
Re:	Good. Are there components, and you kind of talked about his already, but are there components of the CCSS that support your efforts to modify		

	curriculum and differentiate instruction for your quantitatively gifted students, and if so please explain how these components assist you in this task?		
2:	Those pillars. They stay, they're . . . vague is the only word I can really think of it. They're vague enough that . . . they're open for a lot interpretation and yet there's a focused skill. It could be . . . could spend a day talking about that skill or a whole semester talking about that skill and practicing. And so, I think, those pillars are a component that lend themselves to differentiation.	Pillars because they are vague, open for interpretation, focused skill, rich, easy to differentiate	03.APR-DIFF.03
Re:	Good. What relationships do you see between the CCSS and the modified curriculum, and the modified curriculum and		

	differentiated instruction that you choose and/or create to implement with your gifted students?		
2:	Well, my mind goes back to those . . . Let's see, what relationships do you see between the Common Core State Standards and the modified curriculum and differentiated instruction that you choose and create . . .		
Re:	The key is relationships, what kind of relationships . . .		
2:	Yeah. I guess that you can . . . I don't know that this is, I'm understanding the question correctly but, when I think of our modified and differentiated instruction I think of being able to have some flexibility, and continue on, and allow for, prepare for extension and prepare for . . . one . . . I guess	Flexibility in curriculum needed to be able to modify and differentiate	04.NEED.01

here's a relationship. Something that I wanted to focus on more was, this year with the problem solving, was requiring students to explain how they know. And I see that, not so much with the Common Core, but with the PARCC assessment and what it will be is that students will need to . . . you know, the answer might be given to them, and they have to say how do you know this is the answer or how do you know that "B" is not the answer. And so I guess analyzing and having that . . . being able to verbalize or explain in writing their thinking. And I see that relationship, but that's simply in how I am, how I am teaching and what I'm, what I'm planning	Verbalize or explain thinking is relationship between CCSS, or at least the PARCC, and modified curriculum used in gifted education	05.RELA.01
to do. But, teachers having the access, having access to not just their grade level, but grade	Having access to above and below and even above and below that is a direct relationship to modified curriculum	05.RELA.01

	levels above and below and above and below that. There's a direct relationship there with differentiation and modifying their curriculum.		
Re:	Ok. What are some of the curricular needs of quantitatively gifted students?		
2:	(laughter) There's a whole lot! The ability to go beyond. And . . . I'm thinking about the beginning of the year, there was a teacher that was practicing multiplication tests with a level and doing that with the high students. And I guess a curricular need is someone that will look at where they're at, and do whatever it is that needs to be to meet those needs and meet them where they are, rather than, well I know you're here, but thirty of the students	Gifted students need to be able to go beyond grade level They need a teacher who is willing to look at where they are at, even though it is beyond grade level, and teach them there to challenge them	04.NEED.01 04.NEED.01

	are here so we are going to go back here. So, someone that will challenge them.		
Re:	And the teacher that was doing the multiplication drill, I don't want to put words in your mouth, but didn't feel, you don't feel that she was meeting them where they're at?		
2:	Oh no. Yeah, and (laughter) initially what I thought with that, was that they need a place where they could come and complain (laughter), because that's what was happening (laughter). But I don't think that they need that. They could complain to . . . but, yeah.	Initially thought they just needed a place where they could complain, but changed her mind	04.NEED.01
Re:	Do you recommend or use certain curriculum models, programs, instructional strategies, or techniques that meet the curricular needs of your quantitatively gifted learners?		

2:	I've really liked doing problem solving with these students	Problem solving meets their curricular needs	04.NEED.01
	because they are, even as a group of gifted learners, they're at so many different places with their, with their learning, and with their thinking. So some sort of problem solving model . .	Can differentiate with a problem solving model, even within gifted group	03.APR-DIFF.03
	. what I do is they have some time to work independently and then they, they can share, you know, for a set period of time, and then they're back independent. So it's structured, and they can anticipate that structure, and they know that support would be coming should they need it. But it allows a chance for them to work through and try things on	Explains her problem solving model	03.APR.01
	their own. The problems . . . one thing that I found is finding the right problems that are at their,	Struggles to find problem that challenges but is not too difficult	07.FRC.01

	you know, it is not too difficult but it is difficult enough. So, some sort of problem solving has worked really well with . . . is something that I'd recommend. This is very specific, but the Rubic's cube even, that's an example of a, it's kind of a posed problem and then they can, at the beginning, and then they can go at their own rate as they're working through to solve.	Rubic's cube is posed problem that can be tackled at own rate	04,NEED.01
Re:	Anything else?		
2:	Hum, it says or techniques. Ask questions. Like if they're asking questions, I think turning and asking them a question I found helps a lot of them to think. Just encourage that perseverance and . . . it seems like some of them want the answer right away, or, and if they don't have it they want to come to you and	Turning their questions back at them helps them think	04.NEED.01
		Encourage perseverance	04.NEED.01
		Helping them to allow themselves to struggle with problem before seeking help	04.NEED.01

	they want to get the answer right away, so . . .		
Re:	Kind of weaning them off . . .		
2:	Yep.		
Re:	Ok. What characteristics, components, or traits do these curriculum models, programs, instructional strategies, or techniques, which you've kind of told a little bit about, have, what do they have that make you confident that they meet the curricular needs of the quantitatively gifted learners?		
2:	They allow time for independent practice, independent thinking. They allow time for students to share their thinking and collaborate. So that they can hear other ways of potentially solving problems. And then there's, should the teacher leave time for it, there's time for	Good gifted education models allow time for independent thinking, share thinking to collaborate, finally teacher direct instruction	04.NEED.01

	instructional . . . for the teacher to instruct on maybe if there were other strategies or ways of solving it that didn't come up, then the teacher can share those. There's also, with problem solving, there's, you can incorporate writing in that, a student being able to, or requiring the students to verbalize or write how they know, or what went well for them that day, what problem solving strategy might they like to try the next day, or what could have worked that they didn't try, or some reflection time.	Incorporate writing or verbalizing in math problem solving which could include some form of self evaluation and reflection	04.NEED.01
Re:	Ok. Last question. How do you think the CCSS impact the kind of curriculum and instruction you implement with your quantitatively gifted students?		

2:	Well I mean if the Common Core State Standards said, you know, repetition, or . . . I think it has a big impact on the kind of curriculum and instruction that we implement.	CCSS has big impact on what we teach	06.IMP.01
Re:	So, for example, if it said repetition, then that would be something that . . .		
2:	Yeah! Then we would be, as teachers we'd be forced to try to find something, ok what could we do that allows for, that would still be challenging, and. So, if we're following the Common Core State Standards, then they have huge impact.	Forces teachers to find something that fits CCSS and is still challenging	06.IMP.01
Re:	So, find a way to, to do repetition in a challenging way . . .		
2:	Well, I guess I'm just saying that they do have a big impact on, on how we teach and what we	CCSS impact how and what we teach, kind of curriculum we choose	06.IMP.01

	teach, the kind of curriculum we choose. If you're looking for with that . . . let's see, how do you think the Common Core impact the kind of curriculum . . . I still think that there's a lot of room for interpretation with them. So it's, one teacher might look at something or someone might look at a standard and interpret it this way, and I've been in, I've planned with some teachers who, we've read the same standard and then after they've suggested something, and I said I didn't even, gosh I interpreted that they were, that we would do something like this. So, a lot is still left up for interpretation.	Still room for interpretation	01.PECRC.01
Re:	Just got to choose what's best for your kids and know your kiddos. Perfect. Anything else?		
2:	No.		
Re:	Thank you.		

Pre-Interview with participant #3, 12/23/13

Raw Data		Stage #1 Summary Chunks	Stage #2 Codes
Re:	What do you know about the Common Core State Standards?		
3:	Wow, that's a really big broad question. I know that, specifically what they are. I've gone over them. I couldn't recite a list of them to you. I know that they focus primarily on reading and math, it seemed. I remember being disappointed that there weren't more standards that teachers were going to be held to the fire in relation to science and social studies and all the other subjects that make us a whole person. I know that prior to writing the curriculum for us this year, or not prior to, while writing the curriculum we made sure that our curriculum was tied to the standards. And each	CCSS focus primarily on reading and math	01.PERC.01
		Disappointed that other subjects left out	01.PERC.01
		Write curriculum to tie to CCSS	05.RELA.01

	week I take a look at what standard it is that we're focusing on. But, I know that classroom teachers are using them to write their curriculum and feeling a little frustrated because they, on some hand, in some ways they feel they're not broad enough. They're doing a lot of recycling of information. And I know there's a lot of concern about how they're going to be tested.	Believes classroom teachers don't think CCSS are broad enough	02.BEL.01
		Classroom teachers are recycling information	02.BEL.01
		Classroom teachers concerned about testing	07.FRC-ASSE.06
Re:	How, exactly, do you use the CCSS when choosing or creating curriculum for your quantitatively gifted students?		
3:	I looked at the common core standards and what I was already planning on doing with my gifted students because I know it's been successful and it's challenged them and it's sparked interest in quantitative	Looks at CCSS after choosing what has been successful, challenging, and sparked interest in past	05.RELA.01

	activities that they didn't even know existed. So I know that I'm covering them with what I'm doing, but I don't necessarily focus on them when I'm thinking about what I'm doing. I made sure that what I was doing was aligned. I don't necessarily focus on grade levels. I make sure it's above. I'm not reaching down on any of my standards. And as far, also in my practice . . . was this just in the classroom, in mine, creating my curriculum? Ok. I was asking that because I have had questions from classroom teachers as well.	Covering them, but not really focusing on CCSS Made sure what she does aligns to CCSS Makes sure she is aligning with above grade level CCSS, not below	06.IMP.01 06.IMP.01 03.APR-ABGR.02
Re:	Ok. Any more you want to add on that?		
3:	No.		
Re:	How do you use the CCSS when implementing curriculum with your quantitative students?		

3:	I guess I make sure that the standards are being covered when I'm planning, and then at the end I make sure in an assessment type situation that the students have a full understanding of the standards.	Covers CCSS when planning, and uses CCSS to assess at end of unit in some way	03.APR.01
Re:	Ok. Anything more?		
3:	No.		
Re:	Any other ways you implement? When you're implementing, I mean, any other ways?		
3:	No.		
Re:	Ok. To what extent do you think the CCSS support the curriculum and instruction you choose or create to implement with your quantitatively gifted learners?		
3:	You're going to have to repeat that.		
Re:	Sure. To what extent do you think the CCSS support the curriculum and instruction you choose or create to implement		

	with your quantitatively gifted learners?		
3:	The piece of the Common Core where they're being asked to be able to explain and to be able to articulate, I think, is something we've always done in PACE because we're about the metacognition there. And so I think that that's probably the part that I feel ties more to gifted . . . tied more to gifted in the past . . . that we focused on more maybe than the classroom teacher now they're really being expected to ask these kids do it as well. So I think in that way the Common Core says yeah, keep doing that, what you've been doing.	CCSS requiring students to metacognize supports what we have always done in gifted education Classroom teachers now being asked to have kids metacognize now too CCSS support the "thinking about thinking" piece of gifted education	05.RELA.01 05.RELA.01 05.RELA.01
Re:	Anything more on that?		
3:	I don't think so. I kind of forgot what the question was.		

Re:	To what extent do you think they support . . .		
3:	Yeah. I think that's it, the thinking piece of it.		
Re:	Ok.		
3:	And, you know, the justification piece. Identifying parts of problems and that kind of thing.	CCSS supports gifted ed. because they ask for justification piece and identifying parts of a problem	05.RELA.01
Re:	Ok. This question goes along with that. Are there components of the CCSS that support your efforts to modify curriculum and differentiate instruction for your quantitatively gifted students, and if so please explain how these components assist you in this task? (long pause) I can read it again.		
3:	I have to read. That's my learning style so that's part of the problem is that I'm having a hard time. I have to see the words. Sorry.		

Re:	That's ok. (She was handed the list of questions.) Are there components of the CCSS that support your efforts to modify curriculum and differentiate instruction for your quantitatively gifted students, and if so please explain how these components assist you in this task?		
3:	I guess I'm having a hard time seeing the difference between that question and the one before, so I'm not . . .		
Re:	They're tied.		
3:	Yeah, I guess the other piece of it is just not having a tight enough handle on the Common Core standards to know the specific components, so I'm just going to say, I can't elaborate any more on that due to my limited knowledge.	Doesn't think she knows enough about CCSS to be able to elaborate	07.FRC-INAD.05

Re:	That's fine. What relationships do you see between the CCSS and the modified curriculum and differentiated instruction that you choose or create to implement with your gifted students?		
3:	Tell me the first part again.		
Re:	What relationships do you see between the Common Core State Standards and the curriculum and instruction that you use with your gifted students?		
3:	I guess it's the, the fact that we've always talked about the differentiation you can go, you can go faster, but you can also go deeper. And I think that it seems to be trying to get teachers to go deeper in understanding, and so that's that connection, you know that piece of it. The, you know, make	In differentiation for gifted, you can go faster and you can go deeper...CCSS seem to be asking teachers to go deeper in understanding different concepts and their applications. That's how CCSS relate to gifted ed.	05.RELA.01

	sure they fully understand it and its applications. "It," meaning different concepts.		
Re:	Any more on that?		
3:	No.		
Re:	Ok. Some secondary questions. What are some of the curricular needs of quantitatively gifted students?		
3:	I think that they need to be given an opportunity to use their knowledge, you know, use their mathematic understanding in a variety of ways, you know project based,	Gifted students need to be able to use knowledge such as in Project Based learning	04.NEED.01
	that kind of stuff. But I also think that to keep that, that fever in them they deserve to learn new concepts when they're ready for them.	To keep fever in them, gifted students need new concepts	04.NEED.01
	And I think that's one of the, the things, the most frustrating things that I feel that I see	Feels frustration over gifted students' frustration which builds when not allowed to move forward	07.FRC.01

arising in the quantitatively gifted kids is that need to move forward and their frustration when they're not allowed to.

Re: Good. Ok. Do you recommend or use certain curriculum models, or programs, instructional strategies, techniques that meet those curricular needs of your quantitatively gifted learners? Do you have any you recommend?

3: To the classroom teacher? Or, you know, the, I think that the unit that we do, the Into the Unknown algebra unit that we do . . . Well I know for a fact it's, it's tied to some of the testing because one of the teachers came back this week said that when there was a problem on the test that they were taking said, oh we do this in PACE all the time. So it's, it's on the higher end of that, that piece of

Recommends "Into the Unknown—Algebra" from InterAct (advanced or above grade level)

04.NEED.01

Memo: this participant works with K-3 gifted math students so this algebra is for her K-2 students.

Memo: the testing she is speaking about here is the type that asks progressively harder questions if the student continues to answer correctly.

	it. What else. You know some of the . . .		
Re:	Into the Unknown is InterAct?		
3:	Yes, yeah. I know some of the, the Greg Tang stuff as far as playing with numbers and, and having a good number sense that's a little bit different from the traditional, chunking and things like that. I think our kids are they're, they're able to do those kinds of things . . . quickly. And I think they should be allowed to, to do more of the math, not just math tricks, you know, but, but more of the . . . because you have a deeper understanding of what place value is you can do, you know, those kinds of things. And yet they're definitely are other things at InterAct, things like Math Quest where the kids are,	Recommends curriculum by Greg Tang for number sense and chunking numbers—different way of looking at concepts (creative) Recommends Math Quest from InterAct because students apply math concepts	04.NEED.01 Memo: this participant seems to think her gifted math students are held back and not allowed to reach their potential 04.NEED.01

	are using the information the . . .		
	I personally think one of the best things ever was the fantasy baseball (laughter). And I really, yeah . . . I think that, that doing hands on real application, especially with, particularly with my students whose, whose parents don't tend to have white collar jobs, they're, they're mostly, you know, to, to tell them you can be a part of the baseball world through your math ability. You know, to show them how broad that application can be for them.	Recommends Fantasy Baseball because of the hands on, real application of their math concepts	04.NEED.01
		Baseball unit broadened their career aspirations—knowledge that they could be in world of baseball through numbers	04.NEED.01
Re:	You could make a career . . .		
3:	Yeah. You can be like my friend who works at the national security administration cracking codes because she loved math and that's where it took her. And so to let them know.		
Re:	The fantasy baseball, was that,		

	you mean the statistics or the . . .		Memo: clarification that fantasy baseball unit was all about baseball statistics and probability
3:	Probability and statistics and		
Re:	Because I thought you did . . .		
	you did fantasy football as well?		
3:	I did fantasy football as well. I felt like the, the baseball focused more on the use of the stats, you know, professional use of the stats where as the fantasy football they got to practice using all kinds of different statistical formulas and things like that, but they didn't, it didn't focus . . . and I, and I, now I see I should have made that more of a focus, you know.	Also did fantasy football, but it didn't focus as much on the stats as the baseball unit and will enhance that next time	03.APR-MON.04
Re:	Next time.		
3:	Yeah yeah, enhance that piece of the football.		
Re:	Ok. What characteristics, components, or traits do these curriculum models, programs, instructional strategies, or techniques that you, that have		

	(cleared throat) excuse me, these techniques have that make you confident that they do meet the curricular needs of your quantitatively gifted learners? I'm sorry, my . . .		
3:	Oh, it's ok.		
Re:	It's this drainage.		
3:	Yeah yeah. Well, I think the real life application piece in, in the fantasy baseball, the fantasy football, the, some of the problems in the Math Quest, I think that piece of it gives me confidence to know that it's a worthwhile thing to do so that they can see that they can use this math in different ways. I think the novelty of some of it is, you know, keeps the kids excited about something that comes easily to them, you know, so it's ways of getting them to practice and hone their skills in	The real life applications in the curriculum she chooses gives her confidence that she is meeting the needs of her gifted students	04.NEED.01
		The novelty of curriculum she chooses keeps students excited to learn, and gives them practice using skills in novel situations	04.NEED.01

	novel situations, I think is, is a good thing. The fact that they get really frustrated and worn out tells me that I'm, I'm you know, doing something right as far as challenging them intellectually.	They get frustrated and worn out gives her confidence that the curriculum she chooses is intellectually challenging for students	04.NEED.01
Re:	Ok. That's great. Last question. How do you think the CCSS impact the kind of curriculum and instruction you implement with your quantitatively gifted students?		
3:	Right now it hasn't really changed it any. It's made me aware of different components of what I was already doing. In some ways it just says, yeah good job. Keep it up.	CCSS have not impacted her curriculum, except some components of what she was already doing have been validated	06.IMP.01
Re:	Validates. Ok. Anything you want to add?		
3:	No.		
Re:	Well, thank you.		

APPENDIX L

STAGE 3: SUMMMARIES OF CODES FOR PRE-INTERVIEW TRANSCRIPTS

Stage #3 Summaries of Codes for Pre-Interviews

01.PERC.01.....perceptions of CCSS by teachers

Teachers look at standards and design a way to teach them. The CCSS are broad enough to allow teachers to choose a variety of curriculum to accomplish this. Most curriculum purchased today would already align to the CCSS. Fifty to seventy-five percent of Arizona's standards "sit on top" nicely of the CCSS. However, feel view of CCSS might be limited due to being trained by only one person. There's room for interpretation of the CCSS. They focus mainly on reading and math and it's disappointing that other subjects, such as science and social studies, were left out.

02.BEL.01 .....beliefs about the CCSS by teachers

The Arizona standards are a bit different than the CCSS. The Arizona standards "sit on top" of regular CCSS, but don't always address what needs to be taught in gifted education. CCSS are not addressing their needs. Some components of the CCSS will work while other won't. Arizona's CCSS are lower than what gifted students need. Ideally, the CCSS would be adopted nationwide making curriculum the same for all students on a national level. CCSS will build a stronger foundation for students because there are fewer standards allowing more depth than previous Arizona standards which had such a broad range of concepts that they were taught superficially in order to get through them all. Classroom teachers that use CCSS are frustrated, however, because they feel CCSS aren't broad enough and they are doing a lot of recycling of information or repeating the same concepts.

03.APR.01.....approaches to CCSS by teachers
03.APR-ABGR.02 .....an approach in which teacher uses above grade level standards
03.APR-DIFF.03.....an approach in which teacher differentiates for gifted students, and may even further differentiate among gifted students
03.APR-MON.04 .....an approach in which teacher monitors and adjusts as needed

Mentioned by all participants, and mentioned at least five times, that they look at the above grade level standards when choosing or writing curriculum for gifted students because students are ready and need more advanced curriculum and also so they don't repeat what is being taught in the regular classroom. However, they also look for the bigger concepts that recycle through the grade levels. One participant calls these the pillars (practice standards for math). She uses them to focus the content in math because they are vague, open for interpretation, yet still a rich focused skill that is repeated and easy to differentiate. Differentiation was mentioned at least four times by the participants as a way to tweak standards to match needs of gifted students because they teach multiple grade levels simultaneously and because even within a grade level gifted students are at different places in their understanding of concepts. Two teachers mentioned that they

differentiate the grade level standard to add more rigor for their gifted students which extends what is being taught in the regular classroom. One said she self-checks to be sure she has covered the standards and uses the CCSS in an assessment form at the end of units.

04.NEED.01.....curricular needs of gifted students

Gifted students need a curriculum that is useful, worthy of their time because it gives them what they need to know, is perceived by them to be fun, creative, and novel (3), engages their creativity, stimulates their interest, reinforces concepts yet includes new concepts (2), addresses possible career aspirations (3), is above grade level (4), engages their senses, stimulates their desire to learn or the "fever" in them (3), stimulates their brains and is challenging (2), is hands-on (2), allows them to apply knowledge they already have such as with project-based learning (3), does not include worksheets, allows for analysis and synthesis (higher order thinking), is flexible enough to be able to modify and differentiate it, includes problem solving, allows time for independent thinking, includes time to share thinking with intellectual peers, and incorporates writing or verbalization to metacognize, self-evaluate, and reflect. Gifted students also need a teacher who looks at where they are and goes from there even if it is above grade level, is willing to challenge them to reach just to the point of frustration, wears them out mentally, who turns their questions back at them to help them think, encourages perseverance, and allows them to struggle before seeking help. Gifted students need a place to complain about the curriculum in the regular classroom.

05.RELA.01 .....relationship between gifted education curriculum and CCSS

One teacher says there is no relationship between CCSS and gifted education curriculum. Another says the requirement of explaining thinking in both CCSS and modified curriculum used in gifted education is a relationship. Having access to above and below grade level and even above and below that is a direct relationship to one's ability to modify curriculum for gifted students. Another teacher says that while writing gifted curriculum she ties it to the CCSS so there is a relationship. She looks at the CCSS after choosing curriculum that's been successful, challenging, and has sparked an interest in the past to see what she hit in the CCSS. The CCSS requirement for students to metacognize supports what is asked of gifted students in gifted education curriculum. Classroom teachers are being asked, through the CCSS, to have students metacognize now too. CCSS supports the "thinking about thinking" piece, justifying with evidence piece, and identifying parts of a problem piece which are all used in gifted education curriculum. CCSS asks teachers to go deeper with students so they understand concepts and their application fully which is done in gifted curriculum as well, although at a faster pace.

06.IMP.01 .....impact of CCSS on gifted education

Teacher uses CCSS as a guideline and to find curriculum that's going to implement the CCSS because they are what students need to learn. Curriculum is chosen to reinforce the CCSS (2). Teacher is aware of CCSS. Teacher posts on white board the individual standard she is currently focusing on in her lessons. (Note: at many schools in the district, this is a requirement of all teachers, including gifted education teachers.) CCSS forces gifted education teachers to find curriculum that fits them and is also challenging to gifted students. CCSS impacts how and what is taught. Teacher covers CCSS, but doesn't focus on them. She checks for alignment between chosen or created curriculum and CCSS, but only after choosing or creating the curriculum using other criteria. CCSS have not impacted teachers' curriculum (2). Some components of what she already does have been validated by CCSS.

07.FRC.01 .....friction, tension, or angst for teacher
07.FRC-MASK.02 .....teacher intentionally masks actions to appear to be following district directives
07.FRC-TRAN.03.....transition between previous state standards, CCSS or AZCCRS; teacher has difficulty with and frustrations about differences among various standards
07.FRC-LAW.04.....teacher follows the legal perimeters for gifted students even if it conflicts with district directives and AZCCRS
07.FRC-INAD.05.....teacher feels inadequate; wants more training on CCSS
07.FRC-ASSE.06.....assessment (PARCC) involved with CCSS

Arizona is in transition between previous Arizona standards and CCSS which take concepts more in depth thus requiring different teaching strategies. Teacher is struggling with this transition, so ignores them when choosing or creating gifted curriculum. Teacher looks at standards first, then chooses curriculum that facilitates teaching those standards. (Note: This is the direction according to district directives that teachers are to take, but in truth this teacher actually does the opposite and is only saying this to mask what she really does.) Even though told to focus on CCSS first by district personnel, teacher follows Arizona State law regarding the education of a gifted pupil before focusing on CCSS. Uses previous Arizona State standards more than CCSS, even though district directive is to focus on CCSS. Transition between previous Arizona standards and CCSS has caused holes in students' learning that teacher needs to fill. Teacher feels she's inadequately trained to use CCSS as a gifted education specialist (2). Teacher struggles to find math problems that challenge students but are not too difficult for them. Teacher feels frustration over gifted students' frustration when they are not allowed to move forward in math when ready. Classroom teachers are concerned about assessments thus accountability.

APPENDIX M

STAGE 1: QUESTIONNAIRE RESPONSES

Participant Profile #1

Raw Data		Stage #1 Summary Chunks	Stage #2 Codes
Q:	Describe your teaching credentials and experience.		
1:	I earned my B.S. degree in Special Education, cross category with an emphasis on autism and a minor in elementary education. I earned my gifted endorsement about 3 years ago. I have taught in public schools for 7 years; 5 in gifted ed. and 2 years in the classroom (3rd & 5th.) I also home schooled my children 3rd grade to 12th grade and taught in co-ops in math, English literature, debate, economics, theater, P.E., science, history, and music from 5th to 12th grades.	Special Ed. degree, gifted endorsement, 7 years experience in public schools, experience in home schooling	01.CRED.01
Q:	Why did you become a teacher?		
1:	I became a teacher because I believed I could make a	Became a teacher to make a difference and for patriotic reasons.	02.WHY.01

	difference in the education of children. I believe strongly that an educated public allows our country to be a leader in the world and allows our country to be strong. Without education people make uninformed choices.		
Q:	Why did you specialize in gifted education?		
1:	I believe our brightest are not getting the quality education they need and deserve While the focus in past years has been in bringing average and low-achieving up, those at the top have not been challenged to reach their full potential. Many, including teachers, still believe the bright child will succeed because they are smart. This belief is not only wrong, but detrimental and dangerous.	Entered gifted education because smartest students weren't having their needs met with enough challenge to reach potential.	02.WHY.01
Q:	Describe a typical teaching		

	day with your quantitatively gifted students.		
1:	I either pick up the young ones or the older ones come to my class. We gather, have a few words of greeting & they get their notebooks and other "tools" out. We have a short warm up problem to focus their minds on our class and move to whatever we are doing currently. If the warm up was a challenge I will take some time to instruct and give a couple problems to check for understanding. We do our lessons, I as a roving observer and the student as an investigator/learner. At the end of the time we review what we have learned & where we will begin next	Greeting, warm up, instructs, checks for understanding, moves to current topic of study, acts as an observer while students investigates, reviews at end.	03.TYP.01

time.

Q:	How do you feel about what you teach and how you teach your quantitatively gifted students?		
1:	I love the topics I teach my quant kids and I love the ability to teach them the way I do. Sometimes it is difficult to find new curriculum or programs for the young ones K-2, but there are 4-5 standard ones that I can use to teach concepts they need to know for life. More curriculum & programs are constantly being developed and each year I am pleasantly surprised at what is being offered. Help from team-mates is a great help also.	Loves what she teaches to quantitatively gifted students even though sometimes hard to find new curriculum.	04.WHTQ.01
Q:	How satisfied are you about your work with quantitatively gifted		

	students on a scale of 1 to 5 with 5 being extremely satisfied? Please explain your rating.		
1:	4. I am very happy with my work with my quant students. We do challenging, fun, engaging work and activities that promote authentic learning & learning that can be readily applied to their lives today. They can take this learning directly back to the classroom, teach it (if they want) or apply it, readily. I give a 4 because there is always room for improvement.	(4) Happy with work with quantitatively gifted because fun, engaging, promotes authentic learning, readily applicable	05.SAT.01
Q:	How many hours of professional development have you received about the Common Core State Standards and what information did you get		

	specifically about the relationship between CCSS and gifted education?		
1:	I believe I have received at least 3 or more hours of training though I have not kept track. Specifically, the common core and gifted education was only addressed within our gifted department meetings and was not addressed in the general meetings o classroom teachers. However, it is not difficult to make connections, looking for the appropriate level of CC is the time consuming part, as our kids function at several grade levels above their classroom level & even we differentiate among our students.	Three hours of PD on CCSS, none specifically on gifted and CCSS. Feels she can transfer information from regular education to gifted education easily.	06.CCPD.01
Q:	Are there specific areas of the Common Core State		

	Standards that you would like professional development in and what are these areas?		
1:	I do not believe I need additional training.	No more training needed.	07.SPPD.01

Participant Profile #2

Raw Data		Stage #1 Summary Chunks	Stage #2 Codes
Q:	Describe your teaching credentials and experience.		
2:	I have a Masters degree in Curriculum an Instruction. I have taught 5th grade for four years and gifted education services for the past 6 months.	Masters degree in Curriculum and Instruction, 4 ½ years experience, 6 months experience in gifted education	01.CRED.01
Q:	Why did you become a teacher?		
2:	I enjoy working with children and public service…Teaching seemed to be a perfect marriage of the two!	Enjoys children and public service	02.WHY.01
Q:	Why did you specialize in gifted education?		
2:	I had a high population of gifted students in my classroom and wanted to better educate myself in how I could best support them!	Wanted to learn how to support gifted students in her regular education classroom	02.WHY.01
Q:	Describe a typical teaching day with your quantitatively gifted students.		

2:	Well, I see them for an hour per week for quantitative services. As they stagger in they work on a warm up that we all go over once most of them are there. Then we start on the next adventure! This semester we focused on problem solving using the Rubik's Cube.	Has warm up to work on as students enter sporadically, then begins on problem solving lesson with Rubik's Cube	03.TYP.01
Q:	How do you feel about what you teach and how you teach your quantitatively gifted students?		
2:	I enjoy this focus on the Rubik's Cube. The students seem very highly motivated which has made it fun.	Enjoys class because students are motivated and are having fun	04.WHTQ.01
Q:	How satisfied are you about your work with quantitatively gifted students on a scale of 1 to 5 with 5 being extremely satisfied? Please explain your rating.		

2:	3 ½ lots of room for improvement however I'm satisfied with certain components.	Satisfied (3 ½) but seems room for improvements	05.SAT.01
Q:	How many hours of professional development have you received about the Common Core State Standards and what information did you get specifically about the relationship between CCSS and gifted education?		
2:	Hmm...well I had about 12 hours of "planning" time with my old 5th grade team which was designated specifically towards us familiarizing ourselves with CCSS. I have not had any formal PD on CSSS.	Twelve hours to study CCSS as a regular classroom teacher, but zero time in formal professional development	06.CCPD.01
Q:	Are there specific areas of the Common Core State Standards that you would like professional		

development in and what are these areas?

2: (Did not answer this question.)

Participant Profile #3

Raw Data		Stage #1 Summary Chunks	Stage #2 Codes
Q:	Describe your teaching credentials and experience.		
3:	B.S. Elem. Educ., M.Ed. Gifted Ed., M.Ed. School, 6 years Gen. Ed., 1 year Gifted Lang. Arts 3rd & 4th gr., 13 years Gifted Ed.—Tempe, 6 years counseling, Beh. Interventionist	Three degrees, two Masters, one in gifted education, 26 years experience, 14 of that in gifted education	01.CRED.01
Q:	Why did you become a teacher?		
3:	In 5th gr. I tutored a couple of boys from Vietnam. I loved the feeling of helping them learn to read—felt like I was making a difference, even at that young age of 10.	Became a teacher to make a difference	02.WHY.01
Q:	Why did you specialize in gifted education?		
3:	I realized what I loved most about my own experience in elem. School was my gifted pull out program. I also had a cluster group of gifted students	Entered gifted education to better serve the gifted students in her regular classroom and because her own experience in gifted classes as a student	02.WHY.01

	in my class and wanted to better serve them.		
Q:	Describe a typical teaching day with your quantitatively gifted students.		
3:	Hard to do since a typical day only has one of my 3 grade levels. In each group I have started giving "problems" for them solve using concepts they have been taught in gen. ed. Ex. (1) Create a playground with a perimeter of "x" (2) Must have more than "x" sides etc. then depending on the grade level begin working ind. In "Into the Unknown" 2nd , "Geofinity" 1st , "Hands on Equations" 3rd.	Begins with warm up problem that uses concepts taught in general education class. Moves into specific curriculum that most work on independently	03.TYP.01
Q:	How do you feel about what you teach and how you teach your quantitatively gifted students?		

3:	They are challenged by the work we do but I believe they should be challenged everyday. They want to learn more or "new" things more quickly then they are.	Wants students challenged every day, not just the day she works with them.	04.WHTQ.01
Q:	How satisfied are you about your work with quantitatively gifted students on a scale of 1 to 5 with 5 being extremely satisfied? Please explain your rating.		
3:	4. I'm satisfied with what I do, but would like for them to have more opportunities to grow in their skills & ability to apply.	(4) Happy with work with quantitatively gifted but wants them challenged every day	05.SAT.01
Q:	How many hours of professional development have you received about the Common Core State Standards and what information did you get specifically about the		

	relationship between CCSS and gifted education?		
3:	Not sure I can quantify—maybe 1 hr. at the AAGT conf. & none that I can think of from school district.	Zero hours of PD on CCSS, and one hour specifically on gifted and CCSS.	06.CCPD.01
Q:	Are there specific areas of the Common Core State Standards that you would like professional development in and what are these areas?		
3:	I would like to be able to help teachers more, so I guess, how to make sure students are challenged and growing while using the common core to drive curriculum.	How to help general education teachers challenge their students while using CCSS	07.SPPD.01

APPENDIX N

SUMMARIES OF CODES FOR QUESTIONNAIRE RESPONSES

Stage #3 Summaries of Codes for Questionnaires Responses

01.CRED.01.....teaching credentials, endorsements, and experience

Teachers range from possessing one degree to three degrees. Experience ranges from four years to twenty-six years. Experience in gifted education ranges from six months to fourteen years. Additional experience includes counseling, home schooling, and behavioral interventionist.

02.WHY.01.....why teaching profession; why gifted education specialty

Became a teacher to make a difference (2), patriotic reasons, and because she enjoys children and public service. Went into gifted education to support her gifted students in her general education class (2), to challenge the smartest students so they reach potential, and because personal experience in gifted education as a student.

03.TYP.01.....typical teaching day with quantitatively gifted students

Begin class with a warm up problem or activity then moves to current topic of study such as problem solving with the Rubik's Cube in which students work independently and at own pace.

04.WHTQ.01.....feelings about what is taught and how it is taught to quantitatively gifted students

Loves what she teaches to quantitatively gifted, even though sometimes it's hard to find new curriculum. Enjoys class because students are motivated and are having fun. Wants students challenged every day, not just the day she works with them.

05.SAT.01.....satisfaction level of teacher's work with quantitatively gifted students (on a scale from 1 to 5 with 5 being highest satisfaction)

"4" Happy because fun, engaging, promotes authentic earning, readily applicable, but sees room for improvement. "3 ½" but sees room for improvement. "4" Happy but wants them challenged every day.

06.CCPD.01 .....amount of professional development on CCSS an d information specifically about relationship between CCSS and gifted education

Ranges from zero hours to twelve hours on CCSS, but specifically on CCSS and gifted education ranges from zero hours to one hour.

07.SPPD.01 .....specific areas of professional development on CCSS that participant would like more training in

No more training needed. Training in how to help general education teachers challenge

their students while using CCSS. (**Note:** one participant did not answer this question.)

APPENDIX O

STAGE 1: REFLECTIVE JOURNAL ENTRIES

Reflective Journal #1

Raw Data	Stage #1 Summary Chunks	Stage #2 Codes
12/27/13		
This was a very interesting meeting. Since I didn't know what to expect it was very interesting. I enjoyed our discussions about common core and	Enjoyed discussion	04.DISC.01
learned some stuff about the 5 big ideas of common core. I really liked	Learned about 5 big ideas	02.ARTC.01
our discussion group. We have good ideas and are able to cut to the necessary information to discuss. We also seem to agree on quite a lot of	Enjoyed people in the group discussion and they all seem to agree with each other	04.DISC.01
points and opinions. It is nice to know that we agree on applications. And methods of teaching our kids. I know that each of us has kids from vastly different socio-economic levels. It is interesting to note, however, our approaches to teaching them are so similar. And it should be that way. Giftedness transcends economics.	Approaches to teaching gifted are similar, regardless of socio-economic level of students	03.APR.01
Though we differentiate even with our classes, it is for learning & teaching	Differentiation as an approach, even within gifted classes	03.APR-DIFF.02

them at their own level.		
I loved the way we were able to cover the information in such depth. The article had a lot of meat in it and we were able to simplify and synthesize it for our use.	Covered meaty article in depth and simplified and synthesized it	02.ARTC.01
Additionally, I liked our Brainstorming session as we thought of ways we could implement the CCSS with our kids.	Enjoyed brainstorming section of group discussion session	08.BRNS.01
I don't think I would change anything in this discussion format. We work well together. I suppose if there were different people in the discussion this narrative would be very different! The selection of participants was thoughtful and wisely chosen.	People in group discussion sessions work well together	04.DISC.01
Looking at these standards makes me wonder how classroom teachers are handling this challenge.	Curious about general education teachers and CCSS	01.PERC.01
Whereas we challenge ourselves to think freely and out of the box when choosing curriculum, we also are free	Monitors and adjusts when choosing and implement ting curriculum, unlike general education teachers	03.APR-MON.04

to modify what we do even as we are doing it—if it is best for our kids. I don't think classroom teachers are able to do that—though as they implement the standards, they will. I actually feel sorry for teachers who graduated & were re-trained in the last 5-6 years. It seems there was no push for creative thinking and just a "robotic" approach to teaching. I think we (in the discussion) all feel this sentiment.	General education teachers can't modify, but will when implementing standards	07.FRC.01 Memo: Seems to be contradicting herself here, but means they were taught to keep fidelity with the chosen curriculum, but CCSS suggests making modifications such as with gifted students.
	Agreement in group about robotic teaching in the past	04.DISC.01
Reflection on interview & questionnaire—I guess this is really out of order. Sorry—will continue later.		
Meeting—2/13/14		
Thank you for the 3 "views" of the standards. This meeting was very interesting! I loved hearing what everyone was doing with their students. I always get such great ideas. Hearing the side of the administrators was enlightening. It	Enjoyed all the viewpoints from other gifted teachers, articles, handouts, and administrators	04.DISC.01

was nice to hear that they support what we are doing and are also interested in what we do. I feel we showed/demonstrated how we brainstorm on our topics and since it was a new standard, it gave Edward & Christine a peek into how we accomplish our "trade" in unpacking a standard for our use.	Brainstormed while unpacking standard	08.BRNS.01
The discussions on our reading topics were also interesting. Though the administrators shared there understandings, I felt we teachers provided most of the discussion. Christine's input on several points interested me and Lori's input was similar. I think the biggest take away I got from this is that whereas we have focused upon a broad category of learning for a semester at a time, then decided what we want the students to know—then the standards which reflect that learning—classroom teachers	Discussion on our readings were interesting, and gifted education teachers provided the majority of the comments	04.DISC.01
	Description of order of implementing CCSS, which is backwards from general education teachers	06.IMP.01

don't. I like our way better. It gives more freedom, but has the same end goal in mind, that all children must learn basic lessons, but gifted children will learn deeper (which I already knew but/and hoped the administrators knew). Loved the "checklist" handout. I want to reread the handouts at a later time and process more of the materials. I think we did a great job in putting our knowledge to use in this meeting.	Gifted Education "way" is better, freer	01.PERC.01
	Enjoyed the handouts	02.ARTC.01
	Applied knowledge in meeting	04.DISC.01
3/15 I am rereading the materials you gave us and trying to apply it to some of the activities we have done in PACE and some of the curriculum I have written for PACE in the past. It dawns on me that, even though I am applying the standards, I am still doing it after the fact rather than having a	Re-reading handouts	02.ARTC.01
	Applies CCSS after the fact	06.IMP.01

standard & finding an activity to apply it to.		
I remember that when I was in the classroom you had standards and activities given to you, I never really thought about what order they came in. When writing the curriculum now that I have spent several years writing lessons & activities I find myself at times attempting to fill several standards at one time because they fit—and at other times seeing a standard and thinking "Oh—this would be good in this particular lesson I already wrote or already did." And sometimes I just look at a standard and know it is something I may never cover at any time.	Reflecting on WHEN in the process of choosing, writing, and implementing curriculum she applies CCSS	06.IMP.01
4/11		
This was a good discussion and I like the fact that we seem to be on the same wavelength on most of our understandings. We continue to discuss "transfer goals" and it seems	Good discussion, especially about transfer goals (one of the 5 big ideas) which she concludes are multi-dimensional	04.DISC.01

to have different meaning to all of us. But I am seeing that the "transfer goals" really are multi-definitioned in application. I think, really, we are all saying the same thing, but from a different perspective. So to me, as I reflect—I came to this—we unpack these standards in a frame of mind of "Giftedness." We understand what "every child" needs, but more than that, we know what gifted kids need, and more importantly, what our own gifted kids need. They have holes in their education for a variety of reasons and it is our job to help fill those holes. So when we choose a focus group topic it is because we know they need the learning, not necessarily because it is just a standard. In planning our focus groups and in our semester themes we have always use the long term goals, understandings,

We unpack CCSS from a gifted perspective and include what our own gifted students need in their curriculum	01.PERC.01
Choose curriculum based on curricular needs of students	03.APR.01
Use 5 big ideas in gifted education all along, but with different labels. Gifted education teachers implement CCSS at above grade level, deeper, and more than one at a time.	05.RELA.01

EQ's, and cornerstone tasks (though we don't call the C.T. that term). So, in essence C.C.R.S. standards are something we have always done & included, but we do them at a higher level and at a deeper investigation, as well as doing more of them at a time, because the kids can do more at a time.		
For us unpacking does not need to be done in 3-4 separate steps, though it can be done that way. I still find myself finding a topic of study that includes a "career" application, then finding standards that will apply in all areas of the standards, and in many grades—some to high school. It sounded like the others have done or are currently doing that same thing. And we currently are doing this while planning theme choices for next year.	Describes order of implementing CCSS and looking for transfer goals	06.IMP.01
	Agreement from other gifted education teachers that they too apply or implement CCSS in this way	06.IMP.01

And, as in the past, we will probably choose a theme, then find standards to fit it. Then, when writing the weeks, we will find even more standards to fit each week's activity.	Describes order of applying CCSS as they begin to write curriculum for next year	06.IMP.01
I still wonder how the classroom teachers are working this out. I feel they need to do it more like us, but they probably can't. This might be something I check into.	Speculates about general education teachers and CCSS	01.PERC.01
Thanks, Dianna for all your hard work on this. It has been a pleasure working with you and the "girls" on this.	Pleasant experience to be part of group discussions and research	04.DISC.01
I've learned a lot about applying the CC Standards and hope you have gotten enough great data to support your study!	Learned a lot about CCSS and hopes the data is good	01.PERC.01

Reflective Journal #2

Raw Data	Stage #1 Summary Chunks	Stage #2 Codes
February 1, 2014		
Yikes! I waited way too long to start! I remember this group session rather clearly though. I remember us having a lot to say! However, I also remember DD saying "Try not to speak (was interrupted) 1/4/14 over one another." So, I tried not to…which resulted in not saying much.	Teachers had a lot to say in group discussion session, but she didn't say much personally	04.DISC.01
Something I found interesting though was in reflecting on what we do as PACE teachers and discussing Common Core. I feel like we meet/cover/exceed those 8 Mathematical Practices that are cycled among the grade levels.	Gifted education teachers exceed the 8 mathematical practice standards of CCSS	06.IMP.01
One thing I've realized with the CCSS as they are set up (with the 8 MP that cycle throughout), in working with Gifted Ed. students, if I focus on the Mathematical Practices, I can easily	Can easily differentiate because of 8 mathematical practice standards of CCSS	05.RELA.01

differentiate based on their level while still strengthening skills at their "grade" level. Hence—going deeper.		
2/4/14		
This year for example we started with "...making sense of problems and persevere in solving them." This practice, of great importance at any level, can easily fit with problem solving at any level.	Applies one of the 8 mathematical practice standards of CCSS	06.IMP.01
What scares me however is there is still an opportunity for under supported teachers to implement CCSS with a worksheet manor...I guess that's where we trust the system.	Afraid that general education teachers could still do worksheet style of teaching with CCSS	01.PERC.01
Feb. 11, 2014		
Well...looking at the list of "Strategies to Experiment With" I feel very proud. Not to toot my own horn or anything...but already this year, we've done quite a few of them! There are a few that really stand out to me, the ones that I've	Used brainstormed list of strategies to implement CCSS	08.BRNS.01

implemented most recently.

(1) Play games

(2) Students make a problem for others to solve.

When I first introduced "Math Quest" to my 4th & 5th grade quantitatively gifted students, I was amazed at how highly motivated they were to play "Can we start this week!?" they asked excitedly.

Highly motivated to play games in math

03.APR.01

Overview of the Game

The game is a teacher created game that can be played with an entire class over the course of a semester (give or take) as the class works through 6 different problem solving strategies (i.e. Guess and Check, Draw a Picture, etc.). The game has other twists and even an element of chance (randomly selected "fate cards.") Student teams earn travel dots which allows them the opportunity to advance on the "Math Quest

Description of game called MathQuest (gifted education curriculum) and how highly motivated students are to play, yet practicing in-depth the 8 mathematical practice standards of CCSS

05.RELA.01

Board" which is posted in the room. Travel dots can be awarded for a number of things: showing your work on a problem, teaching peers how to solve a problem, working well together as a group, challenging an answer with reasons that support the argument, creating a "Challenge Box Problem."

All in all the students are highly motivated. What they potentially forget is that they're practicing in-depth math practices along the way.

Feb. 12, 2014

Math Quest in Quant.

+

- student collaboration and discussion—using math vocabulary and critical thinking
- It's fun! For both student & teacher
- Aligned w/CCSS 8 Mathematical Practices

Evaluated the pluses and deltas of MathQuest

03.APR.01

• Practices handling failure—fate cards can be positive or negative 2/18/14 • Can be tailored (differentiated) to meet needs, easily Δ • Rewards 1:45 p.m. *Reflection after just meeting with my 4th grade quant group.*		
Notes from 2/18/14 meeting • Reflective writing with math quant. students • Make some key questions that could be asked daily • Provide them a chance to struggle • Request time with the teachers (collaboration)	Require writing in math, ask daily key questions, give opportunity to struggle, collaborate with general education teachers	03.APR.01
Feb. 13, 2014 Reflect on Group Discussion Some great things came out… It's such a relief to know we're doing what CCSS "expects…"	Feels she has fidelity to CCSS	01.PERC.01

Feb. 18, 2014 After hearing, sharing & discussing with the other PACE teachers & district admins, I simply feel affirmation...Feels like all along we've been practicing teaching habits & planning instruction that is supportive of strengthening & developing the 8 mathematical practices for our students.	Implemented 8 mathematical practice standards of CCSS all along in gifted education	05.RELA.01
April 11, 2014 Today we'll meet to conclude this study. Some of my big take aways with this have been: (1) Games are of high interest for students. Incorporating games in the classroom has given my students something to look forward to, a goal and added excitement to our days.	Games are an excellent strategy to use with gifted students	03.APR.01
(2) It's so important to tailor whatever it is you're doing in the classroom (games, math problems, methods) to your	Differentiation is important even within gifted education classes	03.APR-DIFF.03

student(s)...their levels,

learning styles, etc.

(3) No ONE book or resource

has everything you need!

Multiple resources needed
to teach gifted education

01.PERC.01

Reflective Journal #3

Raw Data	Stage #1 Summary Chunks	Stage #2 Codes
12/13 • Had first meeting with D., wow big undertaking	First group discussion session...big undertaking	04.DISC.01
• realized how little I knew about the common core. I read through the standards previously—or should say—skimmed over . . . • felt that I had not focused enough, saw them as what the reg. ed. teachers had to worry about. • realize I need to become way more knowledgeable	CCSS not her concern as much as regular education teachers, but feels she needs to increase knowledge	01.PERC.01
• but also feel confident that thinking & metacognition we require of our students is in line with the CCSS	Metacognition in gifted education blends well with CCSS	05.RELA.01
12/28 First Group Discussion Felt good to read through the Practice Standards * to see how, well I believe I, match my teaching to them. The curriculum in my 2nd gr. Program provides a great deal of practice persevering, very abstractly &	Read article on 8 mathematical practice standards of CCSS	02.ARTC.01
	8 mathematical practice standards of CCSS match well with what she teaches in gifted math classes	05.RELA.01

quantitatively, they are asked to build arguments...I feel it addresses all 8 standards very well. 3rd gr. group—Hands on Equations 1st semester—also feel is very appropriate for meeting standards #1 Make sense—word problems! #2 Reason Abstractly & quant. #4 Model—word problems! #5 Tools #6 Precision #7 Structure #8 Repeated reasoning		
2nd semester we will be being with—solving Math Mysteries—students solve a series of mysteries requiring them to learn new skills in finding area of irregular shapes, logic problems requiring them to solve multi step word problems.	Teaches above grade level skills in math class	03.APR-ABGR.02
I am also glad to say I see more thinking going on in classrooms when I am picking up my kids. They love math review and explaining their thinking.	Sees more verbalization of thinking in regular education classes during math	06.IMP.01

1.9.14 Slim's Silver Mystery 3rd graders loved solving the problems to get to the final solution to the mystery. Students used multiplication/division, fractions, area of odd shapes. When students got to the area problem (critical area for math in xxx) they couldn't solve. A mini-lesson was taught. Students were highly motived to learn (reason abstractly) how to find the area—a necessary step to finding the silver claim & earning their reward—a silver wrapped Andes mint. M1 Make sense M4 Model M7 Look for structure	Close relationship between gifted math curriculum and 8 mathematical practice standards of CCSS	05.RELA.01
1.30 Lost in Bonkers. Kids loved the wild goose chase through the city. Students were eager to learn about squaring numbers, prime numbers, number patterns,	Another example of close relationship between 8 mathematical practice standards of CCSS and gifted math curriculum	05.RELA.01

practice finding fractions of whole numbers—saw relationship between that division M1 M6 M4 M7 Critical Area Focus #1 Focus #2		
2.13 M&M Math Valentines addition Again highly motivated to apply math skills in very difficult logic problems created for middle school level math students. Perseverance!	Uses above grade level approach to motivate and aligns with one of the 8 mathematical practice standards as well	03.APR-ABGR.02
Team work!—students were required to explain how they got their answers to one another. Teach to a peer.	During math class, she used brainstormed strategies of how to apply CCSS	08.BRNS.01
Discussion with Dist. Personelle I actually enjoyed being part of the discussion. I get energized by those types of discussions.	Liked group discussion session with district personel	04.DISC.01

2.13 It reaffirmed for me that I am doing right by my students in the Quantitative Group when they are with me. I feel I need to find more ways to support the classroom teachers I work with.	Feels very satisfied about what and how she teaches math	01.PERC.01
	Feels she needs to support classroom teachers more	01.PERC.01
2.20 Introduced students to Prof. Arbegla. They enjoyed the intro. Lesson—each enjoyed being the function machine—surprised that they did not want to make the noises. I think this is going to reenergize the group and starting now with a couple new students is good transition. "Algebra is like math" came up quite a few times.	Used a gifted math curriculum that utilizes a constructivist approach to teach algebra that was new to her	03.APR.01
4.10.14 I guess the best thing I can say about this process is—it worked! I am def. much more aware of the CCSS & see it as something I need	Sees much stronger relationship between gifted education curriculum and CCSS now	05.RELA.01

to focus on more to support my students and their teachers. I am planning to attend the K-1 CCS unwrapping/planning session this summer so that I can align my lessons more with the common core. I am also planning to dev. Kinder lessons to share with kinder teachers since we do not always get our kids ident. as quickly as I would like.	Plans to expand knowledge and use of CCSS	06.IMP.01
This was a pos. experience for me in that it raised my awareness & helped me grow as a professional.	Positive experience to be in this study	01.PERC.01
Final Reflections 1. Good experience 2. Kids benefitted so that means I need to process more with all my groups (about what I do)	Going to reflect more in all areas she teaches in regards to CCSS	06.IMP.01
3. Going to Unwrapping Curriculum writing this summer to do the same thing with kinder standards—	Future plans to expand knowledge of and use of CCSS	06.IMP.01

wonder what it will be like from a Gifted perspective	Curious about CCSS and gifted perspective in other areas	01.PERC.01
4. I will be planning for my Quant group but also looking at what I can do to support classroom teachers—so many kids not identified until later in the year or 1st.	Going to re-think own practices, but also support general education teachers in embedding CCSS and gifted practices for them	06.IMP.01
Common Core is Good for Gifted!	"Common Core is Good for Gifted!"	05.RELA.01

APPENDIX P

STAGE 3: SUMMARIES OF CODES FOR REFLECTIVE JOURNAL ENTRIES

Stage #3 Summaries of Codes for Reflective Journal Entries

01.PERC.01.....perceptions of CCSS by teachers

Curious about how general education teachers negotiate CCSS. Feels that the way gifted education teachers negotiate CCSS is better, more creative, and freer. Gifted teachers unpack CCSS from a gifted perspective and include what their students need in an appropriate curriculum. Speculates about how the general education teachers navigate through the CCSS. Learned a lot about CCSS through study. One participant is afraid that even with CCSS, some general education teachers will continue worksheet style of teaching. Feels she has fidelity to CCSS and also feels relief about that. Feels multiple resources are needed to teach gifted education.
One participant felt that CCSS were not her concern, they were in the realm of the general education teachers. Simultaneously, however, she feels need to increase her knowledge about the CCSS (some internal friction there). Feels very satisfied about what and how she teaches math, but also feels she needs to know more about CCSS to support classroom teachers more. Being in the study was a positive experience. Curious about CCSS and gifted perspective in areas other than math now.

02.ARTC.01.....comments about articles or handouts read during group discussion sessions

She learned about the 5 big ideas surrounding CCSS. The meaty article was covered in depth and participants simplified and synthesized it. She enjoyed the handouts and is re-reading them. She read the article on 8 mathematical practice standards in CCSS.

03.APR.01.....approaches to CCSS by teachers
03.APR-ABGR.02 .....an approach in which teacher uses above grade level standards
03.APR-DIFF.03.....an approach in which teacher differentiates for gifted students, and may even further differentiate among gifted students
03.APR-MON.04 .....an approach in which teacher monitors and adjusts as needed

Approaches to teaching gifted are similar, regardless of socio-economic levels of students. Differentiation is an approach even within gifted classes. Participant monitors and adjusts when choosing and implementing curriculum, unlike general education teachers. Participant chooses curriculum based on curricular needs of gifted students, not to satisfy a CCSS requirement of some kind. This participant's students are highly motivated to play games in math (Note: this was one of the brainstormed strategies from earlier session). She evaluated the pluses and deltas of MathQuest (a gifted math curriculum mentioned earlier in pre-interviews as a recommended curriculum for gifted math students.) This participant wants to require more writing in math, ask daily key questions, give her students more opportunities to struggle, and collaborate more with general education teachers. Games are an excellent strategy to use with gifted students.

Differentiation is important even within gifted education classes. This participant teaches above grade level skills in math class to motivate her students and because above grade level skills aligns with one of the 8 mathematical practice standards as well—perseverance! She used a gifted math curriculum that utilizes a constructivist approach to teach algebra that was new to her.

04.DISC.01 .....comments on the discussion and group members

Participant enjoyed the people in the group discussion and thought they all seemed to agree with each other. Mentioned that people in the group discussion session work well together. Thought all in group agreed that there was robotic teaching in the past. She enjoyed all the viewpoints from other gifted teachers, the articles and handouts presented, and from the administrators who joined the second group discussion session. She thought the discussions on the readings were interesting and that the gifted teachers provided the majority of the comments. She felt that all the teachers applied their knowledge in the sessions. Good discussion, especially about transfer goals (one of the 5 big ideas) which she concludes are multi-dimensional. It was a pleasant experience to be part of the group discussion sessions and research. This participant felt teachers had a lot to say in group discussion sessions, (but she didn't say much personally because she was intimidated when researcher asked that they try not to talk on top of each other too much prior to turning on the tape recorder). This participant felt that after the first group discussion session that this was a big undertaking. She liked the group discussion session with the district administrators present.

05.RELA.01 .....relationship between gifted education curriculum and CCSS

One participant thought gifted education teachers have used the 5 big ideas all along, but with different labels. She thinks gifted education teachers implement CCSS above grade level, deeper, and more than one at a time (cluster the standards). One participant thinks teachers can easily differentiate because of the 8 mathematical practice standards of CCSS. She gave the example of MathQuest (curriculum recommend for gifted students in pre-interviews) being highly motivating because of the game structure, yet students are practicing in-depth the 8 mathematical practices standards of CCSS. Participants feels gifted education teachers have implemented the 8 mathematical practice standards of CCSS all along. One participant feels that the metacognition requirement in gifted education blends well with CCSS. She further feels that the 8 mathematical practice standards of CCSS match well with what she teaches in gifted math classes. She gave two detailed examples of a close relationship between gifted math curriculum and 8 mathematical practice standards of CCSS. She sees a much stronger relationship between gifted education curriculum and CCSS now. "Common Core is Good for Gifted!"

06.IMP.01 .....impact of CCSS on gifted education

Description of order of implementing CCSS, which is backwards from order that general education teachers implement CCSS. Gifted education teachers apply the CCSS after the fact, that is after they have chosen appropriate gifted curriculum for their students. This participant was reflecting on when in the process of choosing, writing, and implementing curriculum that she applies CCSS. She describes the order of implementing CCSS and looking for transfer goals. She feels there was agreement from other gifted education teachers that they too apply or implement the CCSS in this order, that is backwards. She describes the order of applying CCSS as the gifted education teachers in this district begin writing the curriculum for next year, and it is indeed backwards. This participant feels that gifted education teachers exceed the 8 mathematical practice standards of CCSS. She gives a description of how she applies one of the 8 mathematical practice standards of CCSS. This participant sees more verbalization of thinking required to solve math problems in regular education practices during math since CCSS are now in place at every grade level. She plans to expand her knowledge and use of the CCSS. She is going to reflect more now in all areas she teaches in regards to CCSS. She even has future plans to expand her knowledge of and use of CCSS over the summer, and she is going to re-think her own practices, but also help and support the general education teachers in figuring out how to embed CCSS and gifted practices since her students are with general education teachers more than with her.

07.FRC.01 .....friction, tension, or angst for teacher

General education teachers are not allowed to modify, but will when they are allowed to fully implement standards. This causes friction for this teacher because she knows that her gifted students need differentiation from the regular curriculum in order to meet their curricular needs.

08.BRNS.01 .....comments about brainstorming during group discussion sessions

This participant enjoyed brainstorming during the group discussion sessions. Further she enjoyed the brainstorming section of the session while unpacking the content standard. This participant used the brainstormed list of strategies to implement CCSS. This participant used the brainstormed list of strategies of how to apply CCSS during her math class as well.

APPENDIX Q

STAGE 1: GROUP DISCUSSION SESSION TRANSCRIPTS

Group Discussion #1.1, 12/27/13

Raw Data	Stage #1 Summary Chunks	Stage #2 Codes
{Re: Ok. We have our agenda and the first part of our agenda is to read what this study is about. This study examines the similarities between the curricular needs of gifted students (according to the Arizona State Statutes) and the dictates of the Common Core State Standards. Additionally, this study examines how gifted education specialist teachers negotiate the Common Core State Standards in Arizona as they translate and implement the CCSS, also known as the Arizona College and Career Ready Standards, for their gifted students' curriculum. The questions guiding this investigation are: • In what ways do the CCSS address the needs of gifted students? • What is the relationship between the CCSS and gifted education? • To what extent do the CCSS support exemplary gifted curriculum, best practices for gifted education, and instructional strategies and techniques used with gifted students? So that's the focus of my study. And, I wanted	Begins agenda that was pre-written for session. Reads aloud the research questions for the study, and explains the cycle of the study which includes pre-interviews, discussion sessions, and post interviews with journal entries after each of the above. Member checks on the transcripts of each of the above are also explained. Begins reading "From Common Core to Curriculum: Five Big Ideas" by McTighe and Wiggins after explaining where this article can be found and some background information about the authors. None of the participants had seen or heard of this article.	01.DIRC.01

to explain to all of you at once how the cycle works. We've had a pre-interview and you've done a profile questionnaire for me. And that's our baseline. And then you'll get a post interview at the end of this, and the same questions will be asked in the post interview plus two, I think, two more questions. In between is the treatment, and the treatment is to have group session and then you're going to do some reflection in a journal. And then in this first, after this first case they'll be a trying out of a strategy that you'll choose today and then a reflection in your journal about how that went, and then another group session and a reflection in your journal, and then another group session and a reflection. So the journals are really important, as far as gathering the data, as much as the group session that we have. So you'll have an opportunity to think. I know for myself sometimes I'm at a meeting or I'm in a group situation and it occurs to me later, gee, you know, that could have been worked out if I had, you know, said this or done that. Or gee, I should have added this to that situation. Well,

you get an opportunity to do that in the journals. You'll also do member checks on the pre-interview, post interview, and the three group sessions. And a member check means that I will transcribe them, send you, probably just through e-mail, the transcription, and you can look at what you said and how well I transcribed and make any changes that you want to make at that time. So you get like a second chance on that as well. So, I know it may feel, you may feel a little nervous. I know I am, always, on stuff like this, and I am now. And maybe you don't feel like you're going to say what you want to say, or you ramble. But you'll get an opportunity to fix all of that if you want to. Ok? Questions? Okay-dokes. The first thing that I want to start with is to look at McTighe and Wiggins in relation to translating the Common Core State Standards into curriculum and instruction. And they have this really good article that is available through any of the websites on the common core, and also our district uses it and it's posted in, when we go to our own personal district's set up of common core

state standards, Arizona College and Career Ready Standards. This article is posted there. It is really common in a lot of, a lot of districts. So, that's where I wanted to start was with this article. It's called "From Common Core Standards to Curriculum: Five Big Ideas," and what I thought we could do is I would, we would read. Oh, and I have highlighters here if you want a highlighter. You probably want, might want to highlight some things, and also pens if you need a pen, and sticky notes if you want sticky notes, just let me know. And I thought we could read one of the big ideas and discuss it, and then get through this article. It's, you know, twelve pages, but. The information is really good. And I think it's information, that at least in our district, the classroom teachers have been encouraged to embrace. I don't know how many of them have actually read the article. It's there for their information. But I know we, as gifted specialists, have never even been told about this, to my knowledge. Unless you guys have gotten it from, from some other place then from our, our own meetings.

1: I've seen this, but I've not read it. Have you seen it?

3: Yes, but I know I haven't been trained on it or any of the other common core information.

Re: Have you seen it or heard of it?

2: No, I haven't even seen it.

Re: Well McTighe and Wiggins, as you guys know, are the authors of backwards design, and that of course is a design technique that's being used nationwide. They were also, they also were consultants in the writing of the common core. So anyway, in this article we explore five big ideas about the Common Core State Standards and their translation into a curriculum. As with most big ideas, these Standards are in some ways obvious but may also be counter intuitive and prone to misunderstand. We highlight potential misconceptions in working with the Standards, and offer recommendations for designing a coherent curriculum and assessment system for realizing their promise. So their first big idea is the common core standards have new emphases and require a careful reading. In our travels

around the country since the Common Core Standards were released, we sometimes hear comments such as, "Oh, here we go again;" "Same old wine in a new bottle;" or "We already do all of this." Such reactions are not surprising given the fact that we *have* been here before. A focus on Standards is not new. However, it is a misconception to assume that these Standards merely require minor tweaks to our curriculum and instructional practices. In fact, the authors of the Mathematics Standards anticipated this reaction and caution against it: "These Standards are not intended to be new names for old ways of doing business." Merely trying to retrofit the Standards to typical teaching and testing practices will undermine the efforts. So I'm going to stop there. Any comments so far?

3: It's not about the content, it's. I'm such a, I'm . . . I've got to read it to myself.

Re: Do you want me to, to give you time to read?

3: I can't listen to someone else read.

Re: Do you want me to do that?

3: Yeah. Can everybody else . . .Do you like listening, because I can, I can?

1: It doesn't make any difference to me.

3: I'm trying to read along with her, and it's like, wow, this is like double whammy to my brain (laughter).

Re: Ok. Well, we can do that (laughter).

3: I'm such, I'm such a quiet learner. I'm such a needy child.

Re: No, it's really really fine. It's your . . . I want to honor your, I want to honor your style. If it doesn't matter to you two, then . . .

2: It's fine.

1: I don't care if you want to go right ahead, because I'll just take advantage of the time.

3: Well no I mean, can, I've already . . . From this point forward if we can just read to ourselves and then let everybody know when we've finished this section. That's all I need. Not for me to read aloud because that doesn't work either. I have to read it in my head (laughter).

Re: Ok. So, let's do that. Let's do that. I honestly debated. I didn't know how we could get through this, but I wanted the information.

3: Yeah, yeah.

Re: Let's do it that way. Try that. So, take a few minutes to read the rest of big idea one.

3: Big idea one?

Re:	Yeah		
3:	Thank you. Thank you for understanding me. (Long pause as participants silently read big idea one from the article.)		
Re:	Did your highlighters work Okay?		
3:	Yeah.		
2:	Um hum.		
1:	Mine screeches across the page (laughter).}		
{Re:	So, what do you think it's all about, the first big idea?	Discussing the beginning of the article and what front matter means.	02.ARTC.01
1:	Well, okay. So, I understand, that this is supposed to be, that they're supposed to be originally focusing on the, what comes before, or the introduction of it which I'm not really what that is. I'm kind of confused as to what it is, but it seems to me that it is		
Re:	The front matter?		
1:	Yeah, the front matter being a part of, of it. Probably outlining and explaining why we are doing what we are doing in order for everybody to be able to do it the same. Or, as a cohesive unit. But I also, what I'm seeing so far, and maybe's it's going to take it awhile to get going, is that there's holes. There's big holes. My kids come to me with huge holes		

that they should have known, in my opinion, but did not get.

3: But, but, but back to the big picture piece of the . . . I put a question mark by front matter, too wondering what exactly what they mean? But it sounds like part of the front matter is what they're wanting the teachers to do up front as far as understanding the whole thing, the whole big picture, you know. And I was laughing, I was like ruggggghhhh. I haven't read it cover to cover.} {I, I've read the common core standards looking like most people do when they're getting to have an evaluation, and it's like oh! (laughter) Let me make sure that I know this is where it falls in (laughter). Let me see where they decided to put it (laughter) you know. And my frustration was, they don't have science standards (laughter). What do I do now? (laughter) And then I found in the language arts piece, you know, reading directions and following directions or something like that in a science experiment. So I was able to find something that fit. Which is so backwards to how we should be, this is saying, we should be doing it. If we really understood it, if we really knew what

Explains that she only looks at the CCSS when she has to find one that fits what she is doing during the principal observation for her evaluation.

04.CCSS.01

	common core was about then we would be able to optimize it. So they are kind of putting the onus on the teachers to understand what their philosophy is to make it work.}		
{Re:	Do you think classroom teachers do just the same thing or do they . . .	Question about how general education teachers negotiate the CCSS. Focus of CCSS is for general education teachers, not gifted education teachers, and yet general education teachers have probably not read this article because they are too overwhelmed with just trying to make the transition to CCSS.	04.CCSS.01
3:	Oh that's what I'm, when I say teachers, I say . . . yeah		
Re:	All teachers?		
3:	Oh yeah. I don't think they're really worried about us (laughter).		
Re:	(laughter) No. (laughter)		
3:	Nobody's really focused (laughter), seriously I don't think they . . . This is more about regular ed. and as far as where people's, many people's attention goes.		
1:	I agree, and yet I think classroom teachers are really trying to integrate it the way they are supposed to, and that is why they have their collaboration meeting, you know, where they . . .		
3:	I did wonder about depth days. That was one of things that came to my mind, whether or not, you know, any of that, you know, have they, I know they're looking at where we're going on the scope and sequence and where ...		

Re:	The maps		
3:	Where everyone is doing the curriculum maps and everything. But as far as the district goes, you know, have they really . . . they're saying go read this article. This is what we, what we think. We have it out here for you. But if they know their audience as well, they know their audience is way overwhelmed, and they're not going to go search this out. And they're not going to be like, oh my gosh the first big idea. We better all sit down and really look at this document and make sure we get it.}		
{Re:	That's what the first big idea is though, in your opinion.	First Big Idea from article is to thoroughly read and understand all of the CCSS.	02.ARTC.01
3:	Right, right.		
Re:	Really studying the common core.		
3:	From, yeah. From beginning to end and getting an idea about . . .		
Re:	Before you ever try to implement it, really trying to get it . . .		
1:	And how many teachers actually had that time to from the time it was rolled out until now because they're already overwhelmed.		
Re:	Yeah, not many.}		
{1:	I feel really sorry for them, quite frankly. Well I feel sorry for us too, but I feel sorry for them.	Gifted education teachers are also accountable to the CCSS	04.CCSS.01

Re:	Well, I think we're in that boat too, because we're asked to show, as she said (indicating participant #3) the . . .when you do your evaluation, you know (laughter) you start digging through . . .}		
{1:	But we have an ability, we as PACE teachers, have an ability to go to a different grade level that will be fitting for our students. But the classroom teachers don't get that opportunity to go to a different grade level even when they're trying to differentiate the material in the classroom. Which I think for them is a huge problem. For us it isn't because if you can't find it at a fifth or sixth grade level for your third graders, you just go until you can find it. And it includes everything else that goes down before that, so it reads backwards, if you will. But I, but I feel really sorry for the classroom teachers who are unable to do that, to fill that void. We can, so it's not that I feel less sorry for us, but we are given a wider berth.}	Gifted education teachers are allowed to go above grade level to find standards that are appropriate for the curricular needs of their students.	03.APR.01
{3:	I think we can because no one is paying attention to us. But I think that there's a part of me that's thinking, well should I be, you know, looking at the standards like, ok, this is	Even though no one pays attention to gifted education teachers, there's still a feeling that we should be sticking to grade level standards but going deeper.	07.FRC.01

	the second grade standard. How do I go so deep with this standard. You know, can I . . . maybe the onus is more on me too to make sure that I'm truly supporting those, the ones that they're doing.		
Re:	Rather than going . . .		
3:	Is it possible? Is it even possible to go deep enough to actually extend it is a question though . . .}		
{1:	But some of them, have you read them?	In some cases, the only way to implement curriculum that is appropriate for gifted students is to go to a higher grade level. The standards at a particular grade level are missing the concept, so impossible to take that grade level concept deeper.	03.APR.01
3:	Yeah.		
1:	There's no way to go any deeper than what you've got. In order to go deeper, you must go higher.		
Re:	You mean, you mean a grade higher?		
1:	Yes, a grade level higher. You must go to a different grade level to get what you need. And that became really clear when we write our curriculum. When we were writing, when we, when Dianna and I were writing the curriculum for animation, it was . . . there are no standards at a second grade or third grade level for that kind of activity, and yet the stuff that surrounds it, you can incorporate it, if you, if you're looking for the		

	overall theme which is what you do when you look at that. You're looking for what do you want them to learn out of this whole thing. And it isn't just let's draw pictures, do you know what I'm saying?		
3:	Hm, hum.		
Re:	The whole communication thing.		
1:	And yet , , , right! And yet the pieces for that and what they will need for that as a long term goal isn't found at their grade level. It's found at a different grade level which is what we did, which is what we always seem to do.}		
{Re:	I think that there might be a need for both, and so, I don't know, I mean, that's what we're . . .	Teachers frustrated a bit because unsure how to support general education teachers by taking grade level standards deeper with gifted students or forge ahead with standards from a higher grade level because that will enrich their curriculum better, or do both.	07.FRC.01
3:	Well that's what I'm saying, I mean, I feel, I . . .		
Re:	That's what we're here trying to figure out.		
3:	I'm a, I'm a . . .		
1:	You're a hoot.}		
{Re:	(laughter) Let's go on to big idea number two, standards are not curriculum.	Requesting group to read Second Big Idea from the article.	01.DIRC.01
3:	Hum.		
Re:	That was just the first idea. This is number two.		
3:	I was like watching her eyes.		
1:	I guess I ought to . . .		

3:	I was watching her eyes going and she's looking for the other three.		
Re:	What do you, what do you think big idea two is about? How does it impact our practice?}		
{3:	I think our kids already have the expectations when we get them.	Second Big Idea is explaining that the standards are the goal and not the "how to" get there. Standards don't dictate how to teach, just what needs to be learned in order to meet that goal/standard.	02.ARTC.01
1:	I agree.		
3:	And so if it's not . . . that's why we're so free, because we've already met that requirement. We've already gotten . . . that means has been, or that directive has been met. And so we get to run with it.}		
{1:	By definition, we have been teaching this way all along. By this definition, this is what we do. So, by definition, if classroom teachers could teach like PACE teachers, they would be more free. And they would be able to implement these in a better way. But we find in our district that when the district has certain expectations of how teachers ought to teach instead of what they ought to teach, that then they become limited on what they're capable of doing because they don't, they're not given the complete freedom} {that we are to, to look at what is needed over a long point of time and then implement it. And what I mean by	District administrators do dictate "how to" teach instead of just what to teach or the CCSS, at least to general education teachers.	07.FRC.01
		Gifted education teachers get to choose how to teach (the curriculum) and even what part if any of the CCSS they implement.	05.RELA.01

that is, when we are looking at, like even our focus group stuff, I look at careers. And what it would take to become that career for these kids because at some point at time, they're going to be making their careers a lot earlier.}

{Re: So a third grade teacher only looks at third grade . . .

1: Right.

Re: As her, getting them past all the . . . marching through a list of topics or skills that are set aside for third grade . . .

1: Right.

Re: And not going beyond, and that, and do you think that's because they only see the children when they're in the, you know, nine years old? And that's it? Whereas we see them from, often from the time they're in kindergarten, five years old all the way to ten, sometimes?

3: I don't know that they only see it that way, but I think that because of the pressure they have to make sure that those tests are passed, it appears that that's what they're focused on. I don't think that they're all focused on that. But I think that the standardized testing that they're so held to . . .

2: Yes.

07.FRC.01

General education teachers have the standardized test (AIMS) hanging over their head, so feel pressure to "march through" a list of topics or skills to prepare students for what they may see on the test.

1: Hm hum.

Re: Yeah.

3: And I think that our kids are a small percentage of what they're worried about. So yeah, they're dang worried about third grade material when they're a third grade teacher because they're, they're, they're self worth is put on that . . .

1: Yeah.

3: I mean not even just their career. Whether or not you're, you are a good teacher, which is what you invest most of your time in everyday, is based on how many of those kids score ok.

Re: And score at the third grade level or above.

3: Right. And, and so, they, they, don't have that freedom. And I think there's a lack of trust of the people in the classroom, their professionalism. You know, I think that . . .

Re: You mean from administrators?

3: Yeah, yeah, I think that, you know. And, and some of it is earned because there are some slackers out there in the teacher world just like every other world. But I think that instead of singling out those that need a little more support, they just tell EVERYBODY what to do

(laughter).

1: I think you're right on that.

Re: It's a real recipe, I mean a real . . .

3: Hm hum.

1: Exactly, and when you think about everyone's career seems to be depend on the person below to achieve what they need to achieve . . .

3: Tschooo.

1: Then I think the one size fits all is a, is a time saver, perhaps, rather than being an individual.

3: Yeah.

1: But, I also think too that teachers are not allowed to look at the children in their class as being say, small adults that need little increments of education whereas when we look at ours we know that they're small adults in our classroom that need certain, they need certain things in order to be able to achieve what they need to achieve to get to the next level. They're different.

Re: But the con, this, this big idea is definitely saying that what we see regular classroom teachers do for whatever their motivation, marching through a list of topics, hasn't changed. At least I see that still happening,

	and I agree with you. I think it is, I think the test does drive a lot of this.} {But . . . so are . . . we have a different perspective on that, as gifted ed.?	Gifted education teachers have the freedom from the district administrators and from test accountability to teach a curriculum chosen or written by them that will be best for their gifted students and still implement CCSS.	05.RELA.01
1:	Agreed.		
Re:	We know our kids are going to be okay because they're getting that?}		
{2:	When I was introduced to the common core state standards I was a classroom teacher. And we were, it was during the summer, and we were given hours to plan. And we were planning in an environment where our administrator was there, and other grade levels was there. And we were given a binder that only had, this was, I was fifth grade at that time, that had fifth grade standards. We weren't given a binder with all of the standards. Yeah. And that big idea one was knowing all the standards, and I think about really the framework of how I started in my introduction to common core. That should have been, okay are, here's fifth grade, maybe not even here's fifth grade, here is all of them. Take the time to understand, what do you notice about ALL of the standards.	Description of how one participant was introduced to CCSS as a general education teacher and only given one grade level's standards and told to know them well, yet article says we should know what standards come before and after our grade level.	02.ARTC.01
Re:	What is a string going through . . .		

2: Yeah. Is there anything. So, I think how teachers are introduced to the standards. And . . .

3: So that set the tone . . .

2: And recognizing their own, you know, recognizing their grade level standards. I think that was emphasized. Know your grade level standards. And I think that with the pressure of our kids need to know these things by this date in April, I think it does become a checklist. If we need to get through this, okay here's how we'll teach this. Here's this worksheet to go along with standard. Here's this one for . . .

Re: Does that guarantee that they learn it?

2: Well . . .

3: It guarantees they've seen it.

2: Yeah, and they'll practice it once and then, yeah . . .}

{1: But if this is supposed to be a building block, which is what I'm gathering from the common core is that it starts out and you have a big picture . . .

Re: Yeah.

1: And then each one is a building block that's supposed to be scaffold upon the other, and is

Transition between previous Arizona standards and CCSS is creating "holes" in students' learning. But as time goes on and transition is complete, we should see fewer and fewer educational holes in our gifted students.

07.FRC.01

contingent upon whether they've actually learned that lower foundation in order to be built on. If they don't get that lower foundation, then there's holes. And there will BE holes. And that's no different then it was before.

3: No.

Re: Yet that isn't the intent of common core.

1: But it isn't the intent, you're right. It's not. And yet it . . .

3: Well and I think that we'll know in about four years . . .

Re: Yeah.

1: Unfortunately (laughter).

3: Well, but, but, except that, because I know the fourth grade teachers are freaking out because these kids have never been asked to, you know, to use metacognition before and these questions are too hard for them. Well guess what? In four years they will have had it for four years. You know, so that piece of it, is, hopefully, because they're not digging, there's not so much space to cover there won't be as many holes.

1: Yes. I understand what you're saying. I agree.

3: You know, but it's going to take some time.

Starting, you know, now we've had one year of it out at Nevitt last year they, you know, they really was emphasizing it, and they were struggling. And I was like think in three years when these kids have had it in kinder and had it in first grade and had it in second grade, how amazing. Because they're going to get to see kids being like our kids. They're going, they're going to see these little minds, ping! That have never been asked to do that before. You know, and so . . .

Re: That's very optimistic. You know, I hope, I hope that's what happens.

1: Me too.

3: That's my world.

Re: That's a good thing. That's a good thing.

3: That's my glasses.}

{1: Well I think that's the intent of this new common core standard thing is that each one of these, each child from, being nurtured from kindergarten up will be able to have that ability to let their minds run free and make those connections that before were never connected because they were, I don't know, to put in too many squishy parameters.

Re: Too many little lists, too many things on the

Common Core State Standards should free students to make more connections with large concepts, since spending less time on trivial, small detail concepts or experiencing curriculum as a "drive by" in order to get it all in instead of taking the time to understand concept listed in the standard at a deep and complete level. This is similar to how gifted education has operated all along.

0.RELA.01

list.

3: And not asked to think. They weren't asked to . . .

Re: It was just too hard to get through. I mean honestly, you were just covering (snap), covering (snap), that's all you were able to do. And did you feel that as a classroom teacher?

2: Hm hum.

1: Well, and when I was teaching third and fifth grade it's the same thing. You know, when it was third grade it was like, ok, here's the fast track get it done.}

{Re: Yeah, the fast, remember the fast track? Oh yeah. That was funny. Math, fast track math?

1: Yeah, there was a fast track math where they…

Re: You couldn't miss a day, a kid couldn't be absent or they were gone, they were . . .

1: Because it was like a chapter that they had missed.

Re: And then they couldn't be in the fast track anymore.

1: It was. Oh man, it was really something.

Re: It was . . . Do you remember that?

3: She was probably too young.

Re: It WAS a few years ago, but (laughter). It was

Describing a previous math curriculum called "Fast Track Math," and how difficult it was to miss any time such as for an absence or to attend gifted education classes. But CCSS are supposed to be the opposite of that.

07.FRC.01

just a few years ago.

3: She (indicating participant #1) was in third grade then (laughter).

Re: I don't think so (laughter).

1: It wasn't THAT far ago.

Re: No, she's (indicating participant #1) only been a teacher for what?

1: Seven or eight years.

Re: Yeah so seven or eight years ago.

3: I was in the district then, but I don't remember.

Re: I do. I remember that fast track thing. It was really hard for the teachers, that they, you know, because they were just like pulling their hair out because they had to go so fast, and they couldn't, and it was really affecting our PACE kids because they got pulled out, if they got pulled out during math. That was one day a week that . . .

3: Hm hum.

Re: They just couldn't do it. They just couldn't do the fast track. Anyway, this is supposed to be the opposite of that.

1: Supposed to be, yeah.}

{Re: Big idea number three is a really important

one because we are going to be spending a lot of next, our next group session actually doing what it says to do there in, in number three. So, standards need to be unpacked. So I'd like you to read that one, and then we'll take a few minutes to discuss that.

(Long pause as participants silently read big idea three from the article.)

I want to kind of lead this discussion back to our students and how this effects gifted students because we too are supposed to be following the Common Core State Standards, or as they're also know, the Arizona College and Career Ready Standards. I know our discussion gets into what the regular the classroom teacher does because obviously she's not left alone like we are in so many cases. I think sometimes administrators don't even know what we're supposed to be doing (laughter) so they don't, you know, they kind of pass us over (laughter) and smile a lot. And, and life is great because we're not scrutinized quite so carefully. But I think WE need to scrutinize ourselves. I think we need to be more, and this is just MY personal opinion, but I think to be good teachers of gifted kids,

Research gives directions to read the Third Big Idea and keep in mind that it has to do with the unpacking of a standard which they will do next group discussion session while district administrators are present as resources.

01.DIRC.01

when we SAY we teach to the standards, we need to mean that. So what I want to know what, what does this unpacking of standards mean to our, in our realm, in our little world of giftedland?}

{1: Well that's what I was going to talk about first because it says on the last page that they have a team of specialists and they're unpacking these macro programs, and then they're saying that they need to make sure that they don't put it as a checklist as it always has been, but we are our own experts in the field, and so if that's true, then we should be given them, the macro program , and we should be able to then assemble and unpack them because we need be able to know how they are going to be relate to us. And we don't, we shouldn't be relying on a group of people who are doing it for the classroom in order to tell us what we should be doing because we don't do that.

State educational leaders unpacked standards for the general education teachers, state educational leaders need to also unpack the standards for gifted education teachers.

04.CCSS.01

Re: Exactly. That's my point.

1: And so if that's true, the where's our, where's our macro packets so we can unplug them and plug them back in. And we don't have them. We have the end product. They're saying here

that the states have these experts unpacking them. And that's all fine and dandy, and I've taught in Massachusetts, and I know what they do, although it's been, what thirty or forty years (laughter) but even back then . . .

3: It might be a little different (laughter).

1: You think it might be a little? (laughter)

2: Maybe a little.

1: And yet. So we as PACE teachers and gifted people in Arizona need to have our own unpacking people.

Re: Our own unpacking people.} {And I was going to ask you (indicating participant #2) were you asked to unpack any standards when you were introduced to them? Were you asked to...

When participant #2 was introduced to CCSS, she was never given time to unpack the standards, even for her grade level, nor was she given the unpacking that state educational leaders had done.

04.CCSS.01

2: Well, they didn't use the term . . .

3: Unpack?

2: Yeah, that terminology, unpacking. We were given time to look at the standards and then plan, essentially.

1: So they'd already been unpacked?

2: No.

3: When you were looking at them is that what you were doing, to pull them apart and figuring out what they were getting at, what

were the skills necessary?

2: No our, what we were basically doing was looking at them and looking at how they, what we could, you know, what we were going to do to cover these standards. What, how we were going to teach whatever we were going to teach in order to, to cover the standards.

Re: Well, so you never looked at what were some of the long term transfer goals of this standard . . .

2: No.

Re: Or what were, what's some of the overarching understandings.} {Because I don't think you can really teach the standard in a, in, with the intent that the common core has, unless you as a teacher, whether you're a classroom teacher or a gifted teacher, understand the long term goals of that, of that standard. Why was that even written in there? What are those long term goals? What are the, what are the overarching understandings that you want your kids to walk away with and keep that's embedded somehow in this standard. I think that we're asked to do too much sometimes (laughter). I don't know what else to say.

1: I agree. And as a PACE teacher, this is a huge,

07.FRC.01

In order to reach the goal, the standard, a teacher needs to understand the purpose of the standard, why it was included, what were the long term expectations of learning this standard, what are the overarching understandings. But that unpacking has been left up to teachers, both general and gifted education teachers. However, unpacking and implementing the CCSS simultaneously is too large a task.

daunting task if this is, because we're the experts in our field, if we have to unpack all of that and then implement all that. That's a, that's a lot. And yet there are no gifted, at least that I know of. I mean when were they saying to us, gifted teachers we'll come together and let's unpack this stuff and implement it?

3: Unpack, but are you talking about unpacking the common core?

1: Yes, because that's what it's saying that these standards need to be unpacked.}

{3: But why would we need to unpack them any differently? I mean the way it's going to look in our curriculum will be different, but the final goal is the final goal, that these kids can exist in the world and do certain things in the world, as far as the transfer goals go.

Unpacking portion of the standards shouldn't be any different for gifted and general education. The implementation will look different, but not the actual analysis of the standard.

04.CCSS.01

Re: So not so much the unpacking, as the interpreting of the unpacking.

3: I don't think our unpacking will be any different, it's just what we do with the garments once they're out of the suitcase.

Re: (laughter) once they're . . . suitcase (laughter)

3: I've either got it or keep unpacking.

Re: That makes sense, that makes sense.}

{3: And when I, when I kept reading this, it's like,

	you know, problem based learning, you know, project based learning. It's the application piece.	The Third Big Idea makes participants think of Project-based learning, Problem-based learning, transfer goals (applying learning to real world situations), the application piece	05.RELA.01
Re:	Cornerstone tasks?		
3:	Well, not that, just the transfer goals. What we want them to be able to do with, you know, out there in the world, once they're got this stuff. To me, that's what the transfer goals are.		
1:	Well, it is.		
3:	Well it is of the understandings.}		
{1:	Well it is, and I think as PACE teachers we do a really good job when they're talking about the overarching understandings and essential questions, that's like our EQ's.	Gifted education teachers have used the overarching understandings and essential questions mentioned in article for a long time.	02.ARTC.01
Re:	It is the EQ's, it is, it is.		
1:	And we've done that for a long time because we have our understandings and our questions that go into it. And I think that we need that. But, but if, if what we're doing, when it talks to be able to use what they know, and under the standard suggest a goal, such as students will be able to use the mathematics they know to solve messy problems. I think we do a really good job of that in what ever we do. I think we do a really good job of that in, in teaching what we teach		

	in our focus groups and that kind of stuff.} {But my, my whole thing was, with this, if it says that, they need to be, where is it, "practically speaking, the macro level is best undertaken by state, regional, or district level of teams." I think it would, when we unpack them as PACE students (*sic* teachers) with the gifted, I think it will look different. I understand that they're unpacking them, and they're saying that these are the overarching ideas that need to be done with that . . .	Gifted education teachers, in one participant's opinion, would unpack the standards differently than general education teachers. Gifted education teachers would interpret slightly different goals for students.	06.IMP.01
Re:	So you're saying that, our kids would have, we would have a different overarching understanding that we want to get out of that standard for our PACE kids then a regular classroom teacher would have for the general population?		
1:	Perhaps. Perhaps, perhaps it would be unpacked differently. Maybe it would look differently. The application of it WILL be different. I think the standard would be . . .		
Re:	That gets into more, like she (indicating participant #3) said, what you DO with the garments once they're out of that suitcase.		
3:	Transfer goals.}		

Group Discussion #1.2, 12/27/13

Raw Data		Stage #1 Summary Chunks	Stage #2 Codes
{1:	Right, right, and obviously that WILL be different. I understand what they're . . .	One participant feels like we are possibly doing in Arizona what the article warned against, unpacking the standards too finely, into too small of chunks and minute skills.	02.ARTC.01
3:	Transfer goals.		
1:	I understand what they're saying here, and I, and I.		
3:	Transfer goals.		
1:	The thing that I was mostly concerned with when I was reading this when they were talking about the Kansas department of education about misapplication of standards unpacking . . .		
3:	Right, without breaking them into too little . . .		
Re:	Too little.		
1:	We know that when, we know that the common core standards as they're put out nationally, are being tempered by Arizona's standards on top of that. What the Arizona standards are doing is they're adding more stuff in then the common core are actually saying needs to be done. Am I, I'm not real clear on that.		
Re:	I think that we . . .}		
{3:	I know what you're saying, that the, there's the federal standards and Arizona's inserted		

	some more stuff in there	Students are still being taught Arizona's previous standards simultaneously with the CCSS because AIMS is still the assessment tool and it is aligned to the previous standards.	07.FRC.01
1:	Exactly, and it's making it, and that muddies the waters.		
Re:	I'm not . . .		
3:	So what their adding in is more along the skill set.		
1:	Exactly.		
3:	The piecemeal, trivia.		
Re:	Minutia.		
1:	Right, and yet we're required to teach that as well.		
3:	Because again, they don't trust people to break it down and apply themselves. They're putting it in the standards instead of the unpacking.		
1:	I think you're right.		
2:	Doesn't it have to do with, though, that our students are still going to be assessed on the AIMS?		
Re:	Yeah, that's what I was going to say.		
2:	That's why we're still implementing Arizona State standards because . . .		
Re:	We're not finished yet. Well, we're just starting this year. This is the first year that we'll have the new . . .		

3: Right. What, we have some sort of obligation to the AIMS company or something? (laughter)

Re: Well, no. Maybe!

1: Maybe! (laughter)

Re: But because our kids are, we're still taking AIMS, we had to prepare them for that ...

2: Yeah.

Re: Rather than the PARCC, which is now, as of this year, no more AIMS, it's PARCC. So now people will, as of, as of this year . . .

2: 2014. when you're saying that as of this year, you're saying 2014 . . .

3: You're saying testing year 2014?

1: Right.

2: Will be PARCC?

Re: Yes.

1: Yes. It's not AIMS any longer.

2: So then . . .

Re: But up until now, it's been . . .

2: So then do teachers need to teach Arizona State standards any more?

1: Well, we don't know, but they're being told they do.

Re: I think, I'm not sure what the transition, I

mean, I don't know because I have never been, I've never been invited to their in-service about that.}

{3: So everybody is PARCC this year?

Re: Yeah, it's the first year that, yeah . . . I don't know. It's interesting to see. I'm, I'm, I, I just know that there's a lot of tension and a lot of anxiety by the teachers because they did a, they . . . at Fuller school they did a pilot of the PARCC, earlier this year, and, for the state. They came in and did it, and our kids really bombed. They bombed because they didn't know how to do the test on the computers.

3: Oh, I've, I've been screaming about those poor Nevitt kids who don't even have exposure to computers, or those kids from lower socio-economic schools where they don't have home access to computers.

Re: And it's, it's pretty common for everyone, adults and children alike, not to read everything on the screen . . .

3: Right!

Re: And yet everything, in the, in the language arts parts is, you know, they have to read it on the screen.

General education teachers are expected to teach "double standards" because still using AIMS testing. This is causing a lot of frustration and tension across the district. Additionally, the new PARCC test is all on the computer and that is likewise causing great anxiety for teachers.

07.FRC.01

3:	So much test fatigue too.		
1:	Or computer fatigue.		
3:	Yeah, that's what I mean. Just the whole . . . eventually highlight the part of the passage that tells you, and if you don't have good hand eye coordination then, it's oh . . .		
Re:	Yeah, and we're asking little kids to do this, and it's, you know, that's hard.} {Anyway, I'm going to try to move this along because we're, we have some other things we want to do. But these are all really good insights, and you can take these articles with you if you want to look at them even more. The fourth big idea is a coherent curriculum is mapped backwards from desired performances, so we'll take a minute to read that. We'll take more than a minute (laughter), but . . . (Long pause as participants silently read big idea four from the article.)} {So I read we should see an increase, by design, in problem and project based learning, small group inquiries, Socratic seminars, and independent studies as learners progress through the curriculum across the grades. But, that is exactly what we do starting in kindergarten even . . .	Research gave directions to read the Fourth Big Idea. Exemplary gifted education curriculum is mentioned directly in the article as what will be seen to increase as teachers implement CCSS. Gifted education pedagogy matches exactly with CCSS.	01.DIRC.01 05.RELA.01

1: Exactly.

Re: So what's the deal with, what, what, how, what's this relationship then, truly, between the common core standards and what we do in, with, in gifted education.

3: I think they are saying that the methodology we've been using all along is good methodology for everybody.

Re: Could you say that just a little bit louder (laughter)?

3: The methodology we've been using all along is good methodology for everybody.}

{1: Right. Being able to teach like we taught, the way we teach. If they were given the ability to do that.

Re: Why aren't they? We're doing common core standards. This is, I don't understand? And if we're, but they're supposed to see an increase, or we're, we should see an increase in these things as they go from kindergarten through twelfth grade. But we know, that our really bright kids, you can't wait until, you can't wait until they're in high school to start doing Socratic seminars or problem based learning or any of that. We start them really young. Should and could general education . . .

Because of CCSS, general education teachers are moving more towards gifted education pedagogy, albeit slowly.	05.RELA.01

be fun for them to learn this year, as much as it is, what do they need to learn and how can we do that. But I think we kind of do it, I don't think we actually sit down and think about that that's what we are doing . . .

Re: I think we need to do that more. I think sometimes we pick themes, and they're not even themes they're topics, they're not true themes that we don't give enough thought or at least enough actual saying it out loud how, this is going to be something they need in the long term . . .

3: In long term? Exactly. I agree with that. And I, I think we, we have kind of strayed away from that, I know when I, I keep harping on the fact that I like to think of they're learning as being, what are they going to need to know as an adult. And now let's choose some kind of a career activity, you know, career that we can focus on and then make that a long term goal, because you look at like the bridge building, I mean, when you're building those bridges you can really extend that, and you can make it really deep for them.}

{Re: But I've always felt that the topic isn't as

	important as the, you know, the vehicle . . .		
1:	Exactly, that goes with the end product to get you there, I agree.	Classroom teachers have used more guided discovery in the past then they are able to do now with the implementation of the CCSS, because their practices are being watched so closely and district administrators are insisting they have fidelity to a set curriculum even if it doesn't embrace the fidelity of CCSS.	04.CCSS.01
Re:	Yeah. You can use any, so many different vehicles, but what, what you're really teaching, the ECCEL skills, I mean, I don't the, the higher order thinking skills.		
1:	Yeah		
Re:	I, is it just me, or are you seeing, am I, I'm seeing more and more PACE-like in, in here . . .		
1:	I agree.		
3:	Yeah, that's what I was saying about the methods earlier, yeah . . .		
1:	This one is, this one is very PACE oriented, this one, details that, like a PACE oriented approach. I look at this, and this, this one I'm going, well yeah, that's what we do and . . .		
3:	I think that, I think that a lot of classroom teachers have done this for a long time too though, but, I think they're getting, it's kind of funny, they're, they're hands are becoming tied when this document comes out saying this is what they should have been doing, yeah, yeah, yeah, instead of patting them on the back and saying keep it up, you've been doing this all along, you've been asking your		

	kids to produce. You've been asking your kids to, to really run with this, these, this new found knowledge and, and make something with it or do something with it. But, in some cases the classroom teachers are feeling less free to do that, and so it's kind of . . .		
Re:	Ironic.		
3:	Yeah. That this, you know, the focus is there and yet all of a sudden their moments are being so dictated, that it's kind of hard to fit this kind of learning in when their moments are dictated as much.}		
{2:	Hmmm. Probably with collaboration, which is kind of ironic, because you'd think that collaborating would give them more freedom to do projects and more of a project based learning, but I think with collaboration and them sharing students if . . .	Ironically, collaboration among teachers, flexible grouping of students using data, and sharing students among and even between grade levels puts restrictions on teachers that force them to stick to prescribed time periods to reach certain standards in order to assess and regroup students as needed. This practice can end up not allowing a general education teacher the time to delve deeper into a concept and use a guided discovery method such as Project Based Learning or Problem Based Learning. Gifted education teachers, on the other hand, continue these practices that are	04.CCSS.01
3:	So you don't mean collaborative planning, you mean the switching of students . . .		
2:	Yeah, switching students, yeah. I feel like PLC's is misinterpreted, well it's a different understanding at every school. But with them sharing students and trading students among the grade level, so if there's three teachers and this teacher has the, sees the high math		

students, grade level, and below math, below grade level math students, they kind of have to stay on a . . .

3: Time schedule.

2: We're doing this, this skill these days, and then we're going to assess as a grade level on this day. So they really, they don't have . . .

3: Autonomy.

2: The freedom that a PACE teacher might have. With, you know, I have these students, oh okay, this is going to go over into next week, oh awesome, we're going to take this even (laughter), you know, we can . . .

3: Yeah!

2: We have that freedom to do,

3: Yes we do.

2: And I feel like possibly with teachers sharing and owning all students, and that collaboration piece, they really do have to stay on a, stay with that checklist of which skill they're doing when and, you know, put those skills into the calendar and here's when we're assessing those.

Re: It has been done. I mean, they're definitely. Remember at the very beginning of the year when we all had to attend that math in-service

mentioned in the article and which embrace the intent of the CCSS to reach the goal of young people that are independent, creative, problem solving thinkers.

and they said these are the things that are going to happen the first nine-weeks, second nine-weeks, third, and fourth. Those were all prescribed.

2: Well, and I don't want to say that they have to stick to that, but I could see how that could be a, they could feel the pressure of, I can't do that project because, you know . . .

Re: Yeah.

1: Exactly. And that's what common core is supposed to be allowing them to do, is to be able to say, you know, this would work better if I was able to go deeper into it, and, and so instead I'm going to use this particular vehicle because some of my kids in the class are not doing it. For us, you're right, we can say, oh gosh, you know these kids really. And I've done that. Even this semester with our theme, is some of my, some of my kids are, my K through fours are really into one particular thing, and we've sat on it for a, for a little bit longer than, than, you know, okay, it's week seven I need to pull out week seven where did it go? Okay, it's supposed to be week seven and eight but we're not doing it . . .

Re: Ouch. I'm way gone (laughter).

3: Not one of my lessons went one week. But I'm only doing it with little bitties, you know, K twos. But, they, you know they were having so much stinking fun with some of it.

1: Yes.

3: And, and, and really running with it, and, and, you know, bringing back things the next week that supported it, you know.

1: And that's, that's where we are given the freedom to be able to do that and they can, we can dig deeper with our kids because of that, which is what the common core is supposed to. . .

3: Which is funny, though, because it used to be the classroom teacher who could because they had their own little people

2: Sure.

3: When you had your own little people.

2: And, I mean, ideally even with the sharing of all the students among the grade level, why couldn't they, why couldn't they do what we're doing? Why couldn't they do those projects and extend. But, I think, as a teacher, as a classroom teacher they're also thinking about, you know, on Friday all, all

this grade level is taking a test on this skill, and then we're going to look at the data together, and we're going to see, oh why did all of your students, you know, I notice all of your students got this score. What did you do, because all of your students didn't pass. And we used to look at the, the, you know, those tests in that way, and it's kind of invasive as a teacher, like, what did I do, what didn't I do . . .

1: Right.

2: Well shoot, I've got to, I've got to, I've got to get on that.

Re: Speaking of that . . .

1: And that's where I was saying in the article where it was talking about game centered training as opposed to the overall, looking at the, the game itself. So I was, I made myself a note here that it was like test centered for us, so rather than us looking at . . .

Re: But we don't have tests in our gifted curriculum.

1: We don't.

Re: So we don't have that pressure to put, to get our kids ready to perform on that test. But speaking of that test . . .

1: Tests.

Re: Go ahead, say what you were going to . . .

1: Well I was just going to say, so the soccer, the soccer . . .

Re: Metaphor

1: Metaphor. Thank you, the soccer metaphor for this doesn't really apply for us, as far as being PACE, because we aren't test centered, we are ECCEL skills centered.

3: But I think it applies to us in that we got to make sure that we're not just teaching them how to, you know, make a goal from this side, make a goal from this side, make a goal from this side. We're teaching them, you know, in the, we're playing the games, and I think it's the same . . .

1: That's the point I'm trying to make.

3: But we do that as well. It does apply to us.

1: I don't look at what I'm doing as being test centered. I look at what I'm doing as being life skill centered and the ECCEL skills.

Re: To the ultimate test . . .

3: Well I don't . . .

Re: Being able to survive (laughter), and well. And thrive.

2: And maybe it even applies even more to, to that because if you think about it's not drill

	based, it not, ok we need to continue this, we need to, repetition of this skill, repetition of this skill. It's, we're looking at the big picture, the big game, the big career. The, how this would apply, so in a way, it kind of, that analogy ties, I mean that's what we do!		
1:	It IS what we . . .		
2:	We don't do the drill, repetition, we play game.}		
{Re:	Now. Big idea number five, the standards come alive through the assessments (laughter). So, let's take, this one is short, so take a minute to finish the article by reading this section. (Long pause as participants silently read big idea one from the article.)}	Researcher gives directions to read Fifth Big Idea.	01.DIRC.01
	(So, I'm looking at this and what you just said about Friday comes and we're going to be assessed on those skills?	Assessments should be more performance based such as in Project Based Learning to be following intent of CCSS because that gives students practice in independent thinking, creative thinking, and problem solving, the very same skills and practices that are the ultimate goals of the CCSS. Further, these assessments should increase in gifted education and general education.	06.IMP.01
2:	Hum, hmm.		
Re:	That should be thrown out.		
1:	Absolutely.		
Re:	They should be doing a task with a set of criteria that the kids must meet that criteria. And I think we, I don't know about this, but I think we need to build that in more, in our curriculum that we do. We used to do that all		

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the time. We used to have a list of criteria that, and a whole rubric that the kids had to do that, you know, we used to have these big tasks. Like I'm thinking about the cultural treasure boxes that they had, choose a culture, and put all the stuff in. They had this long list of criteria that they had to meet. And then they were judged. They judged themselves on it. They had a peer evaluation. There was a self evaluation, a peer evaluation, and a teacher evaluation on that.

1: We have gotten away from that. And that's what I wrote here, on this last page. They were talking about the curriculum around the assessments related to misunderstandings, etc. And I wrote down here that we, that the application is a, should be a show me. An outcome other than the standardized test.

2: It should be performance based.

Re: Yeah, performance based.

1: Yeah, it should be a performance base which is what I wrote down here . . .

Re: Well, at least that is the intent that the common core's going, but I don't know what we really see, even in our own . . .}

{3: I think that for some it is scary because we've

	all dealt with those parents and the things. We like things that can easily quantify and support your quantification without it being questioned, and, and, you know, doing things that are more subjective is scary when you have a very involved parent group. Also, when you (indicating participant #2) were talking about that Friday test, I think the pressure would be the same even if it was a Friday task. I think the pressure for that piece is to get it done because then you got to swap out again, or talk about it again. And so whatever, however you're getting the data, if you're sharing kids you're pressured into doing it within a time frame.	However, there might still be pressure to complete a Friday task instead of a Friday test. Comes down to grades and parents wanting grades as accountability measure.	07.FRC.01
2:	And so now this goes to, this goes to grades.		
3:	Right. The fact that you need to go . . . yeah, that's what I was talking about with the quantification.		
Re:	Parents.		
3:	Especially now because they're on the, everything they do is posted.		
Re:	Right, it's on line.		
3:	I mean, they have to, they have to . . . why is that a five point assignment and where did that five points come from.		

Re: And yet the PARCC, from what I saw when they were taking the PARCC at our school, is performance based. It's not as, although it's all on the computer.

3: Right, the, the questions are different.

1: So, maybe our grades need to be set up differently than where they are now.

Re: Maybe we need to . . .

3: Maybe we just want that new grading program (laughter).

1: Oh dang.

Re: Maybe just get rid of grades.

3: Maybe they don't need grades.

Re: Right, because if this is, if this is taking, couldn't this take the place and isn't it intended, I don't know . . .

3: Isn't that what you're supposed to do, yeah, but then how do we decide who gets to go to college?

1: Well, you know. Ok, so it's talking about . . .

Re: And in an elementary school.

1: Here on, on the high standards. When it talks about room, it says think about what we mean when they're talking about the high standards and they're talking about athletics and music and whatever. When they're talking about

	that, they're talking about the show me part of it. Show and demonstrate to me . . .		
Re:	Yeah, absolutely.		
1:	That you've gotten it. We're not doing that, and our grades are not set up that way. So maybe we need to think about re-doing the grading system to go along with this.}		
{Re:	Well, see it's interesting because in PACE we don't have grades.	Discussing if grades for work and on the report card should be in the gifted program.	07.FRC.01
1:	But that, right.		
Re:	And I'm not sure, I know from time to time we get a PACE teacher that will say something like, how do we, we really need grades for this, and I just like, noooo, (laughter) because I don't want to go there.		
1:	Exactly. But that's why the ECCEL skills go so perfectly with what we do . . .		
3:	Yeah?		
1:	And the ECCEL skills perhaps need to be put into the classrooms. When you're demonstrating that you are competent in an area, the competency comes from the show me.}		
{3:	Well I think a lot of the ECCEL skills are a part of the common core more, as far as the language pieces, and the . . .	Higher order thinking skills are actually a part of CCSS	04.CCSS.01

1: Exactly.

3: Communication pieces, and some of the application of the math, you know, the logic and the, the, using the skills, and . . .

Re: Problem solving.

1: I agree with that.

3: Yeah, yeah the language supports more of that.}

{1: I agree and I think that's what's so perfect about those ECCEL skills that when we use them they are, they are put in a, in a way that allows us to assess in a, in a form of a rubric. . .

Re: Yeah.

1: That's why, what our grade, our grade, progress report is all about. It is a rubric that's set up. Here's what we wanted you to do, and...

3: Sort of, but it doesn't have any of the, what makes it . . . I, I, our progress reports make me crazy because I always struggle with, this is an amazing stinking kindergartener, oh my gosh. But can I say he has mastered something at five? I'm sorry, but he's amazing and he's, he's running circles around fifth graders in PACE in certain things. But has he mastered it?

1: As a kindergartener, well, as a five year old

Memo: The ECCEL skills mentioned here are a local version of the higher order thinking skills. They include:
Executive skills (management)
Commuication
Creativity (synthesis)
Evaluation
Logic (analysis)

Frustration of trying to put a check mark on the progress report used in the gifted program, but at least there are several areas to look at, and they don't just get boiled down to one letter grade or number.

07.FRC.01

maybe he did master it.

3: I don't know that you can. I don't know that you can, and that's what I'm saying. That's what I struggle with. If he's mastered it for a five-year-old, but I'm sorry, he hasn't mastered it for a forty-five year old. You know, he, he can get better, but he's, so where do I put him on there? Do I say . . .

1: But our assessment . . .

3: I've got no where else for him to grow . . .

Re: Independent?

1: He's independent, though. For his age.

3: But, yeah, yeah. It's, it's, there are pieces, and it's not so much . . . the independent one isn't so hard because either he's independent or he's not. But the first two, the you know it's like . . .

Re: Emerging or . . .

3: Some of it is, and we don't have any, because to me with a rubric it's you get four points if you do all this, you get three points, you know, it's not as quantified, I guess. It's, it's, still messy. But, you know, it took us forever to do this part, this progress report. I don't know want to look at (laughter) coming up with how to decide with, where the check goes

(laughter).

Re: But at least with our progress report it's not boiled down, all of that information about him is just, is just one number, or one grade down to a

3: One number, oh yeah. Yeah, I still . . .

Re: three or down to a "C."

3: First year. I can still see him. He got a 92, "B." Riley. I can still see his face. So yeah, those numbers stink.

1: They do. Numbers do stink.}

{Re:	Okay. We're going to move. The second and, the second document that we need to look at, a lot of what we're doing here today is some ground work ladies, but the second document is now focusing us now more into just the math. And these, the Common Core State Standards are divided into content standards and practice standards. Your pillar standards (indicating participant #2) are actually called practice standards, and there are eight of them and they go across all grade levels, K through twelve, these eight practice standards. I wanted to concentrate on these. I wanted to make sure that we knew what these eight were. And so I want to take a	Researcher gives directions about reading a second article about the 8 mathematical practice standards in the CCSS. Further, the researcher lists where the eight came from and the full title of each. Finally she asks for a one sentence summary of each from the partiipants.	01DIRC.01

minute to look at them. The standards for mathematical practice describe varieties of expertise that mathematical, mathematic, mathematics educators at all levels should seek to develop in their students. These practices rest on important "processes and proficiencies" with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research council's report Adding It Up: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy). So number one is "Make sense of problems and persevere in

	solving them." So if we could read that first one on our own (laughter).		
1:	Okay.		
3:	Okay.		
2:	Okay.		
Re:	(Long pause as participants silently read first practice standard.) So, can someone just give a one sentence summary of how this works for our gifted kids, make sense of problems and persevere in solving them? Just so I know that we all understand it, not that, because I don't want to spend a ton of time on these, I just want to get through them. Who can say, you know, let's say it in one sentence.}		
{3:	They're going to adapt and change as required . . .	Adapting when problem solving.	04.CCSS.01
Re:	When solving . . .		
3:	At their level when solving a problem for math.}		
{Re:	Okay. Number two is "Reason abstractly and quantitatively." So go ahead and read that one. (Long pause as participants silently read second practice standard.)} {So, to me this one is numeracy. I think that if you're, you have good numeracy you can do all of these, all that's mentioned here. Anyone want to add to	Researcher directs them to read the second one. Read and make sense of a problem and then apply.	01.DIRC.01 04.CCSS.01

	that?		
2:	Just being able to make sense of a problem.		
1:	Read and apply.}		
{Re:	Number three is "construct viable arguments and critique the reasoning of others." (Long pause as participants silently read third practice standard.)}	Researcher directs them to read third practice standard.	01.DIRC.01
{3:	What jumps out to me on this one is when it said, elementary students can construct arguments using concrete referents. Some of our kids don't need to use the concrete referents anymore and they're being asked to go backwards to that. Which is kind of frustrating for them.}	Third practice standard may actually make gifted students go backwards in their math concept development.	04.CCSS.01
{Re:	Good point. Number four is "Model with mathematics." (Long pause as participants silently read fourth practice standard.)}	Researcher directs them to read fourth practice standard.	01.DIRC.01
{1:	Okay, so to me, this one is that they're going to take what they know and they're going to apply it to another topic, if need be.	Applying math skills and knowledge to areas other than math.	04.CCSS.01
Re:	Using math in . . .		
1:	In something maybe that isn't typically a math skill.}		
{Re:	Number five, "Use appropriate tools strategically." (Long pause as participants silently read fifth practice standard.)}	Research directs them to read fifth practice standard.	01.DIRC.01

{3:	Work smarter, not harder.	Direct quote, "Work smarter, not harder."	04.CCSS.01
1:	Exactly.		
Re:	That's a good one.} {Number six, "Attend to precision." (Long pause as participants silently read sixth practice standard.) Everybody got that one?	Researcher directs them to read the sixth practice standard.	01.DIRC.01
2:	I finished that one.} {It's pretty straight forward with the title being precise.	Emphasizing precision with gifted students can sometimes backfire since many of them are perfectionists to a fault. Being overly perfectionistic can actually paralyze some gifted children.	06.IMP.01
Re:	Does that scare us with our little perfectionists that are (laughter). Oh let's even be more (laughter) . . .		
1:	Should we be even more that way?		
Re:	Push that.		
3:	I think it's telling too that some of my kids just automatically put the labels and the units and those things on there. And so many of them, even at our level, still need to be reminded three what, three boogers, three (laughter) . . .		
Re:	Yeah. Three inches, three miles (laughter) . . .		
3:	Yeah.		
1:	Yep (laughter).		
3:	I always try to think of something really gross though (laughter).		
2:	Yes.}		
{Re:	Number seven "Look for and make use of structure." (Long pause as participants	Researcher directs them to read the seventh practice standard.	01.DIRC.01

	silently read seventh practice standard.)}		
{1:	A lot of this is just number sense. Being able to look at numbers and know how they fit together and how other numbers complement them. So they're talking about pattern and structure. And I just look at that as being able to look at numbers and see their, the common sense that's in it.	Seeing the patterns that numbers make and understanding the underlying structure. Also that quantitatively gifted students can do this effortlessly and often without any prompts.	04.CCSS.01
Re:	I think our mathematically gifted kids can do that in almost, it's almost, it almost is like, it bubbles out of them without much		
3:	They can't help but see it, but sometimes they see it where it's not too. They'll see patterns, and it's like, yeah . . .but keep going! (Laughter.) Two does not make a pattern (laughter). It needs to occur more than two times in a row.		
1:	Exactly.}		
{Re:	And the last one is "Look for and express regularity in repeated reasoning."}	Research directs them to read eighth practice standard.	01.DIRC.01
3:	I got stuck on that older students can see that 14 is 2 and 7 and all that. I thought, hmmm, was I supposed to go there (laughter)? I didn't go there (laughter).		
1:	Interesting (laughter)! (Long pause as participants silently read eighth practice		

	standard.)		
Re:	And the last one. Does anybody have a sentence for that one?}		
{3:	Check for, they, they kind of check as they go without being told to is what I was getting . . .	Check for reasonableness. One participant noticed how well the 8 mathematical practice standards of CCSS match the ECCEL skills that are part of this district's gifted program.	05.RELA.01
1:	Yeah.		
3:	As they go along . . .		
1:	And they're checking for reasonableness.		
3:	Yeah that's what I. Yeah, but I find too, that the younger kids need to be reminded, you know, they think I got this, I got this. And it's like, really you all thought of that?		
Re:	So is that, is that your emerging, developing versus independent . . .		
3:	Hum, hmm.		
Re:	That we put on our progress reports?		
3:	Yeah.		
Re:	I mean I would just list that, I don't know. It just hit me. I didn't think about that earlier.		
3:	You know what hit me on all of, with most of these is how well these line up with our ECCEL skills.}		
{Re:	These eight practices are right from the common core. I just copied and pasted. So.	These should be reported on report cards or progress reports instead of giving students a letter or number grade.	04.CCSS.01
3:	Did you?		
Re:	These are, this is common core. This is half of		

the mathematics.

2: Well wouldn't it be nice if these were seen on report cards? K through twelve?

3: Well that's what I'm saying . . .

2: And if these are the, if the end goal is master of all of these, it could be, there's the continuum . . .

3: Instead of 92—"B" . . .

2: Instead of math . . .

1: Exactly . . .

3: 92—"A" depending upon what city you live in, and . . .

2: Right!

3: But I do think that it would require such a big shift on parents' sake, part to accept that kind of grading . . .

2: Yeah.}

{3: Colleges how, I was kind of flippant when I said, who would you let in, but, really . . .

Re: Yeah.

3: You know, maybe ever body needs to be let in. But, you know, so many, so many things, so many dominoes along the way if we stop doing it the way we're, we've been doing it . . .

2: There are so many crummy report cards out there. I saw a report card from, I think it was, I

Participants speculate about what changing the grading system would do to college entrance as well as review with each other types of report cards they have seen in the past.

07.FRC.01

forget what city, but maybe Coolidge, and it was literally math, language arts, but it didn't break anything down so all I saw was . . .

Re: One grade for all . . .

2: Yeah.

Re: Oh my gosh.

2: Yeah.

3: So isn't that, isn't that, what did you have for math?

2: Well it broke the skills down a bit more.

3: See mine wasn't broken down. It was math you got a (hitting sound) that's exactly what you just said, is that you . . .

2: You mean when you were growing up?

1: That's what I understood. That's how ours was.

3: Mine was like that growing up, but now, within the Tempe school district they're broken down a bit more.

2: Yeah, yeah. Here they are.}

{Re: All right. Our task right now is to take these eight practice standards from the, from the common core and list some strategies that we can use in our gifted focus, quantitative focus groups that would bring these eight into our focus groups, our quantitative focus groups

Researcher directs participants to brainstorm strategies that would bring these 8 practice standards into the gifted curriculum for the students in the quantitative classes

01.DIRC.01

Group Discussion #1.3, 12/27/13

Raw Data		Stage #1 Summary Chunks	Stage #2 Codes
	more. So would you like to write (indicating participant #3) or?		
3:	No. I'm moving.		
Re:	I'm asking because I know sometimes you like to stand and move . . .		
3:	I am actually going to stand over here.		
Re:	I thought maybe moving . . .		
3:	Thank you though.		
Re:	I'm happy to do it either way.		
3:	No my handwriting is atrocious.		
Re:	But that's the task. We want to brainstorm some strategies and this is really the last thing, it's basically the last thing we're doing today. And then based on what we come up with, I'm going to, you're going to choose one or two of these strategies to try out between now and the next time we meet, and see how it goes. So if you want to, I don't know, you might want to grab mine.}		
{2:	Make sense of a problem, of problems and persevere in solving them. That's a good, that's like the Poster Method. Problem solving . . .	Participants brainstorm a long list of strategies to try and they put the numbers of the 8 practice standards that each strategy would involve.	08.BRNS.01
Re:	Was this yours?		

1: Is it? Mine was on the ground.

2: Yeah. Yep, where you, you basically give them a problem and, I mean that's straight, that could be done in a day, but it also could be . . .

Re: Actually this is yours, that's mine.

2: You could elaborate that out. Elaborate on that and give them some sort of problem scenario . . .

Re: Okay, so say that one again?

2: But, expanded over, over a semester . . .

1: Okay, so we could put that as opposed to being the Poster Method, I mean, not that I want to repeat, well, I don't want to repeat what the classrooms are doing, but . . .

3: So you said. You're saying this, but that's not a strategy, you're saying just to focus on this one. That's the one you want to focus on.

2: Oh, I was saying . . .

3: Because these are, these are the standards.

2: I was saying that the Poster Method would, but you're wanting to come up with different ideas.

Re: No! We can put, this is brainstorming, so Poster Method, and that kind of hits on . . .

2: The first one, makes sense of a problem . . .

Re: The first one. It also hits on the one about, where's the one about talking it, you know, the communication piece, I can't find it . . .

2: Construct viable. . .

Re: Oh, number three.

2: Construct viable . . .

Re: So Poster Method. Of whatever, whatever you're working on in your math focus group, try using the Poster Method. Okay this would be number one and three.

3: I, I don't do the Poster Method, but I'm basically already giving them a problem that they solve before each class as they come in they have a problem that they have to solve and they don't do it together which is what I think the Poster Method is, is that they work in a group, right?

1: Right, I don't have my kids work collaboratively, either . . .

Re: Okay, wait because I have to record these, so independent problem to solve, and . . .

3: And, and, typically, what I've been doing is, I've been . . .

Re: So, that would be five, that would get into five. They'd have to choose the tools to know how

they're going to enter this problem, probably six too . . .

3: Yeah. And what I've been doing, I got the scope and sequence from the second grade teachers, so I know what they've been covering. So I'm able to go and, and do a problem that I think is probably extending them more and more than what they're doing in the classroom on the concepts that they're using. You know, so, you know, I kind of mentioned one in my thing, I didn't give you all the criteria. But it was when they were doing perimeter, they had to create a playground that, you know, had a perimeter of so much it had so many sides, and, you know, one side couldn't be, they had to have one side that was at least this long, and one side that was at least, you know, I can't remember all the criteria . . .

1: Right.

3: But anyway so that was one where they were applying what they had done.

1: So an applied problem?

3: Yeah.

Re: Sort of like a warm up?

3: But, sort of like that, but . . .

Re: They come in and they do this problem, it's almost like a seatwork thing, they know to come in and start working on the problem . . .

3: Yeah, well they know that there's one there, and I do it most times. You know, if, if something else going on, or I feel like we need to get to the next level and whatever, then I'll skip it.

Re: Okay. Anyone have another one? I want to try to get a long list here.

1: Well, that's what I do, is independent problem. But that goes along with whatever it is we're studying. So like with the Rubik's Cube they've got, there's problems that can be solved in addition to the Rubik's Cube, but that's. . .

2: So puzzles! The Rubik's Cube.

Re: So puzzles would be, it has to be seven, for sure.

1: Right.

2: One, make sense of a problem and persevere in solving it.

1: Yeah, they do have to persevere in solving it.

2: Put that.

1: Well, there is a lot of that, where is it, where they do the, number, did you put three up there? Three because they are going to be critiquing the reasoning of others.

Re: Maybe. That, that's, if they're just working a puzzle, then would depend on, if you want to put that up there . . .

3: How do you know puzzles . . .

Re: Share puzzles, or teach someone else how to solve a puzzle, they you're definitely doing number three, right, because they're going to say, so that could be one as, put it, they're teaching others.

2: Right.

3: Is puzzles the same as math strategy games and things like that, games?

1: Not necessarily.

Re: So this is three. What was yours (indicating participant #3)?

3: Just games, games.

Re: Games. Strategic. And so that would be, I think that would definitely get us into one.

3: Seven, look for and make use of structure. Well, yeah, pattern and structure because . . .

Re: Could be more, but, I'm just saying . . .

1: Well something like that you're going to need

six because they're going to have to be attending to precision, on that.

3: Well, depending upon the game.

2: What about like this might go hand in hand with independent problem to solve, building or constructing something. With attending to precision, using appropriate tools . . .

1: Yeah. Well that goes back to what (indicates participant #3) was saying about here are the parameters . . .

2: So five and six.

1: Now do it.

Re: Actually, that's a pretty good one because right now my second graders are making mazes and they had to follow a budget. They were given two-thousand dollars and each, they have to buy their, their lengths of walls that they put in their pizza box where their maze is going to go. And they have to do all the measuring to come up and buy, you know, how much it costs per, you know

2: I'd like to know more about that (laughter) . . .

Re: So building and constructing, building and constructing something, mine is more long term but, I, you know, could really see that. So that would be . . .

2: Five is use appropriate tools strategically. Six attend to precision

Re: But you could probably do that on a smaller basis too, you know. Give them something to build or construct.

2: Because off of that, analyzing the building and construction of something, so maybe looking at . . .

Re: How it's put together?

2: Hum, hmmm.

1: Well, and if they have any problems they can certainly ask someone else to help them solve.

Re: So it's kind of like working backwards. The thing is done and then what was, what was the math involved to get there, rather than try to make something?

1: What could you have done, what could you have done to make so that it would have been more of a success?

3: I just, going back to what you were talking about careers and everything, I was just thinking it could be fun to, I don't know, each week be a different career, you know have a different career focus. This week you're going to be an architect, and you have to look at

these plans and figure out how many, how much you're going to have to spend on materials for this length of fence. I don't know. Next week you're going to be a sports statistician and you're going to figure out, you know, so each week they're applying, they're putting on a different professional hat . . .

1: Yeah.

3: That uses science, or that uses math I mean.

Re: It might be science too, but that's okay. It's okay to cross.

3: Oh, for sure is the cross.

Re: Especially when you're talking careers.

3: Did you want to put numbers on that or did you give up on that (laughter)?

Re: That will only help us, I think, later on when we're talking about that.

3: Yeah, well we may find . . .

Re: And, I'll, I'll, I will e-mail this list to you. If you've got the number ahead, right now, you can just throw them at me and I'll put them up there, otherwise I'll try to put them in . . .

1: Did we have up that they are making up a problem . . .

Re: Oh, making up a problem.

1: For others to solve? Did we do that? Because

my, my little ones are doing that . . . and it's called Act It Out Math, the logic puzzles by what's her name? Cook? Marilyn?

3: Marcy Cook.

1: And it's a, it's a, where they're given certain parameters and they have to put the crayons in the, you know, whatever it is. They have crayons and what not. And had them, at the very end, I had them collaborate together, and figure out, two of them, to figure out a problem that the third one had to solve.

Re: That would be seven and eight . . .

1: Right.

Re: For sure. Because they can't understand, they can't make up a math problem that meets certain criteria unless they understand the deep structure involved in that.

2: Yeah.

3: It would be one.

Re: And one.

2: Two.

Re: So, one two.

3: Three.

Re: Three, so this might be all of them. Seven and eight for sure.

1: Well, and they're modeling, so four goes in on

that.

Re; Uh, four (laughter). That's why I was starting to think that these were, so many of them, that I kind of stopped. Okay, let's keep going. This is good.

2: What about, is it SCAMPER when you are doing a problem and you take something, you change something, or you're something and you change. So maybe it could be . . .

Re: SCAMPERing math?

2: A problem that you take away the, yeah, you take away their, I don't know, their rulers . . .

Re: How are they going to solve the problem?

2: Yeah.

1: So they have to adapt on that?

Re: So, an adaptation! Oo, I like that

2: Yeah.

1: Yeah, an adaptation. I like that.

Re: So how can I write that up here?

3: SCAMPER a math problem.

2: Is it SCAMPER?

3: SCAMPER is one of them. That's only a piece of it.

2: SCAMPER a math problem?

Re: Kind of.

3: Because you don't necessarily have to adapt it.

You could modify, minify . . .

Re: So SCAMPER the whole, use all of the SCAMPERs, or any . . .

3: Or just a part of it. Use SCAMPER to change this. Use one component of SCAMPER to change this math problem.

2: It could be that one group could use the ruler. One group can't use, they can only use, but you take away their pencil, I don't know . . .

Re: Yeah. To solve a problem. And that's really true in life, if we're talking about long term. I mean how many times have you been at the hardware store and you don't have the. . .

1: Right.

Re: You don't have your . . .

2: Yeah.

1: And you have to guesstimate. Hmmm.

2: Yeah.

1: And you need a three inch nail. What do I have on my body that's one inch or three inches long (laughter).

Re: How long, how big was that? Well, we spend a lot of time on stuff like that. Okay. So, that's a good one. I don't, where's the one about adapt, adaptation. I know that's in here, or five or . . .

2: Make sense of a problem and persevere in

	solving it. I fell like that would be one.		
Re:	Still one. Okay, I don't want to get too hung up on the numbers, but we can put them in there now too.		
1:	Okay.}		
{Re:	Okie dokey. Are you seeing any that you want to try? I mean I'm going to keep going until we feel comfortable with enough on the list that you could pick something to try.	Researcher gives participants directions about choosing and trying a strategy from the brainstormed list, what will be on the agenda for the next group discussion session, directions about journal entries as she hands out the journals with the 12 prompts, and deciding on the date, time, and place for the next group discussion session.	01.DIRC.01
3:	Are we all trying the same thing?		
Re:	No, you choose whatever you want. And we can keep going if you're not seeing anything that's . . .		
3:	I think there's plenty up there I would like to do.		
1:	Oh yeah, yeah.		
3:	I think I'm, there's plenty to choose from, I think I'd like to do . . .		
1:	Well, even if you did one a week you're kind of dealing with a semester.		
Re:	All I'm trying, all I'm going to ask you to do is to choose one or two to try between now and the next time that we meet, and then whatever happens with that, I want you to document that in your journal. And bring		

any artifacts that go along with it, like if your kids are making, where did that one, making up a problem for others to solve, bring in those problems . . .

1: Okay.

Re: Bring, or a copy because I'm going to keep it, of the problems that they made up. Or maybe you take some notes, some annotated notes on how they were teaching others to solve it, you know, when they gave it to them. Were they giving hints too, giving too big of hints. Did they, were they expecting too much of the other student, or you know, whatever you're seeing when trying some of that. And we'll have some share time about how those all went. And I think it might help us get into these eight practices, in, in our, what we do. So, so I'll e-mail you the list. Choose one or two to try and we'll talk about it. And the last thing I want to talk about is your journals. I want you to make at least two entries in your personal journals before our next group session. The first is to be a reflection of what happened today. Today in this session. And the second will be a reflection on any one of these that you try as an experiment in your

class and how it went. So you're going to make two journal entries. You can make, feel free to make additional journal entries as you want that have anything to do with the common core and what we do with kids, our gifted kids. You, you talk to a teacher and you're suddenly able to talk to her on a level that you weren't able to talk with her before because now you have a little bit better understanding of what she's doing with the common core, after having, you know, we just studied the eight, we just studied half, this big chunk of what the math standards are, make note of that in your journal so that I can, you know, I see that, that growth happening because that's really growth on our part. That's, that's, that's us growing. And, I want to give you your journals. You may want to write a reflection about the pre-interview as a first entry as sort of a warm up. That could be just, you know, kind of get you into your journal because I know that that first line, that first paragraph sometimes is hard. So you might think about what happened in the pre-interview that you want to write down. That's just a suggestion. I'm going to collect the journals twice. Once

about halfway through this whole process and once at the very end. And they do become mine. They will eventually be destroyed (laughter), but I, you know, they'll be kept in a, they'll be kept locked up. I'm not going to have any identification on the journals except the number that you've been assigned. And that's the only connection to you. So it's anonymous, but not completely confidential because I will look at it and, and my advisors and stuff can look at it too. But they won't know who is writing it. Focus your entries on ideas and insights about the group discussion sessions, about teaching gifted students, about curriculum used to teach gifted students, about using the common core, the goals for your curriculum and instruction, any relationships you see between the common core and gifted ed., and if the common core support modified curriculum and differentiated instruction that we implement with gifted kids. It's all written down for you right here.

1: Yeah!

3: Because I was going to be like, could you attach that to that please (laughter)?

2: I have it right now, right here (laughter).

3: I saw you pick up a pen, and I was like, I'm already lost. I'm just going to ask (laughter).

2: I'm taking notes (laughter).

Re: No, you don't need to do that (laughter).

3: All right. Cool (laughter).

Re: So you're going to try, let's see, one entry should reflect on the experimental strategy that we, that you're going to use, and also describe the experiment. Which one did you use because I can't, I'm not going to know, unless you tell me, oh, you know, we did some games and here's what happened. Just please, let me know which one that is. And of course, we're talking only about your quantitative class. What was successful, what was a challenge, what would you do differently if you re-tried one of these strategies. And try to address at least two of the twelve prompt questions during each entry, and can we try different ones each time? You'll get your journals here. I'm going to put your numbers on it. (Pause while journals are handed out.) Inside are twelve prompt questions. You pick one. Purple okay? Purple okay?

3: Sure. I'm number three though, aren't I?

Doesn't matter though. It's a secret (laughter).

Re: We all kind of know. It's not. There's not that many. But down the road, a year from now, people are not going to remember. Just as a heads up about the next agenda. It's probably going to go about this long. They're supposed to be about an hour, but we have a lot to say to each other, obviously, and so plan on that. Also for our next agenda I'm going to be inviting the, Lori McClellan, Chris Trujillo, and Ed Goldstein to join us as resources. They're not to take over our meeting, but they're there to answer questions. Because the main thing that we're going to be doing will be sharing these strategies. We're going to, but the main activity that we're going to jump into is to unpack one of the Common Core State Standards in the content. These are the practice standards that we just went over, but we're going to try to find a content standard and unpack it from the perspective of gifted teachers. We're going to use the McTighe and Wiggins unpacking strategies that you read in that article. That first article that we read. So if you want to look at that, I think it was big idea number three again, that's up to you, but

just giving you the heads up that there'll be administrators here, and, and, or where ever we decide to have the meeting. That's what I have, except that it would be really helpful, I have not sent out an invitation to them yet, but it would be helpful if you guys could tell me when, and what day, what time, and even where it would be the easiest for you to meet next. School, we'll be back in school.

3: I'm think if there is a spot at the district office that makes a lot of sense because our schools are all relatively . . .

Re: Spread.

3: Close to it. Well, I mean it's kind of like a spoke, and they wouldn't have to figure in travel time into their schedule.

Re: I will look into that. And I will ask Lori if there's a possibility. I know that this has to be after hours. It can't be during . . .

3: Yeah.

Re: Our instructional time, or during our contractual time. So that means the earliest we can meet is 4:00. You guys have a little trouble, I think, getting there at four on a day?

1: Depends on which day.

3: I'd say . . .

Re: But they have a late start school. You have a late start school too.

3: Which school is a late start school for you?

1: Curry. Tuesday, Thursday, Friday is late start.

3: What the f***?

1: Monday, Wednesday I'm over at Wood and it's . . .

3: Oh, okay! I thought the school switched and I'm like, God that must be confusing for parents (laughter). They can't pick them up on time on Friday (laughter). Alright, so what were you saying?

Re: I was saying our Fridays are also . . .

3: What day are you at Curry because that's your closest day?

1: Tuesday, Thursday, Friday.

3: Okay.

Re: I hate to do it on a Friday because we always have so many things that are pulling us on Fridays. And our Fridays are packed. We're not necessarily in the same place, you know. But, if that is easier for you, I'll plan on a Friday . . .

3: I don't want to plan on a Friday after four.

Re: No, me either. I'm pretty much done too.

1: I want to be mentally done.

2: So you're Monday Wednesday are your days you're earlier.

3: But she's on the other side of town.

1: Well, I'm at Wood. That's not that far away.

3: That's true.

1: I mean, it's only like, what a mile from . . .

3: It's just a little bit south.

1: It's no big deal.

3: Yeah.

Re: But I also want to know about when we could do this because you have to have time to be in your quantitative groups to actually try one of these and we've got . . .

3: We've got testing coming up, and, and . . .

Re: Testing. I'm cancelling all my focus groups for two weeks. I can't do it otherwise . . .

3: I'm close to that.

Re: Yeah. One-hundred and one, I'm testing. Is there a movie title in that? You know, testing one-hundred and one Fuller Falcons?

3: Just at Fuller, one-hundred and one?

Re: Just at Fuller.

2: Wow.

3: Wow.

Re: Yeah. There hasn't been enough testing. They've had a lot of PACE teachers turn over.

1: Well see, and there you go. I mean, when you, when you're making up . . .

Re: Sorry. I have no things on . . .

1: That's okay. I'll find a spot.

Re: So, we're back the sixth which is virtually the second week of January, then the third and fourth week of January is testing. I don't see anything happening until well into February.

1: I agree.

Re: What do you guys think about . . .

2: Yeah. Definitely not January.

Re: Forget anything in January. It's going to have to wait until at least February because you won't have had time to work, to try anything. Plus you need time to make a few, you know, journal entries. I'm not trying to, you know, push you too hard because you're not getting anything for this, except my thanks.

3: Well and, well, yeah.

1: So we're looking at . . .

Re: So reasonably . . .

1: Probably the second or third week of . . .

3: Well, it would depend on what day of the week it is.

1: Yeah.

3: If it's a Tuesday, then I will not have seen my

math kids yet, but, you know, so . . .

Re: Right.

3: Maybe we could put it Thursday.

1: But if we put it toward the end of February that gives us two or three weeks to have seen our kids and be able to do something with them right?

Re: The other thing is, I've got to have another, we want another group session and I still want to write my dissertation before the end of . . .

1: Okay. So, the second week of February?

Re: Second or third week? Can we try a couple of different . . .

2: Hm, humm.

Re: Some time in the second or third week. And you're thinking, are you thinking Tuesday? Wednesday?

2: Any day for me I go till 3:40, so, except Friday, so I'm just going to have to hurry over there...

Re: So, is there a better at that, well we won't start till, we could, we could put it at 4:15 if that's better, I just, on the, at the same time as we have to wait until four . . .

2: Could we . . .

Re: I don't want to keep people until after dinner for crying out loud . . .

2: Yeah.

Re: I mean, nobody can think after that, so . . .

2: Monday probably is not the best day because...

1: Mondays are just that way.

2: Those kids, I have to see them too . . .

3: Well, and we've got another holiday in January, well that's occurring during the week . . .

1: I see my, my little quants, my little quants on...

3: Of testing.

Re: And we're talking about third grade, if possible, if you concentrate on third grade . . .

3: Okay, that's what I was going to say, what grade are we talking about . . .

1: Okay, so that, that means, that I would, I could see my kids, I don't see them until Thursday...

3: Me too.

1: My third grade class until Thursday. So that first week of February or the second week I could see them. So if you're talking about, are we talking about the second week of February?

3: All right.

Re: Yeah.

1: Then I will have seen them once, unless you want to put it on Thursday.

Re: Well, you'll see them the first week of January too.

3: One, two. Well.

1: Right.

Re: Maybe the last week of January?

1: Maybe, yeah.

3: Well, yeah the first week of January.

Re: No.

3: No.

Re: But you will have seen them, probably, the first week because we're not, because we're not cancelling anything that first week . . .

1: Right.

Re: It's the second and third week of January, or the first week we're back, I mean, I guess I should say it that way, so that's the second week of January. The third and fourth we, we're doing testing.

3: All right, so the ninth and the thirtieth we could potentially see them, is what we're saying.

Re: And then if we go, if we meet back again the second week of February . . .

3: Which would be Thursday the thirteenth.

Re: Then everyone should have had at least two times, if not three, to have seen their kids and tried one of these strategies and had enough time to write in your, you know, write an entry on it. And by entry I'm talking paragraph, I mean, I'm not. You know me, I'm not (laughter) . . .

1: You don't want several pages?

Re: No.

3: It doesn't need to be in paragraph form though. Can it just be bullet, more or like . . .

Re: Absolutely, I didn't mean that, I meant by length. You don't have to feel like you have to write, because this is a whole notebook . . .

3: I have about five million empty journals at home that I've bought (laughter) because I was going to start journaling because it's so good for you and I don't do it well (laughter). So, just so you know that's by far the hardest part for me, is just, I don't write.

Re: Even a few sentences or bullets as you want, as you want to do it . . .

3: Yeah, yeah.

Re: That's, that's all I'm asking. Don't try to, I mean, don't feel like you have to fill this journal, is all.

3: Okay.

2: So, 4:00 on Thursday the thirteenth.

Re: I'm going to try that date.

2: Is that what we're saying?

1: I'm good with that.

2: All right.

Re: February thirteenth? And that's a Thursday, right? I'll try for that as far as the other three people. Now if some of them can't be there, they can't be there. I mean there could be, could be that Chris Trujillo never could find a time that she could meet with us, that seems to be the issue . . .

3: Well, do we want to say that week and Thursday's the best, but . . .

Re: Yeah, give me another date and another time...

3: Because chances of them having (laughter) . . .

Re: Do you want to try Tuesday which would be the eleventh?

1: Even Wednesday is okay.

Re: So, this is our first option . . .

1: Tuesday, even Thursday. Tuesday, Wednesday, Thursday is fine with me.

Re: The second would be 4:00 on . . .

3: One of those days I'm going to have to . . .

Re: February fourteenth is Valentine's day. I don't

know if that means anything to anyone . . .

2: It's a Friday too.

Re: Right.

3: Yeah.

Re: It's just, things get creepy on that day, so.

1: The twelfth or the eleventh?

Re: Which is better, eleven or twelve for you guys, Tuesday or Wednesday, if this isn't available?

1: Either is equally . . .

2: I don't know . . .

3: The only thing I can possibly have is an empty bowls meeting, and it's not been set yet.

Re: Oh. Okay. So you'll have to let me know.

3: Yeah, and they're, they're usually Tuesdays and Wednesdays, and that's right before the...

2: I'd say that we pick neither one (laughter) . . .

3: Yeah, exactly. Let me make sure I don't have one already. And the empty bowls thing is at the end of February, so . . .

Re: That's hairy for the empty bowl people.

3: I don't have it in here.

Re: I'm still taping, but honestly none of this will be on the transcription. None of this needs to be on the transcription.}

Group Discussion #2.1, 2/13/14

Raw Data	Stage #1 Summary Chunks	Stage #2 Codes
{Re: Gifted Students and the Common Core State Standards. I'm going to start by reading the three questions that my dissertation is trying to answer: • In what ways do the CCSS address the needs of gifted students? • What is the relationship between the CCSS and gifted education? • To what extent do the CCSS support exemplary gifted curriculum, best practices for gifted education, and instructional strategies and techniques used with gifted students? So, I'd also like to review the cycle that we've been working under. We had our group session and then you guys should have written a reflection in your personal journals, then tried out a strategy and then written a reflection in your personal journals. This is our next group session and I hope that then you can write a reflection in your personal journal. There'll be one more group session after this, and a reflection in your personal journals, and then finally your post	Researcher reads the questions for the study, reviewed cycle of study, reviewed member checks, and clarification of testing issue from last session, and possibility of a bill passing that will suspend the letter grades for schools for one year.	01.DIRC.01

interviews. The other thing I wanted to review with you are your member checks. When I send you the transcripts and they're okay, just send me back an okay. If you want to make changes in the intent or whatever it is that, the meaning or an actual correction that I may have mistyped, you can go ahead and do that and just put it in red and then go ahead and e-mail me back. Then finally I want to clarify some incorrect conceptions from the last group discussion. Believe me I checked the transcripts pretty carefully. First of all AIMS is this year which we had said AIMS is, or PARCC is this year. So AIMS is this year. All grades are using the Arizona College and Career Ready Standards this year. And PARCC will actually be next year. So I wanted to make that correction. There is at this point just a rumor about the State suspending letter grades for all the schools for one year. I don't know the status of that completely, but that is the talk.}		
{Christine Trujillo: Can I, may I? There is a, my understanding is that there is a house bill recommending that, but it hasn't gone	Discussion about legislation that might affect standardized testing and reporting to public.	07.FRC.01

anywhere yet, so . . .

Re: So there's that.

3: Is it because of what might happen once the PARCC happens?

Christine Trujillo: Correct.

3: Are they fearful that it might be misunderstood by the public?

Christine Trujillo: Well what it said in the house bill is that they wanted schools to have the opportunity to see the PARCC assessment before they started giving out letter grades right away, so.

3: Hopefully take some of the anxiety off of some folk.}

{Re: You'll have to speak up. Um, okay, so. One of the other misconceptions, or questions actually that I wanted to clarify is what is the difference between transfer goals and unwrapping because when I read the transcripts and listened to the transcripts from the last time these seemed to be interchangeable in our conversation. So, I'm asking you three if in your mind if there's a difference between transfer goals and unwrapping standards.}	Researcher gives directions to speak up and asks for clarification between transfer goals and unwrapping the standards.	01.DIRC.01

{1:	Well it seems to me that when you unwrap the standards, you're unpacking what's there. You're taking, your separating it, you're looking at the overall intent, and you're checking to see what the, what the goal would be. How you're going to implement it and it seemed to me the transfer goals were taking what's been internalized by you from the understanding it and moving it over into applying it.	Unwrapping or unpacking a standard is taking it apart to see how to implement it while transfer goals is applying concepts.	04.CCSS.01
Re:	Any other comments?}		
{2:	No, I kind of had a different understanding of what transfer goals, but I can see now where you would think that the transfer goals is where you are applying it. That could be interpreted very differently, I think. Transfer goals could be transferring as they're developing even among the grade levels. And I think about those eight mathematical practices and that they're the same. And that, where is the child in the development on that scale?	Agrees transfer goals can mean that, but another idea of transfer goals is what the students take with them from one grade level to the next as they mature, especially concerning the 8 practice standards which are throughout the grade levels, and first participant agrees it could be that too.	04.CCSS.01
1:	Okay. Yeah, I can see that.}		
{Re:	Okay. I'm not sure we've clarified completely, but that's okay. I wanted to address it because	Researcher asks for clarification from participants between teaching to standards or aligning standards.	01.DIRC.01

	we seemed to use those terms interchangeably last time and I'm not sure they're interchangeable. Maybe they are. And then the other one that came up was what's the difference, for gifted education at least, between teaching to the standards and aligning our curriculum to the standards, if any. Do you, do you three see any difference in those two?}		
{1:	I think it's a splitting hairs on it. I would rather say that we're aligning our curriculum to the standards and not teaching to the standards. Teaching to the standards sounds kind of cold and just sort of . . .	All three participants agree that there may not be much difference between the two phrases, but they prefer aligning to the standards because teaching to the standards sounds like a checklist way of negotiating the standards.	04.CCSS.01
3:	Cut and dry.		
1:	Yeah checklist. Whereas aligning our curriculum seems more user friendly.		
2:	Yeah.		
Re:	So we're not, we don't do checklists?		
2:	No.}		
{3:	Yeah. I feel like I have to make sure that what I'm doing supports what's happening in the regular classroom. And it's not like it's oh, it's their responsibility, it's on them, but I don't feel the same level of, of probably I'm going to	Participant #3 adds that she wants to be sure to support what the general education teacher does with the standards, hence align what she does to the standards, but unlike a general education teacher she	06.IMP.01

	use the word pressure, but that's probably not the right word. For them it is about I need to make sure I've covered each and every one of these standards where I make sure that what I'm doing, my focus is more on the thinking part of it, and the experiential part of it, and the interaction part of it, and all the stuff we want for the gifted-land, and I make sure that I also support the teachers in their pursuit of making sure the kids have learned the standards.}	doesn't feel pressure to teach all the standards because her focus for her gifted students is on the thinking part, the experiential part, and the interaction part of the curriculum.	
{Re:	I think that can make a difference when we go to unwrap a standard. And that's what we're going to do today, so, and we've got help here. So, those things clarified (laughter). We have a lot of laughing in the conversations.}	Directs participants to next task on agenda.	01.DIRC.01
{Lori McClellan:	Can I add to this conversation, although I wasn't in on it last week, but I think that when we write our gifted curriculum our focus is more on aligning our curriculum to the standards as opposed to teaching to it because although the standards are strong, they don't necessarily, they are a good starting point, but when we're looking at the gifted programming standards as well. As you all know our students are typically	Gifted education coordinator (guest at group discussion session) reiterates that gifted education teachers align their curriculum to standards because a grade level's standards are generally just a starting point due to need to differentiate from there by going two to three grade levels above, embedding multiple standards or clustering, and implementing them at a higher level.	03.APR.01

	functioning at least one or two grade levels above, and so it's a good starting point for us, but we're embedding multiple standards and typically at a higher level. So, from my perspective, it's more the second point that we're . . .		
Re:	Aligning.		
Lori McClellan: Aligning.}			
{Re:	Okay. Now I want to go ahead and look at the strategies that we, because I did too, implemented in our quantitative focus groups really quickly, and include any artifacts that you brought with you, if you brought any. So anybody that wants to go first, just go right ahead. Just go ahead.}	Researcher gives directions for reporting out the strategies that gifted education teachers experimented with in their classrooms.	01.DIRC.01
{1:	So I had two, two different classes. They were at one point in time one class together. And I ended up splitting them because the fifth graders were progressing at a more rapid pace than the fourth graders were, and the fourth graders could no longer keep up. So I split them, and then I split what they were doing. So, this is the Rubik's cube map that we had been doing, and we had solved the Rubik's cube and we had been through some of the, some of the lessons. There were two	Participant one explained in detail a graphing lesson using the Rubik's Cube she did with her older students and a geometry lesson using the Rubik's Cube with her younger students, and how one student from each group understood the concepts rapidly, so, she asked those students to teach the others and they did. This was one of the brainstormed strategies, teach a peer, from the first group discussion session. She felt this was a very successful strategy.	03.APR.01

sets of lessons that I found that came with it. One set was for a lower grade and the other set was for higher grade. We had started out with a lower grade, bur the fifth graders quickly became bored with it, which I thought that they might but I wasn't real sure where they were. So it was a good starting place. So it became, I became rapidly on that it wasn't going to work, so I split off my fifth graders. And, I ended up, I actually put in two third graders because I thought that they could do the fourth grade math. And it's a little stretch for them, but that's good. And so what we were doing was a graphing. It's day four of the six day program that there is for the Rubik's cube. So they were doing rotations on the coordinate plane where they have taken points and they have graphed them on a plane and then they are rotating them with the center point of X and Y being the zero point and they then rotate them around the grid and re-graph them and they find the slope for them. So we had started out the time before that on day three, so we actually did two days in one lesson which was an hour long. Day

three then had a center plane that was, where they rotated from one point to another with the grid, with it being a circle as opposed to a grid. I'm trying to keep your thing in mind, so. Okay, so they were finding rotations about the center point on an octagon, and then they were finding more than 90 degree or 45 degree rotations and where would it end up? Then from that rotation they went to a grid rotation where they plotted the points and then flipped them. I had one girl who got it really quickly. And so because the other ones were kind of scrambling for information I had her teach it. That was one of the strategies was for them to teach to another student. And so it just popped up and it was, I had another one planned out, but this one just fit so well I couldn't back out on that. So I had her teach the other two students at the table what they were doing. And then they went ahead and so part of the question was to plot the points, and then plot the prime points, and then calculate the slopes, then compare the slopes. Then the question was what does this tell you about the lines, then how do you know that's what's being taught to you, and then how do

you know that the distance between, or between the two sets of graphing points are the same without using the distance formula? So then they plotted that out. And it turned out exceptionally well.

Re: So big success for you?

1: Oh yeah.

Re: So the strategy worked really well?

1: It worked really well, and I knew that it would because I knew that they had done this before. I mean this was, like I said, it wasn't what I had planned. I wanted to plan, I wanted to use one of the other strategies that I had not used but this turned out really well. And it was like, well okay this works (laughter). I'll do this one. And so they all learned from that on the discussion, and then generally what they do on this is they'll work together as a collaborative group to solve whatever problems are on there. And then I allow them to also check their work and when they're wrong then they also go over it together to figure out where they went wrong. And to figure out what they are supposed to have done and how that helps. And I've heard them sit there and argue over it, and I let them

argue because it's good for them to be able to support what they know and why they know what they know. So they've sat over there on a few of the other lessons and just and chattered, just chit, chit, chit, and while I'm working with the other group. Now I've split the class entirely, but before they were in the same room which was fine because I have two sets of tables and they don't care. And so that worked out really well. The other part of what the lower grades were doing is also a geometry lesson on the Rubik's cube where they actually take the cube and they calculate area and perimeter of it, and then they go down and they also do the different Rubik's cubes that are available, and what they're calculating the perimeter and the area, they measure it. Then they do students' desks and paper and notebook. And then they estimate the sole of a shoe, which is going to be an odd shape and then they actually have an irregular shape that they make up. And they too were calculating, they calculated on paper and then some argued about that too so I let them do that. Then I actually had two students who just caught it right off. Again, I was going to

	use another strategy but this worked out really well. So the two taught the other three. So we ended up with that being the same kind of teaching. And it worked out famously.}		
{Re:	Are those copies?	Research clarified about making copies of artifacts from participants' lessons	01.DIRC.01
1:	No. I can make copies.		
Re:	Yeah. I'll need copies.		
3:	See, I didn't understand that she needed that either, so I didn't make copies.		
Re:	That's okay.		
1:	I will make them later. I don't want the machine to make noise.		
Re:	Yeah.}		
{3:	I've only seen my kids . . . today was the third time since then, because of testing and everything else that has been going on, and last week my math day, third grade math day, was the conference, and so I had somebody else there. So, I didn't bring the stuff that she did. But, it's great working with third graders because they're so easy to, to trick (laughter). I've talked to them about how there's, about all these different mysteries and what not, and this one is about Slim Silver but it's a mystery that they have to solve and in order to solve it they have to do different types of math	Participant #3 explained the geometry lesson using a puzzle mystery format as her strategy. Her students also collaborated to solve the mathematical based puzzle mysteries. She stated that the motivation was very high, not really because of competition to be first, but to actually solve the puzzle and help peers solve it as well. She felt this was a very successful strategy.	03.APR.01

problems. So it's not just using the logic piece even though that's part of it. So for this one they had to come up with, and of course she's not here. It was plots of silver mines. And they had to figure out what the area these different things were, and they were irregular shaped areas as well.

1: Oh cool!

3: And so, what would happen is they would work through it and they would get to a concept that they didn't know because they had never learned it. One of the other ones was using exponents and order of operation. So when they got to things they didn't know we would gather around and just talk about it. How do you think you could, so part of the teach each other, how do you think you could figure out the area of this? Does it look like anything? So they processed it. They figured out, and it was wonderful because one of my students who tends to be left out of a lot of the discussions and what not, was the first one to notice, hey this piece looks like it could fit here. So it's actually just a rectangle with part of it shifted over. Once he

said that they were all able to see it. So they were highly motivated by finding out which one was, was, so it's like the games. There's an end to it trying to find out the mystery. The other mystery was Lost in Bonkers, and with this one this, this one was the one with all the exponents on it, and some plotting, and order of operations that they had to be able to figure out. And then fractions of squared numbers. And so they had to do a lot of multiple step things. And once we had discussions about, when they saw the number, well does this mean two, times two? And so we had a whole discussion about, well does it look the same? What does that mean? So we made little squares and all that kind of stuff. So we would work on it, pull away, do a math lesson, and then go back to it. But, today, when they walked in, what's the mystery that we're solving today (laughter). So they were immediately in . . . they saw the book, and when do we get to do the Caboose, because that's the one on the cover. But today, we did, which I haven't had a chance to write up yet, but the M& M math, which they didn't get to eat them. They're gross. They've been handled

	by lots of people (laughter). But anyway, again very excited. They have to do a lot of mental math. They can use the M&M's, and one of my groups said can we just do it in our heads? No, we don't want you to do mental math around here (laughter). And so, so they ran with it in their heads. But, but just the . . . there's, it's not a competition because nobody wins to get finished first or anything like that, but they are really motivated to learn. And it's beautiful to see them kind of pull each other along too. And I don't . . . do you see where it is? And when the other groups get it they'll come over say how did you all figure that out? And they'll teach them how they figured it out. They're motivated to work quickly and all that, but they're also still motivated to keep their friends moving along.		
Re:	So your strategy was the game, puzzle, the mystery?		
3:	Yeah, that piece of it.} {And then we did, I, I ran with your, your mazes.	Participant #3 describes another lesson using the strategy of building or constructing, in this case 3-D mazes while using math facts to keep a budget and do measuring while following a plan. Highly motivating and successful.	03.APR.01
Re:	Oh!		
3:	And, oh my gosh. They are so sticking excited. They are building their own three dimensional mazes. This is something that		

Dianna had come up with and told me about, and I took what she said and remembered a third of it like I always do, so I had to make up the other two thirds (laughter). But, they, I had my first graders with balance sheets and they're doing, they're multiplying by ten because they want to know how much money they have. So they're highly motivated to figure out, how much money, you know, to do that math in their minds. And well if it's five times five is twenty-five, then five times five tens would be twenty-five tens which is actually two-hundred and fifty! (laughter). And they are really psyched about it.

Re: Are they making mazes to make their walls?

3: Yeah.

Re: So they're buying their walls.

3: Yes, yes, and they're motivated. They have to earn money by solving mazes and other. And they're working overtime at home. They're asking me for overtime work. So they're taking some of the little projects home to work on and things like that (laughter). And I'm able to give bonuses to kids who really go above and beyond the minimum criteria. Well why did he get? Because he not only did what

	I asked but he also did these other two steps. Oh. So you can see the wheels turning. What two steps am I doing next week so I can get those bonuses.		
Re:	That's cool.}		
{2:	I also did, are you finished?	Participant #2 shared the strategy of using a game format. She used an InterAct purchased curriculum called MathQuest and the students were again, highly motivated to do the math in teams to earn travel dots to move along the path to the treasure. She explained that MathQuest also incorporates other strategies that were brainstormed such as teach a peer, create problems for others to solve, and working collaboratively to solve problems. She explained that she was a bit concerned because it felt like an external reward system, but even when she took that aspect away as an experiment, the students were still highly motivated to continue and do the math, even to the point of asking to come in at lunch recess to do math.	03.APR.01
3:	Yes.		
2:	Ok. I also did something game like. This was also, I'm going to name names, this was your request (indicating the researcher), not your request, but your, you gave it to me, you shared with me. MathQuest is what I tried.		
Re:	MathQuest!		
1:	Cool.		
2:	And this is with my quantitative students. And they work in teams. And with MathQuest they travel through, there's a game board that's hanging in the room, and the teams travel around on the game board. It's super fun. They start off in Dinosaur-land, and they . . . I didn't know if fifth graders would take to it, but they are so excited.		
1:	They do.		
2:	Yeah. Day one, when I introduced it, I was amazed. They, can we start today, do we get to go today (laughter)? What they don't . . . I feel		

like they are forgetting that they are doing math along the way. It's like, they are excited running to class to do math problems in order to receive travel dots so they can advance on the board. And MathQuest incorporates some of the other things, strategies that we had brainstormed, like students teaching other students how to do a problem or a concept. And it also has, it gives students the opportunity to create problems for other students. So they get to make what's called a challenge box problem. So the student creates their own problem and then they come up with, they find the solution. And then they submit the top portion into, well they wouldn't put the solution there, into the challenge box, and then they keep a portion for themselves. And they keep that for their records. Then after a student selects, the solver tries the problem and they give it back to the author and the author can then, you know. And it's fun to see them, no that's not correct (laughter). And maybe they want a hint then. And so, the kids, they've been so highly motivated to do it. The only thing that I've been hesitant about or that I've been

reluctant with is it feels like a reward system. Like do this, and you get that. What I like about it, though, is the travel dots, and there, that's how they advance on the board. There isn't a set, you know, if you do this you get that. It's really up to the teacher. So it could be, wow you guys are, I've seen how you are working together today, you're so collaborative, ten travel dots. You know, and, so there's, the teacher has some control with travel dots and the reward aspect of it. This last week I actually, because the travel dot thing was kind of bothering me, the reward thing, I didn't give any travel dots and I didn't tell them. I just thought, you know, I'm going to see if they were as still excited or if anyone asked. Well do we get any travel dots for this, or does this earn me any? And no one said anything in either class. They didn't earn a single travel dot. There's other things in the game, like they get fate cards, they have gold, and they get diamonds as they're advancing through. So there's other things that they were still, other elements of the game that they were still excited about. But it was kind of nice to know that even without those travel

dots they were still as excited, and they're doing some great math along the way.

Re: Do you have an example of one of the problems that they have to do? I just think their problems in there are really good.

2: I brought an example of a problem that a student created. I didn't bring, I brought a few of those. Jupiter's diameter is about, and I don't know if this is accurate, 89,000 miles. What do you guys think?

1: No.

2: The sun's diameter, she might have, the sun's diameter is about 865,000 miles. If you wanted to make a model of the solar system, Jupiter's diameter being two inches, how big would the Sun's diameter be?

1: Oh, that's a good one.

2: Yeah, round to the nearest hundredth of an inch. So then, the student would receive travel dots for making the problem and then other students would receive travel dots for solving the problem. And the creator, the author of the problem, then, keeps their, their, the bottom portion of the challenge box problem in their team's folder. And they came up with their own team names. I didn't bring all of

them, but here's some of their. We've got Flash Math (laughter) and Atomic Ants (laughter). I'm not sure about that one. And they have their own copy of the game board so they can keep track. And you can see this team isn't really keeping track (laughter). And some of their other . . .

Re: They don't care (laughter).

2: Yeah. Some of their other things that they can…

1: It's up on the big game board.

2: I guess. They have a supplies list. They purchased supplies for their travels. And, some of the supplies help them and some may not help them. Like a pocket full of miracles, you know.

Re: A barrel of laughs.

2: Yeah, a barrel of laughs. Food rations (laughter).

Christine Trujillo: Those are important (laughter and many comments on top of each other).

2: And simply holding these fate cards. We'll be working on some things, and then all of a sudden it's time to choose a fate card then the kids, I don't know, it's that element of chance . . .

1: They love those fate cards.

2: They do! It's a nice time to take a break anyways from what we were doing or it was a perfect transition. So it's been, you know, like I said they're very, very motivated. They, can we come in at lunch to do MathQuest?

1: Yes!

2: Yeah! Well, we need every team here. And we'll have plenty of time next week. They're, they're disappointed that we only have the hour together to do MathQuest.}

Lori McClellan: I was in (indicating participant #2) class a few days ago, and she had several children in class on their lunch break working with her, and speaking about motivation, and just speaking with motivation, and just not needing those external, the external motivation. Even working with a student, you (indicating participant #1) had shared about working on the slope. Your student (indicating participant #2) who had found, calculated the slope for one of the volcanoes, and he, well now I need to calculate the slope for Mount St. Helens because my research is not complete now. I need to compare this to this and to plot that, and so my next steps will	During the sharing of brainstormed strategies, Gifted coordinator commented on how students in participant #2's were highly motivated when she was in her class observing. She also commented on how one student transferred the math information learned from MathQuest to his research in another class, and how he made those connections. Participant #1 also saw that the student was transferring concepts from one area, math, to another, science.	08.BRNS.01

be to. You know, so it's very interesting to see the motivation the kids have and that they can connect those dots.

Re: Is that transfer of goals (laughter)? I mean maybe it is! I don't know. He said that.

1: Well, he certainly was transferring the information from one solution to another.

Re: Right.

1: So he understands what he's doing. I mean, you know that he understands the concepts involved because he is able to take that and then tell you the solutions, or his next steps, at any rate, to get, to get where he needs to go. That is what it's all about.

Re: Interesting. Thank you.}

{1: You know I've also used that particular set up to work with Ed Zocarro at the end of the year. You know sometimes you have that week or so that is available when you have finished a particular thing, and you're, you're, you need to get to the end of the year, but you don't want to start a new project, or you have a week where you're waiting for kids to join you, and you don't want to go on to some new concept. And I've taken that, and some of the Ed Zocarro things and used that same thing

Participant #1 said that she has used the same game format used in MathQuest with other problems such as those found in Ed Zocarro's books, and it works well.

03.APR.01

	with Ed Zocarro . . .		
Re:	Yeah, use his problems in that set up.		
1:	And it works really nicely, and they still get just as jazzed about it.}		
{2:	Something I've realized is you could use any problems, you could use any math with this. It comes, I mean they have problems in there leveled, so that's what I'm using at this point. I think at some point I'm going to run out of them because the students will want to continue doing this. And so then we'll just whether it's making problems or finding anything, you know, what's appropriate for their level and where they're at. You could literally just have the shell of this . . .	Participant #2 realized and verbalized that this strategy of this particular game format could be used with any math problems or concepts at the appropriate level and it would work very well as a strategy with gifted students.	03.APR.01
1:	Exactly, and feed other stuff into it.		
2:	Yeah.		
Re:	But that shell, that's the strategy, and that really works well with gifted kids.		
2:	Yeah.}		
{Re:	I was doing algebra with my fourth and fifth graders over at Scales. And I only have five kids over there at Scales, so I can't do like a game or something. It doesn't really work well. But what I decided to do was some	Researcher shared using the strategy of allowing the students to construct the meaning, in this case, of a symbol (n) representing "any number" in an algebra equation. Constructivist strategy worked extremely well.	03.APR.01

construct, constructivist type activity with them. So I wanted them to think about algebra and they have journals, they're keeping math journals, and I just copied the math journals off for where. And they listed their ideas about algebra. All I said was what do you know about algebra, and they started generating ideas. And they said, "Algebra is a mix of letters and numbers. Algebra is used to help people get a better understanding of money and stuff like that. Algebra is simply math but has letters and numbers and the two can be combined into one problem. You use the order of operations instead of simple addition and subtraction. And, any number sentence with an equal sign is basically algebra." That's what their ideas about algebra without having really studied it. And then, what were your questions? How do letters equal numbers? That was really bothering them. They knew there were letters in there, but how does that equal a number? What types of algebra are there? Which I thought was a pretty interesting question because there are a lot of people who study algebra and never realize there are different

types of algebra. Why is algebra so important? Why was algebra invented? And, why do we need algebra? Then I had Professor Arbegla's Fabulous Function Machine. And I drew a picture of this machine. And I had them do a T-chart, in and out, and I had them give me a number. And then I made all kinds of noises (laughter). It went through the machine, and then it came out. And I had, and I wrote down, I had them copy it in their journals, and I wrote down what came out on the other side. And so then they'd throw out another number, and we'd go through the same process. They were laughing and giggling and having a great time. And then it would come out on the other side. So they, for example, I started with they gave me a 25, so it came out a 1. They gave me 39, it came out a 1. They gave me a 7, it came out a 1. They gave me a 50, it came out a 0. They gave me a 28, it came out a 0. So they were trying to figure out what's going on inside the machine. Eventually they figured out that, and then they tested their theory, they figured out that if an even number goes in it comes out a 0. If an odd number goes in it comes out 1. So they

constructed their own meaning to that. I said how can we write that as a sentence? Which they did. And then I introduced the idea of what about "any" number. The idea of "any" number and that how can you write your sentence that way. So then they ended up writing the functions and then turned that, then, and we even did, we even did, threw in some geometry.

1: Oh, how clever.

Re: So, this was like one side, you know, you add one side to it. So then they were able to write, they actually came up with, with their n equals, or n plus one, n plus an odd number equals zero, n plus an even number equals one, or whatever the, or whatever it was, but using n, so any number. So they got the idea. So they answered their own questions, and I was just really, really pleased. At the end of it (sigh) it was one of those moments. I literally got a standing ovation from five math kids over at Scales.

1: Oh cool!

Re: And it nearly put me in tears because they said, "You are the best teacher in the world." They were so hungry for this. This was the

kind of thing they were so hungry for and they got it. That was it. I'm on a pedestal now. I can do no wrong. So, I'm great (clapping). Yeah! And, and it just proved to me once again, after all these years, but still once again, you know, if you match the curriculum to their needs, if you really give them what they need, you will see this, this, this whole thing, everything just rise. It's just. It works. It really works. So, it was a good day. It was one of those good days.} {It sounds like everybody had a good day! So thank you for sharing all those, and then you can get the copies of the artifacts to me. So, we're going to push on. I want to look at an article. Another article. Sorry guys, but that's kind of the way it is. This article is actually from NAGC. It's a position paper on how we align the Common Core State Standards to gifted education programming standards. I want you to look, and I have copies for you guys too, I want you to look at the section on what are the approaches to use in differentiating the mathematics standards. And so we'll just all take a few minutes to all read those few pages on our own. It's in the article a couple of pages, if you'll just flip in.

Researcher gave directions for group to read the section on differentiating mathematics standards of a position paper from NAGC on aligning CCSS with gifted education programming standards.

01.DIR.01

1: Oh.

Re: Sorry.

3: What am I looking for?

Re: What are the approaches to using and differentiating the mathematics . . .

3: Okay. (Long pause while reading the second half of the article.)

Re: Thoughts?}

{Lori McClellan: When I read this article, the paragraph talking about the implications and talking about mathematical practices and looking at . . . I had, I had previously read this article and I made notes about just the different types of units that we are using. So, for example, when I visited Fuller and observed a lesson where the students were using the Rubik's Cube and looking at their perseverance in solving difficult problems and also just the, the excitement that was in the air. And the principal was so excited and Dr. Wilson was with us as well, and so we ended up staying for much longer than anticipated in the room because it was contagious with the perseverance and the excitement with the students with solving these difficult problems. And so I made notes about that. It also

The gifted coordinator mentioned two different mathematical units she has observed in the gifted education classrooms (learning the Rubik's cube solution and a study of baseball statistics), and demonstrated how students were highly motivated, persevering in solving difficult and complex problems, delving deeply into the problem, and applying their reasoning skills to real world experiences. She felt that both of these were examples of what was mentioned in the NAGC position paper as a good marriage between the CCSS and gifted education pedagogy.

05.RELA.01

reminded me of the stats unit when students were working on baseball statistics and their perseverance and application, working with their reasoning skills as well. So, those were two examples that came to mind of ways that we are applying mathematical practices and how students are persevering in solving complex problems.

Re: So we're hitting, what you're saying is we're, we're really doing what this article is telling us to do . . .

Lori McClellan: We are.

Re: as far as gifted here in Tempe.

Lori McClellan: Delving deeply and creatively into topics, projects, and problems of interest. So we really work to focus on, you know, increasing, zooming into the interest level of our students and providing them highly, just, really motivating these students to dig in deeply and it's just, it's exciting to see the enthusiasm as I visit classrooms and see this in action.}

{2: Something that stood out to me that I feel like we definitely, I feel like I can speak for the gifted teachers in Tempe, the appropriate pacing for students including the accelerated	Participant #2 felt that we do very well on pacing the material presented to students in order to accelerate as well as delve deeply into concepts, and being sure we as teachers don't	05.RELA.01

courses, but still delving deeply. So, It's not always, you know, accelerating quickly, but recognizing that and making sure we're not holding them back based on our knowledge of a content.

hold them back based on our knowledge of a concept.

1: Right.}

{3: Another thing that stood out to me is I have them an hour a week and forty-five minutes with my little ones. And so, my concern is sometimes, and I'm seeing it happening, is that at their home buildings or in their home classrooms that, that they're accelerating, they're moving as quickly as they're capable. And, and that excitement is kept alive where most of their time is spent. And, and I know that's a struggle for classroom teachers. They're meeting, they're spread really, really wide. But, I'm also pleased to know that I've had teachers come to me at Broadmor and say, you know, do you, do you have any suggestions? And they're looking for unique solutions to make sure that those little ones are moving ahead because they have a huge group of, of quantitatively gifted, identified quantitatively gifted kids. So, it's happening there, so.

Participant #3 sees the acceleration and delving deeply happening even in the regular classroom, even though the ability levels there are extremely wide, because general education teachers are coming to her asking for ways to extend the curriculum for the quantitatively gifted students.

06.IMP.01

Group Discussion #2.2, 2/13/14

Raw Data	Stage #1 Summary Chunks	Stage #2 Codes
{Re: I had that thought too. I just, I just wish I could see my math kids more, and so do they! 3: Right, right. Re: I just wish there were more time with them. But, you know, we do what we can with the time we have, and I think we do really well, but . . . Lori McClellan: And that is a comment that came up in our parent survey and in our student surveys as well, that gifted, gifted class time is the favorite time of the day or the week for these students, and that's where they expressed that they feel challenged and that they are very excited about, you know, they're motivated in PACE classes.}	Researcher, gifted education coordinator, and participant #3 bemoaning that a pullout model doesn't give the students enough time with their gifted education teachers. Gifted coordinator said wanting more time was frequently mentioned by parents and students in survey.	07.FRC.01
{Re: The other part of this article is the front part. I wanted to read it backwards, but the front part is what are the, or how do we align the Common Core State Standards to gifted education programming standards because that's what we're going to do in just a few minutes. And so, I'd like you to go ahead and read that front part, especially the, they give you three strategies, so concentrate on those.	Directions given by researcher to read first half of the NAGC position paper, and to pay particular attention to the three strategies (provide pathways to accelerate the CCSS for gifted learners, provide examples of differentiated task demands to address specific standards, and create interdisciplinary product demands to elevate learning for gifted students and to	01.DIRC.01

	(Long pause while reading first half of the article.)}	efficiently address multiple standards at once).	
{3:	It all fits.	All three participants discovering that what they have been doing all along to meet the needs of their gifted students is exactly what the NAGC position paper explains should be done to implement the standards while meeting the needs of the gifted students.	05.RELA.01
2:	Yes.		
1:	It all goes together.		
Re:	So what do you guys think about that first part. They gave us three strategies to use when we're trying to accomplish this task of providing gifted education and meet the standards. Are they helpful?		
1:	They're helpful, but it . . . to me it's just like that's what we've always been doing. I mean, I'm glad to see that they've got them down, you know, one, two, and three and that they've gone into. But I think it's something that we automatically do for our students, and have. And, you know, that fact that they're saying that the teachers of the gifted, on the last page, are encouraged to remain informed of the content and scope of literacy experience afforded students in the regular classroom. Well, yeah we do that because (a) we need to and we need to know what they're doing and where they are so we can address them at a higher and deeper level. You don't want to		

bore them to death with something they already have. So, and I think we do a really good job addressing these three, and then also making sure that we know where they are and that we don't do what they're doing. I mean we can support it, but we don't want to repeat it.}

{Lori McClellan: Speaking of point number three about creating interdisciplinary product demands to elevate learning for gifted students. That's exactly what we do to plan our theme and our units every year. And so, when you just think about the Mars Student Imaging Project, which we're implementing right now, looking how we have embedded multiple standards addressed in and across multiple content areas. So we have students conducting research, all the presentation skills, think of all the math skills that are in there.

Gifted education coordinator agreeing that when we write our gifted curriculum each year, we embed multiple standards from multiple content areas and have all along, before the AZCCRS because it is best practices for gifted students. This is a nice pairing.

05.RELA.01

2: The technology.

Lori McClellan: (indicating participant #2) You were just sharing the other day about how much students have learned about using technology in here. And we've got students learning how,

learning slope, and they're making charts and graphs and presenting to scientists. So, just the, you know, magnitude of the multiple standards that are embedded within our units. And, so I agree with (indicating participant #1) that, you know, this has been our approach all along, prior to the Arizona College and Career Ready Standards, this is how we operate and we know that those are best practices for our students. So, I believe this is good for all students, and, you know, it, it, it pairs nicely with what we do. But then we take it to the next step by making sure that it's at the appropriate level for our students because we know that, you know, our students are usually functioning at a much higher level. So we start higher, but then we can go deeper with those students.}

{3: And they just go deeper on their own. I mean that's a part of it too.

1: They do.

3: By the nature of the, the folk that we work with, we have to go . . .

Lori McClellan: Yes.

3: Or they're going to just leave us in the dust

Participant #3, #1, and gifted coordinator all agreeing that another strategy is give the students no ceiling on how deeply they delve into a concept because that is their nature anyway, to go into a subject of interest until they feel they have exhausted their interest in it. This is creating pathways to acceleration.

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(laughter).

1: Well, and besides that, you know, you've got to be one step ahead of them when you're doing that. So, like, even with this MSIP stuff when we were doing, you know, my kids were, they were trying to collaborate between schools, and it was difficult to collaborate if you don't have something where they can collaborate between schools. And, and, so we were trying to collaborate between schools on Edmodo, it wasn't working as well as I wanted it to work. And so, the kids, the fifth graders were using Google docs. That is real time, real learning and they see what each other is doing, and while they're doing, and they're filling out their proposal. And they're doing their slide show for the proposal, they can see what the other kids are doing and when they do that, not only do they correct each other, but they also step it up a level for themselves, like you're (indicating participant #3) they automatically go deeper.

Re: So it's more authentic, you mean?

1: It's very much that way, yes. Because that's a skill that they're going to be using in

businesses when they grow up.

3: Getting ready for the global economy.}

{1: And where as Google docs may not be around, it, the concept of that sharing in a global community where they don't see the other people. So, you know, my kids could be in Russia and the United States for that matter, because they don't know each other, and yet they're writing a document together to be presented. And they will meet the day they go to present this to ASU. That's when they get to see each other. So they're, they've seen what everybody else is writing. Math is the same way. I mean, you can, it works in the same way where you've got the technology where they're learning, like for instance, in one of the classes we're building, we're building Mars so we're building a geodesic dome. So, we've had to learn proportion, and that was not in the math class, but they had to learn how to do a proportion because the directions came with it twenty to twenty-six inches, well we, ours are not that way. So we had to decide what our base line was going to be and then calculate through a higher level of algebra that most of them don't have. How we're going to

Participant #1 again describing another instance where she used the strategy of collaboration but this time between schools with the aide of technology in which students wrote a document together to present to scientists at ASU without ever meeting face-to-face until the day of the presentation.

03.APR.01

	solve that proportion and cut our straws and build our geodesic dome, and then they had to build it. Well, we're talking second, third, and fourth graders. The fourth graders can almost do the math and the third and the second graders are coming along and they're trying to understand the global-ness of it. But then to see it in practice, this is why we did what we did. Even though they don't understand how to do the math, they understand why they did it, and they understand how it applied. And they did it in both schools. So that, I, I just see that this is very workable.}		
{Re:	Two of the questions that I had that I wanted to talk about, you've already answered. So . . . is there a relationship and what does that relationship look like, if there is one, between the Common Core State Standards and the three suggested strategies to marry gifted curriculum and instruction with the Common Core State Standards. So you talked about that. And, how might the gifted education teachers in our district connect the Common Core standards for math, content standards and practice standards, to the gifted curriculum? That question you've answered	Researcher verbalizing that participants and guests have addressed the question about the relationship between CCSS and gifted curriculum and instructional practices, but would like the participants and guests to address the question of how gifted education teachers connect the CCSS for math to the gifted curriculum.	01.DIRC.01

somewhat, but you might speak to that a little bit more.}

{2: Continue doing what we're doing.

3: Yeah.

Re: Continue doing what were doing?

1: Yeah, and not only that, just to be, try to still be one step ahead of them in whatever it is that they're doing. We have to know where they need to be going. Their end product, and then try to push that more in the direction that they need to go, and that they want to learn as well.

3: I was going to say, keep feeding them. They get so excited about learning a new concept.

1: They do.

3: Just make sure that while we're going deeper, we're also saying, okay, we know you're also ready for something new. We know you have a desire for that. We're going to give you a new piece.

2: So honor that.

3: Yeah. Honor that, that need to. You know, I can play with this over and over again, but I want a new toy today (laughter).

2: Exactly.

Participants #1, #2, and #3 all saying to keep doing what they have been doing all along and to be ready to feed them new concepts when they are ready to keep the fever of learning going.

05.RELA.01

3: You know have that new toy when they're ready for it. To keep that fever for learning going in them.}

{Edward Goldstein: For the same as the mathematical practice, I've often thought it should be called something different because you can use those across contents. It shouldn't just be we're going to construct viable arguments in math. Well, we can do that in social studies and in science, and with our spatial kids. And, you know, we need to persevere in our thinking. We need to persevere in all we do, not just in math. So, I've often wondered why it's, they're the mathematical practices, or they're the, you know, just for . . .

Re: Why the mathematical practices.

Edward Goldstein: Yeah, why just for math? They really should be across multiple areas because it's embedded . . .

1: Well yeah, because they embed, in the language arts area they embed science and embed technology and everything, so I agree with you . . .

Edward Goldstein: Yeah, so, it's interesting to see that, that it's there. And then the other point

Math coordinator questioning why the 8 mathematical practice standards are just for math because these 8 practices seem to apply to all learning in all content areas. For example, he says why just persevere in solving a math problem? Wouldn't you also want students to persevere in solving a social studies, language arts, or science problem?

07.FRC.01

was on . . .

Re: Good point.}

{Edward Goldstein: on that, providing pathways to accelerate, you know, the standards for gifted learners. I just recently presented to the principals, and in fifth grade we have 150 future honors students. Now that's, that's quantitatively gifted students, and also high potential students. Those students who reached the threshold that need to be accelerated. And so we were talking about how we do that because we have gifted teachers at the elementary level, but at the middle school level they turn into honors students. And so, what does that look like? But, thinking more deeply about it, we know in kindergarten and first grade and second grade, who these future students are, and so we need to, you know, this idea of providing pathways, you know. There might not necessarily be enough to create a class at schools, but how do we know, or what do we do with students that we know we will have to accelerate in middle school. How do we start accelerating them earlier so that it's not a gigantic jump in fifth grade, and so.

Math coordinator focusing on providing pathways to accelerate and how that would look. He's very concerned about the fifth graders when they go to middle school because they have to take a giant leap in one year. He feels that their math pathway in elementary school may not accelerate at a continuous rate with their general education teachers, but their one constant in the equation is their gifted education teacher and perhaps they become the key for these students to make a smoother transition from elementary to middle school.

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3: All those ways.

Re: We become very connected to these children because we have them from kindergarten through fifth grade, and we want to know too.

1: I agree.

Re: We really do.

Edward Goldstein: Well yeah, the piece that I was thinking was for the gifted learners, their one, the one piece that moves with them throughout grade levels is their gifted teacher.

Re: Right.

Edward Goldstein: You know, it's, it's almost like, is it the gifted teacher that really, it's a five year plan but they know they are going to go more deeply every year with these because by the time they get to fifth grade, there's this jump and they're gone. Whereas every year because it's a new teacher, that new teacher's taking the time to get to know them, but their gifted teacher really owns them for three, four, five, six years.

Re: Right.

Edward Goldstein: And I was just wondering if, if the pathway is really, you know, if it's the gifted teacher that supports that, that pathway with what's going on in the classroom. But I'm, I'm

kind of stuck on this idea of pathways to accelerate. Because I don't want it to be where we accelerate one year, and then we start over, and then we accelerate, you know. As we accelerate we . . .

3: Even by grade levels in some buildings.

1: Yes.

3: Some grade levels will have more of a grouping, and a, you know, we're going to, we've got these kiddos who are running . . .

Edward Goldstein: Yeah, sure, it changes.

3: And then they get to the next grade level, and well we don't do that. And it's like what're you going to do with these guys who have already gone through your whole year of curriculum?

Edward Goldstein: Yeah.

3: Yeah, no. And, it's tricky. And our focus is on these guys whereas the classroom teacher's have twenty-five to thirty and their focus is (indicating wide span with hands).}

{Edward Goldstein: The other thing I was thinking about was, when we talked about our more disadvantaged student, students, we talk about closing the achievement gap because we know what that end goal is. They need to get to grade level. It's a tangible thing. We, so

Math coordinator also brings up the end goal for gifted math students using the comparison of how we can see where disadvantaged students need to get to grade level and we work on closing that gap, but what is the correct goal for gifted students? Do we try to

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we know each year if we're closing that. But with our gifted students, that end result is, there is no tangible. Like, we got there.

close the gap between where they are and their potential? How do we measure that?

1: Right.

Edward Goldstein: You're continuing to try to get there. And so, you know, I'm trying to relate it to, rather than closing the achievement gap, with these gifted students you're really trying to close their, their learning potential. Or I don't know if it's their learning potential, or. You're trying to get to where you know they, they can be. Just like the other students at the other end of the spectrum.

Re: You don't want them sitting there, you know, marching in place and that's what happens to them. It's like their stuck in this mud sometimes, you know. And they're, they really, really get frustrated with that. They know that there's more to learn, and they're hungry and they want it. And it's hard for them to, you know . . .

1: So rather than closing a gap for them, I would like to think of it as being opening a potential for them to go their own direction,

at their own pace at their own speed, where their brain can cope with it. Because, you know, you can have seven kids in gifted classroom and all seven of them are going to be at different levels. And all seven of them can bring the other people up, but that's not their job. Their, their job is to, to go at their own speed. That's our job, is to bring them all up. And so, I've, we've wondered that same thing. What happens to our kids when they get to middle school? When they go up? Because we know that each, every, each of them are, going to be even on a different level between themselves or among themselves they're going to be on a different level too.

Re: It's impossible to do a one on one, but it's almost like that's the only way to meet their full potential.

1: Yeah, it would be really nice. You're right.

Re: Of course we're not even going to have . . . I don't want to say that (laughter).}

{Lori McClellan: The overall picture, we do want to raise the bar because we want to teach our children how to persevere because what frequently happens with gifted kids is they don't learn how to work through the struggle

Gifted coordinator points out that we do want our gifted students to struggle so they learn how to persevere and that this actually gets into the social and emotional needs of gifted students.

05.RELA.01

because everything comes so easily to them. And then they finally hit that brick wall when they get to college or whatever and they don't have those, the affective skills to deal with, how do I deal with failure? And that they view themselves sometimes as a failure because if something doesn't come . . .

Re: They get a "B?"

Lori McClellan: Yes.

1: Because they get into something that . . . or they might. Exactly.

Lori McClellan: So dealing with the social and emotional needs of gifted kids is, as you all know, just as important as the academic needs. And teaching these children, giving them those tools to learn how to work through that struggle and providing them that opportunity to struggle with something that they don't always, you know, have as many opportunities when you go. Kids in a classroom who deal with that every day.} {Sometimes the only time our students are struggling, and I think that's why that, the whole consultative piece that you provide to the classroom teachers, and what I'm hearing from you is that more teachers, teachers are

Gifted coordinator points out that one impact CCSS are having on our gifted students is their teachers are seeking out advice from the gifted education specialists on how to raise the bar for the gifted students even

06.IMP.01

starting to come to you more now . . .

1: Yes they are.

Lori McClellan: because of the Arizona College and Career Ready Standards, and they want more strategies and they do want to raise the bar for their kids. And so I think that's a plus, that you're an asset to them and the more you can reach out to them, to provide those ideas and strategies that you, you know, you naturally you've been doing, providing that for years. But for some of them, they need some other tools for how to differentiate and challenge these kiddos. So I think you're a vital piece to their success.}

higher because the bar was just raised with CCSS for all students. This makes gifted specialists an asset to the general education teachers and "a vital piece to their success."

{1: Well, and I'm glad that they're coming to us more because for . . . there seemed to be a drought there for a couple of years. And, and I don't know why, but it, but it, I've found . . .

Re: They were overwhelmed, I think, learning a lot of new things.

1: I think so. But even now, I mean, they're, they're, now it's like they're able to be more creative with what they're doing. And their creativity, now, it's like, what could I do with them? What can I do with them? What are some suggestions?}

Participant #1 agrees that they are coming to us more now because there was a drought for a few years and perhaps the CCSS is allowing for more creativity on the part of teachers so they want suggestions. Researcher iterated that perhaps it was due to learning curve for general education teachers and the CCSS.

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{Re:	Well, I think what happens is that if they don't challenge them, and I've seen this over and over, their NWEA's stagnate . . .	Researcher mentions that challenging gifted students is important or they seem to stagnate with their NWEA scores or even decline. Researcher wonders if teachers panic and come to gifted education teachers for suggestions when this happens. Participant #1 explains how difficult it is to go up when you are already several grade levels above yet gifted students often feel like failures when they don't "improve" a certain number of points. She explains to them it is difficult to improve when a challenging curriculum isn't implemented with them. All of this once again gets into the social and emotional needs of gifted students.	07.FRA.01
1:	They flat line.		
Re:	Or they even go down.		
1:	Yeah.		
2:	Yeah.		
Re:	These kids check out. And, and the teachers panic, and they come to us, like what can we do? But.		
1:	And too, you know, I was, a couple of my kids were very distraught because they were not, they didn't meet their goal. And they thought they should meet their goal. And I was explaining to them, when you are at the top rung it's difficult to meet a goal that even goes up two or three points. You're talking about grade levels. Like learning one entire grade level to go up at the end of the year, from eleventh to twelfth grade. But if we're not addressing eleventh to twelfth grade math with them . . .		
Re:	Right.		
1:	How can they do that? How can they progress?		
Re:	They can't make any progress.		

1: You can't progress when you are that high unless, unless it's being addressed, you can't hope to ever achieve it. And so I told them not to be too bummed about that. That maybe what we needed to do was have a discussion about resetting that goal to something that's more meaningful for them. Now I don't know how that sits, and I don't know how that would look, and I don't, I don't understand the full flavor of what I'm saying, but (laughter) but, but I was trying, what I'm trying to say to them is to make them feel better and let them understand that they are already so high. It's not like we're talking about going up twenty-five points. They can't do that. They're already . . .

Re: That's a lot. What you (indicating Edward Goldstein) were saying about closing the gap is easy to see.

1: Right.

Re: But what do we do with these kids? That's a whole different animal. It looks very different. And we do have to worry about their emotional and social, the affective part of it because they take that to heart. And they are gifted. They know their scores. They see it.

And, you're right.

1: Right. And they know what it means.}

{Edward Goldstein: Now I will say, now that we've had this conversation, and I'm thinking about it, you know. Descartes is one of those great tools that does allow us to see, not necessarily where they can end up, but what their next steps are. And so it's easier, you know, closing that gap. Okay, know what my next steps are. Okay, they don't know how to add, so we need to work on adding and then we have to work on subtraction. And that's easy to see, I think, for a teacher, but using a tool like Descartes or other tools that say, they've learned this, now here's where you could move them or here's where you could go deeper or progress them is a valuable tool in helping teachers see where these, you know, high potential students or where these gifted students can go next.} {I think the other kind of shock that might come is when they look at, when they see the PARCC assessment or they see the requirements. The cognitive demands that are now being asked of all students. It's what, when I first saw it I thought this is what we asked our gifted students to do and now it's

Math coordinator explains that Descartes , or some similar tool, might be a tool that teachers could use to see the next steps for gifted math students to take.

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Math coordinator feels another area that will impact all levels of students, including gifted students, is the PARCC assessment because of the cognitive demands. He first thought when examining what will be required of all students was, "this is what we asked our gifted students to do and now it's being

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being asked of all students. So, I worry that teachers might think, well now if I'm doing this so I must be hitting all students. But really now, we're even asking more of our gifted students, you know.

Re: The difference though with, we used to ask that of our gifted students. We didn't, we don't, we don't have any grades in PACE. So we asked that of them, but there's no real pressure. So it's like (indicating participant #1) said about they go at their own pace, and they do. You know, they do progress. That ballgame is going to be different with PARCC…

Edward Goldstein: Yeah.

Re: Because there is going to be that element of, you know, we have to succeed. I think about (name of student). When he was in third grade, went to his teacher and told her, he'd gotten on line looked at the standards for third grade math and decided that they had not done enough of this one and this one. And he went to her and he said we need to study this. The kids are not ready (laughter). I'm ready, but the rest of them aren't. So that kind of …

2: He's already started studying for AIMS this

asked of all students." He feels that with the increase in rigor, some teachers might feel that they are providing enough for all their students, including gifted students, but in reality the gifted students' curriculum now needs to be ratcheted up too. Researcher agrees and also wonders about the emotional side of the gifted students when curriculum is ratcheted up due to that element of "having to succeed" that many gifted students feel.

year.

Re: Yeah. So that kind of thing is what gifted kids do. And that's a concern because you're going to put that whole new pressure on them with PARCC.

Edward Goldstein: Yeah.

Re: I don't know how that's going to turn out. I don't know. I'm worried, but that's all I can do right now.

3: Let's lobby for house bill (laughter) . . . while we all get caught up in it.}

{1: Well that only makes sense if you're, if you're asking those kinds of evaluative questions. It only makes sense because some are get it deeper than others. How do you evaluate? That's like what we do. How do place a grade level on the creativity and their abilities to one or the other? You can't. I mean, how do I sit back and say this was your best product and this is your best product and they look nothing alike. And how can I say that yours was better . . . I can't! That's why I think that that house bill is really good because it will, it will, it frees everybody to do their best.

Participant #1 reminds group that those types of questions are very difficult to evaluate fairly which is one of the reasons we do not put letter or number grades on our gifted students' progress reports. Without that "grade" pressure students will naturally go as deep as their interests take them.

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Re: Well at least temporarily.

1: Yes.

Re:	So, I don't know, we'll see what happens with it.}		
{3:	Well, I think each grade level is going to feel more comfortable with it too, as the grade levels below them have the same expectations. Because I know last year the third grader was, they can't do this. I was like, but, but they're doing it in kindergarten and first and second. So by the time, you know, every year they've got another year of that building on it, and they're going to get better at it. Our PACE kids, when they first come in, I don't know what color Saturday is (laughter). These are hard questions. You know, and, and I want to fit. Then after a few of those hard questions, they're like, oh okay, this is one of those no right answer things, I can do this now. So I think everybody's got to, you know, the kids and the teachers are going to build their confidence and comfort level.}	Participant #3 feels that the rigor that has been increased by the CCSS will level out as each grade level contributes so that in a few years by the time the 4th grade teachers receive students, they have been working with these kinds of rigorous curriculum for four years. The 4th grade teachers will not be introducing it to them as they are now.	07.FRC.01
{Re:	I want to get to, it's a great conversation, but I want to get to what we are doing today, our main task, which is to unwrap a standard from gifted-land.	Researcher gives directions to unpack a math content standard using Big Idea #3 from McTigue and Wiggins' article *From Common Core Standards to Curriculum: Five Big Ideas.*	01.DIRC.01
3:	All right.		
Re:	And so one, one of the articles that we read		

last time as a group was McTigue and Wiggins' *From Common Core Standards to Curriculum: Five Big Ideas*. And so I have copies of that for everybody because we're going to use their, we're going to use their big idea number three, in particular, to unwrap. So big idea one is: the common core have new emphasis and require a careful reading. Number two: standards are not curriculum. Number three: standards need to be unpacked. I said unwrapped, unpacked, sorry. So that's where we're going to spend the rest of our time today, is looking at how to unpack a standard. Unpack the standard for it's long term transfer goals which means to identify the effective uses of this content standard's understanding, knowledge, and skill that we seek in the long run. Or what we do, or what do we want students to be able to do when they face novel challenges with this content standard both inside and outside the realm of school. Then, unpack the standard for overarching understandings and overarching essential questions. What would skilled mathematicians need in order to transfer this content standard into any situation and what

would be the best set of questions in making meaning and deepening their understanding of this content standard. And then, unpack the standard for cornerstone tasks. What tasks would allow learners to apply their newly gained knowledge and skills associated with the content standards to authentic, relevant, and realistic contexts and integrate the twenty-first century skills into the task as well. So all of that was what we read last time. And you've got this article to refer to, especially starting on page four. The other thing I brought for us to have, that we read last time, are the mathematic practice standards. You can go back on, to look at those. So, I didn't know if you'd bring your copies, so I made new copies. This is a good resource for us as well. And now I have the standards. And I have the standards in a couple of different versions. I brought . . . we're going to talk about the content standards. So this one, and I want you to take a copy of it, is the standards right off of the Arizona, right off of the ADE website. I know you guys have them, but for right now, if you

want them to look at. The other way we have standards, and we have all this stuff to paw through. This is a little bit more, at least it looks a little bit more user friendly. This is off of Tempe Elementary's common core website. So we have it in this version as well. However, when I looked at it, I picked a standard just to play around with it, this didn't have as much information as the one right off the, or as many examples. So both of them might be helpful. And then finally, and I didn't make copies for you guys (indicating the three administers) of this individually. This is the common core flipbook and I didn't get all the tabs cut off on the bottom. But the way this is really supposed to work is like this. So that if you could go across and find a standard, and then flip up to that standard they give you examples and all kinds of stuff. So, this one is the only one I got cut. So these are for you guys (indicating the gifted ed. teachers). You can keep them.

1: Oh thank you.

3: I was looking at the flipbook and was like, why is this a flipbook, and now I understand why it is called that (laughter).

Re: And I have one that you guys (indicating the administers) can flip through and share (multiple voices talking but unrecognizable).

3: Yeah, and I saw all this stuff at the bottom and thought what's all that gibberish?

Re: Yeah, so you cut them off (multiple voices talking but unrecognizable) and it gives you, you know you can flip through that way.

3: Yeah. That's great.

Re: So it's just for the math. So we have three sources that we can look at. What I want to do first of all, is for you guys (indicating the gifted ed. teachers) to pick a domain and I will not participate. I will let you three pick it. So the domains, if you look at the state, the domains for math, this is all third grade by the way, are on the very front cover, the back of the front cover. So they would be operations and algebraic thinking, number and operations in base ten, number and operations fractions, measure and data, and geometry.

2: What do you guys think?

1: Oh I don't know. Numbers and operations in base ten. What Mr. Bimble said, so.

3: Who's Mr. Bimble? (laughter)

2: Mr. Bimble? (laugher)

1: I did. I just closed my eyes and pointed.

3: I don't know. I can't. I second that motion.

Re: Is that okay with you (indicating participant number two who nodded in agreement).

1: All right.

Re: All right, so number and operations in base ten. So now, turn to

2: (laughter) For geometry, measurement . . .

Re: Turn to, turn to number and operations for base ten in whichever resource you want to use. So that's going to be kind of in the middle.

3: Where do I find it?

1: Yeah.

2: Page fifteen.

3: Where do I find it?

2: It's up at the top. There. The top of the box.

Lori McClellan: Page fifteen has number and operations in base ten, so just on the top left of inside each table.

3: Thank you.

Re: And it goes on to sixteen and seventeen. So you're looking at pages fifteen, sixteen, and seventeen in the, in the state. And I'd like to read through the standards that are there. Use place value understanding to round whole

numbers to the nearest ten or one-hundred. Fluently add and subtract within a thousand using strategies and algorithms based on place value properties of operations and/or the relationship between addition and subtraction. Multiply one digit whole numbers by multiples of ten in the range ten to ninety. For example nine times eighty, five times sixty, using strategies of based on place value and properties of operation. So, and I think, yeah, then it goes into fractions. Which of those would you like to do?

3: Do we have . . .

1: I chose the last one, so someone else gets to choose.

2: The first one.

Re: Use place value understanding . . .

3: Understanding place value and the idea of rounding?

2: To rounding?

3: Sure.

2: Ten and one-hundred? Okay.

Re: Nearest ten and one-hundred. Okay, so that's going to be our focus. You have different places that you can look at, the flipbook, TD3's. You can find it, find it. Why don't you

take a minute and find it in those three places, so it would be 3.NBT.A.1.

3: Is this where you're at?

2: That doesn't really give examples. It just lists them in a cute way.

3: This really kind of mixed me up.

Re: Yeah, so did you all find that in the, then there's that one, and then in the flipbook . . .

1: So it's on page twenty-eight, page twenty-eight in the flipbook it looks like.

3: That's where it starts. So that's where it is.

2: That's not it.

3: So that's multi-digit and operations, right?

1: Use place value and standard, oh. Did I get it wrong?

2: Yeah, that one's add, fluently adds subtracts, we've got to go back.

1: Oops.

2: I can't find it.

1: Well, so it must be twenty-five?

2: Twenty-six?

Re: It's been clustered. That's. You're reading the cluster.

2: I think it's twenty-six.

3: Use place value in understanding to round whole numbers to the nearest ten or hundred.

2: Yeah, there it is.

1: Okay.}

Re: And by the way, I looked at these extended in the flipbook? Where it said extended for each standard. That to me, and maybe you can answer this (indicating Edward Goldstein the district's mathematical coordinator), that to me looks like what you do to remediate if kids aren't getting it. Is that true? Like look on page twenty-five, just before this. It didn't look like, it's called extended, but it didn't look like it extended anything. It looked like it was giving strategies to get kids there.

Researcher asks math coordinator and director of curriculum and instruction what "extended" means in the standards because it doesn't appear to be extensions of the individual standards, but actually remediation strategies of each cluster of standards. They agreed that these are extended strategies to use if more building blocks or scaffolding is necessary, especially for remedial students. 07.FRC.01

3: Dianna, I'll be right back. I've got to get something to drink.

Edward Goldstein: No I mean even the tab says extended, it's still saying build a foundation for multiplication through repeated addition up on top

Re: Right.

Edward Goldstein: So it makes me believe that it's not . . .

Re: The tab is kind of a misnomer in my mind.

Edward Goldstein: That this is . . .

Re: Ways to help a teacher help a child that's not getting this standard, right?

Edward Goldstein: Yeah, but if you look at page twenty-four at the very top it has the alternate achievement standards for students with the most significant cognitive disabilities non-regulatory guidance states.

Re: Right. Right.

Edward Goldstein: So it makes me feel like it that's what it's, that's what it's targeting.

Christine Trujillo: It's not extension.

Re: So even though it calls it extended . . .

Christine Trujillo: No.

Re: It's not extended, it's extending the teacher's knowledge base to help those.

Christine Trujillo: What else they need.

Re: Yeah those kids. But not helping kids . . .

Christine Trujillo: Building blocks.

Re: Not helping kids that need extension . . .

Edward Goldstein: Yes.

Christine Trujillo: Correct.

Re: So, don't be fooled by that, I guess? I don't know.

Christine Trujillo: Right, right.

Re: It's not helpful to us.

Edward Goldstein: Right.

Christine Trujillo: Extended doesn't mean extension, in this case.}

Group Discussion #2.3, 2/13/14

Raw Data		Stage #1 Summary Chunks	Stage #2 Codes
{Re:	Right. So, so then back to page twenty-six. So you have the three sources in front of you. The first, the first task, according to McTighe and Wiggens is to look for the transfer goals for this. What is it that we want students to be able to do. I want to make sure I read it correctly. What do we want students to be able to do when they face novel challenges with this content standard both inside and outside the realm of school? Identify the effective uses of this content standard's understanding, knowledge, and skill that we seek in the long run. What do we want our gifted kids to get out of this standard, in the long run, inside and outside of school?}	Researcher completes instructions to participants about how to unpack the math content standard they have chosen, beginning with the transfer goals.	01.DIRC.01
[1:	Well . . .	Three participants gave the transfer goal of being able to estimate when shopping to know if they have enough money.	02.ARTC.01
3:	In real life situations to be able to estimate. I'm at a store and . . .		
1:	Grocery store buying and . . .		
3:	Yeah.		
1:	Being able to calculate how much money do I have, and how much am I going to spend at the grocery store? And do I have enough as they go down the aisles to be able to calculate		

	a running total maybe?}		
{Re:	Is it any different than for a regular student?}	Researcher asked if that transfer goal is any different than for general education students?	01.DIRC.01
{1:	Not really.		
Re:	It's just maybe when they encounter this standard?	Participants responded that at what time a gifted student encounters the need for estimation, or at what age or grade level a gifted students might need to know estimation might be different than when a general education student might encounter this standard in the general education curriculum. Also, how it is taught to gifted students might be different, what the instruction looks like. The products to demonstrate understanding might be different. How they use it might look different, for example they may use estimation in an engineering sense while learning it, or when estimating the coordinates in their Mars Student Imaging Project they are currently working on, not in a grocery store shopping sense. They will also learn it much faster. They might need this knowledge when working on an authentic project such as Empty Bowls in a practical sense because they needed to know however, this need to use estimation might not	05.RELA.01
1:	I think so, and . . .		
2:	I don't see any different. I don't think the end goal isn't any different, but maybe how it's, how you go about, about it is probably different.		
3:	How we instruct it and the products we expect for them to use to demonstrate their understanding.		
2:	Have to use it differently though.		
1:	For them, you know, they may be using it in an engineering sense or something, earlier. Like if they're going to apply it to engineering or they're going, you know, they're going to apply it. Even with us, they could even be able to be rounding while they're doing the MSIP project. Because they're going to be, okay, you know, we're looking at these coordinates where I am, where I'm trying to look for whatever picture. And where can I go on my map immediately, and then fine tune it to where the coordinates are really. So they		

might be able to use it that way.

2: Creating a, a chart and they need to find the, what scale they'll need on the side.

1: Right.

2 You know, just being able to make quick decisions based on their ability to think about numbers in a reasonable way and you know…

1: Right.

3: Well, today we were trying to estimate how much money Broadmor brought in for empty bowls. And I told them that we had brought in . . . or how many meals we paid for. And we had four-hundred and something dollars. And I said, it's five dollars, or five meals for every dollar, so how many is that . . . a lot! (laughter) So they, you know, I need something more specific than a lot. Well, it's probably a few hundred. Well, we started with four-hundred dollars, there's five so . . . I was like, okay, let's just throw everything away. If we rounded it to four-hundred, forget the eighteen, and then they were really quickly able to, oh, well, okay, well in that case it's two-thousand. You know, so getting rid of those extra numbers and everything, but that was a real practical use of

have occurred to a general education student yet. They might need to take this concept deeper such as when it might not be appropriate to round up. An example might be 2.5 children per family. You can't really have .5 of a child. Gifted students might want to ponder this aspect of estimation. Also when it might be bad to over or under estimate such as with medication, busses for a field trip, people attending a wedding dinner reception

it. So they were able to see that, wow, we fed two-thousand hungry people today.

Re: It says that, they have to, you know, it talks about the half way points and they narrow where the given number falls between the possible answers and the half way points. Would we ever want to talk about times when it isn't appropriate to like round up? Like, let's say for example 2.5 children per family. There aren't .5 children in a family. I mean, is that something that we could bring in to this for gifted kids? It's a little different kind of way to look at statistics. Sometimes it's inappropriate to round up or round down or have fractions, you know, partials. I see that as something that we might add into this.

3: Yeah, like when would it be bad if you over estimated in a situation and when would it be bad if you under estimated?

Re: Medication, for example.

3: Right.

Lori McClellan: Correct.

3: How much money you have and how much money you're going to need when you get to the store, oops?

Lori McClellan: How many busses for the MSIP field trip? (laughter)

Re: Yeah, yeah.

2: Or planning for a wedding or a party and you round down and then there's not enough food or seats.}

{Edward Goldstein: And a sample question that all third graders would get for this, would be, they're given the time down to tenths or hundredths of a second that swimmers race. And the place that they came in. And then they might say, if we only rounded to the tenths, how might the place. And so, so that's one of those sample questions that are out there where they're being asked to now determine what changes, based on . . .

Math coordinator gave a sample question that all third graders would get on the PARCC based on this estimation standard. They would be asked how swimming races at the Olympics might differ if they didn't estimate to the hundredths place but only to the tenth place. This is a much more rigorous question, so how can that be extended for gifted students if they went even deeper?

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3: Nice.

Edward Goldstein: The place value that we're choosing, that we're choosing to use now. So how might we be able to extend that to? How can we extend that for gifted students? That's what all students are being asked to do, now what would, what would be even deeper from there?}

{1: So, that reminds me very much of when we

were doing baseball statistics.

Re: Yeah.

1: When they were doing the rounding of their averages, their running and their batting averages. And when do you want to, you know, how far do you want to extend? So, you wouldn't want to extend maybe the decimal points just to tenths, you'd want to go to hundredths or thousandths because then it makes a difference. And if you had them looking at, say the Olympics, you'd be able to see that with the downhill racing which they did yesterday, they were hundredths of a tenth of a second off which gave them a gold, silver, or bronze. So you wouldn't want to use rounding on that, because that makes a big difference.

Edward Goldstein: Um, huh.

1: So you could be keeping track of doing . . .

3: Everybody wins.

1: Pardon me?

3: I said, then everybody wins!

1: Whoo, hoo!

Edward Goldstein: Well, I mean, I mean, there was actually a tie. So that . . .

1: For first place, for gold, that's right.

Participant #1 gave an example of using rounding for the baseball statistics unit and also an example of when it might be necessary to go even to the thousandths place such as with the downhill racing in the current Olympics that resulted in a tie for the gold medal because they didn't go to the thousandths place.

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Edward Goldstein: So, so, so, the question might be, should we have gone to the hundredths, or the thousandths? At what point . . .}			
{2:	Well you could open up a debate then. Maybe that's the extension.	Participate #2 suggests having a debate with the gifted students about when to use estimation in certain situations. Participant #3 suggests looking at the relevance of decimal points rounding. Researcher thought about the stock market unit which was a simulation where they were buying thousands and thousands of shares and rounding one direction or the other made the difference sometimes of going bankrupt or thriving. Participant #1 thought the question should be looked at from the affective viewpoint as an extension for the gifted students. What's the moral implication of rounding such as in politics. Participant #2 said perhaps the extension would be a community outreach element such as writing to a baseball player about his statistics and showing him where one more hit per season could change his overall statistics by a certain amount and perhaps they would like a new agent (laughter). Researcher reminded participants that the baseball statistics unit did help the gifted	06.IMP.01
3:	At what point is it really relevant?		
Edward Goldstein: Relevant.			
Re:	Debating, debating which way you go. How do you make that decision? If you were the judge? If you're an Olympic judge, what are you going to give them?		
3:	Is it really a big enough difference to distinguish between one place and another?		
Re:	It made me think about, it made me think about the, the when we were doing stock market too.		
1:	Yes.		
Re:	The whole stock market thing.		
3:	Yeah.		
Re:	They could, you know, because when the third graders were doing that it made a huge difference. They were rounding, you know, when they were buying thousands and thousands of shares and they're rounding one direction or the other. They went bankrupt or they didn't.		

1: Well you could even, you could take this into, extending it into, like you were saying, into debate or discussion over. You could bring it into an affective area. And bring this particular thing into an affective area where they would have to make decisions like that. And of course, with them fairness is a big deal, so this would be something that would be very appropriate for discussion.

Re: I like the debate thing.

2: Like a community outreach type, you know, connection there where they are contacting someone, I don't know, with the statistics, they then write a baseball player and here's some things that we found if we had, you know, had your batting average been, I don't know, but some sort of outside connection.

Re: You'd have won the silver batting award if you'd just . . .(laughter).

3: Yeah, or a new contract (laughter).

2: Not that one.

Re: Do you need an agent? (laughter)

3: We would have gotten you more money, I think.

2: They could meet people in real life. They

students realize that they could have a career in baseball that was based in numbers instead of at bats. Perhaps career education is the extension for gifted students or the transfer goal for gifted students which is ramped up from the general education transfer goal of being able to survive at the grocery store.

could make a connection outside of.

Re: Well, well that may make us giggle, but that's, that is exactly what came out of that baseball stuff.

3: It is.

Re: Those kids did see that they could have a career in baseball and it has nothing to do with hitting the ball . . .

1: Exactly.

Re: and the bat. They used, they used their numbers. So our transfer goals, that's what we're supposed to be looking at, for these gifted kids would be ramped up, I think. I think we would ramp it up.

1: Well, yeah, you'd need to . . .

Re: You said grocery store, what else, right at the beginning we said all these things. That's what every child, we want every child to survive. But for these kids it's more than that. We want them to be able to see, that by having this skill, this standard they can become a baseball agent, they can become a stock broker.

1: So something like this perhaps for them would be taken to the limit of what kind of career might be available?

3: How would you apply it in this situation? How

could make a connection outside of.

Re: Well, well that may make us giggle, but that's, that is exactly what came out of that baseball stuff.

3: It is.

Re: Those kids did see that they could have a career in baseball and it has nothing to do with hitting the ball . . .

1: Exactly.

Re: and the bat. They used, they used their numbers. So our transfer goals, that's what we're supposed to be looking at, for these gifted kids would be ramped up, I think. I think we would ramp it up.

1: Well, yeah, you'd need to . . .

Re: You said grocery store, what else, right at the beginning we said all these things. That's what every child, we want every child to survive. But for these kids it's more than that. We want them to be able to see, that by having this skill, this standard they can become a baseball agent, they can become a stock broker.

1: So something like this perhaps for them would be taken to the limit of what kind of career might be available?

3: How would you apply it in this situation? How

their understanding of this content standard. It sounds a little bit like we're going in that direction already.

3: Yeah, it's kind of what we were just . . .

Re: What would skilled mathematicians need with this standard?}

{Edward Goldstein: So, I'm struggling between the conversation we had earlier about wanting to look at multiple standards, you know, so they, so all students get the standard in class in a very individualized basis. The tree, you know. But, how, how, I was thinking a gifted student should be able to take multiple standards that are similar and then use them. So, I just want to make sure that I'm on the same thing, because I know we are looking NBT.A.1, but really. . .

Re: Yes.

Edward Goldstein: All of NBT encompasses place value. So, if we're looking at, at extending the thinking, do we want to look at it more as using the domain of place value understanding? Or, are we truly saying this very, very, very specific standard, how can we extend it? Then we're going to look at the very next standard, which is very similar to it, and

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Math coordinator pointed out that looking at this one particular standard so closely is what classroom teachers do and every student will get it that way, but a gifted student should be able to take multiple standards that are similar and use them. So instead of looking at NBT.A.1, perhaps we should be unpacking all of NBT which is all about place value and extending the thinking in the domain of place value understanding.

then how can we extend it? Or are we looking at multiple and how can we, what can we extend that encompasses multiple standards?}

{Re: Well I think you hit exactly what, you hit the nail exactly because that's what we struggle with, you know. We have to, we have to be accountable to the standards just like every other teacher. And yet we don't teach, we don't plan it that way, We don't do it that way. We usually, and you guys help me out here if I'm saying this wrong, we usually come up with a topic, a theme, an idea, and then we go see what standards it's hitting. And make sure that we're hitting standards that, you know, and in almost every case we go two, three or more grade levels up to find the standards that this idea is hitting. But, but, I think we feel guilty sometimes doing that. I know I do, although I've done it for years and years. It feels like that's not what we're supposed to do. It feels like we're supposed to hit these standards too.

Researcher pointed out that this study is trying to see exactly how a gifted education teacher negotiates the CCSS and how that might be different than a general education teacher. The gifted education teachers struggle with this tension between doing what the district directs them to do along with all the other teachers, but in reality they don't actually negotiate the standards the same way. They find a topic or theme to study and then find the standards that studying that topic would involve which often means going two to three grade levels higher to find the standards.

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Lori McClellan: Well, in reality, our students would be able to master this . . .

Re: Our third grade students, but what about our

first grade or something.

Lori McClellan: Very quickly.

Re: I mean, you know, because we do that.

1: I think first grade could do it, but it would definitely be at a lower level. But they could, I mean, they could round. I think they could, but I don't think it's going to be at the same kind of level that a third grade student would do.

Re: Yeah.}

{Christine Trujillo: This is a wonderful article, Wiggins and McTighe . . .

Re: Yeah. Right. I got this right off the . . .

Christine Trujillo: They're the, they're the gurus. Wonderful. But what they're talking about aligns with what we're talking about, which is the whole difference in macro and micro. So when, if we were to sit down and go OK, we're going to take this standard now, and how are we going to teach that? That's that micro level, right? That's not extending anybody very far. And then, so you have to back off, and you almost have to, at least in my opinion, in your roles, you really have the opportunity, with your planning of your

Director of Curriculum and Instruction said that what the article was talking about was the macro and micro which is exactly where this discussion has led. Looking at one particular standard and negotiating how to teach it is at the micro level and it does not extend students very far. As gifted education teachers, in my opinion, you have to back off and plan your curriculum at the macro level.

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curriculum, to take that overarching, that macro look . . . it talks in here about if you unpack the standards too much, you're going to miss, it's the forest for the trees kind of a conversation which I thought was great, I love it, I'll be using this in every meeting I go to for the next three weeks (laughter). I'm going to get everyone in my office to order the whole book. Anyway, I'm not kidding, I've been talking about unpacking standards yesterday, I've been talking about it all day today. So, I'm driving them crazy. But, I think that's what I'm hearing you saying. You're creating topics, your themes, your units. And that's kind of a micro level. And then you're going and looking at the standards and, and bringing that, kind of a macro level and then bringing in those particular pieces.}

{Re: Is that backwards from what we should be doing?	Researcher asks if that is backwards from what they should be doing because it feels backwards from what we hear is the way to negotiate standards into our curriculum.	07.FRC.01
Christine Trujillo: Well, and, but . . .		
Re: It's backwards from what it feels like what we should be doing.		
Christine Trujillo: But let me, but not, I would say that . . . If you'd asked me that question two years ago, I would have said yes. That is	Director of Curriculum and Instruction said that two years ago she would have said, yes, we were doing it backwards and	06.IMP.01

backwards from what you should be doing. But I would say, I've listened to all this and I'm going to have to excuse myself, so I'm going to say everything I've been thinking for the last hour or whatever. Is that, what common core is doing for regular ed. is why they're now coming to you, which you didn't see them for two years. Because it's allowing them to think more on a macro level and then saying, how can we go about doing this? Well, how are you doing it over there? And what does that look like, and that looks interesting. And so you're hearing things like project-based learning, and you're hearing content inquiry learning and instruction, and those words are coming forward that are not new to you all, but are being refreshed in the regular ed. classroom. And, everybody has a different opinion about that. My personal, professional opinion is, I'm thrilled about that because kids are going to get to breathe and really look at stuff a little bit longer then teach it, test it, teach it, test it, teach it, test it. If we could get some of that to lighten up, that would be great, but I'm not in charge of everything (laughter). So, but that's what this talks about, and that's what you're

to stop doing it that way. However, "what common core is doing for regular ed. is why they're now coming to you…because it's allowing them to think more on a macro level." She believes general education teachers will look to gifted education teachers as guides in how to negotiate the CCSS because gifted ed. teachers have the experience to unpack standards at the macro level. We are hearing words such as project-based learning and content inquiry learning and instruction in the general education realm now when those words used to only be used in the gifted education realm. She is thrilled about this because she feels it takes general education away from the "teach it, test it, teach it, test it, teach it, test it" cycle. You will experience even more collaboration requests from general education teachers. The impact for gifted students is that their general education classrooms might become more gifted friendly resulting in "them feeling more comfortable in their own skin" while in their general education classrooms.

	talking about is that. And that's why I think you're going to have even more teachers coming to you and saying well how did you do that and what does that look? I mean I think you're going to have even more of that collaboration. And I think our very gifted students are going to become, I don't want to say the experts, that's not the right word, but more comfortable in their own skin in their regular classrooms, should we put it that way? Because they will have, they know when you ask a question about what color is Saturday, like oh I've been to, I've know what this is, you know. And so suddenly that's happening not just in one place in their world, it's happening in maybe, you know, and I know we have a long ways to go, but maybe more than one place in their world. So, so those are my thoughts.		
{3:	And I feel I have a different responsibility from the classroom teachers too, as far as feeling guilty about doing it our way versus their way. And I'm, I'm glad my, my life's path took me where it took me, and this is where my focus is, you know. My focus, I feel like, is keeping that fire burning in these kids. Is	Participant #3 says she doesn't exactly feel guilty about unpacking the standards backwards because she feels gifted education teachers have a different responsibility ,which is to keep these gifted learners excited about learning.	05.RELA.01

keeping them excited about learning and excited about the wonder of the world and all those kinds of things, while I'm supporting what's happening in the classroom and while I'm making sure they move forward. But I don't feel like I'm so tied to, you know, check, check, check, check, check. It's okay, they've got what those checks there already. Now what can I help them do with it, so they can stay excited about learning this way.

1: And I agree . . . oh I'm sorry.}

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{2: Well, even when we started with the, like when your talking about micro and macro. Even when we started with the micro, and we started with this one, we were then talking about these units (laughter) that we could do, that we would do, that you've (indicating the researcher) that . . .

Participant #2 feels that even if you start at the micro level you eventually can get to the macro level with the entire unit and add the other standards that happen to also be covered with the "awesome unit," and that goes for any teacher, general education or gifted education.

1: We already throw it, that's right. . .

Re: We can't help ourselves (laughter).

1: Yeah! We can't help ourselves.

2: So I think even when a teacher, gifted or not, starts with the micro and says, okay, what could we do with this? What awesome unit could we or what project could we do, you know, whether it's in a week or whether it's in

a month that we could do with this. And, okay, and it's also going to cover now this, this. If there was also, we're pulling out all of the standards, look we're covering this, we're covering this. We'll also be . . . so I don't know. I think even when you start here, and you fill it out, and you collaborate, and you talk about it, and you brainstorm together. Then, all of a sudden it's here!

Re: It works.

1: It's a huge . . .}

{Christine Trujillo: And I believe that we have a responsibility also with the resources we provide to be able to do that. And I bring that up because we just had a conversation this week in the new middle school language arts adoption that's coming out and that's what a teacher in the class . . . in the meeting said is that I'm running around doing this. And this, one of the programs that she piloted that she was really in favor of, it was there for her in different mediums. It was a video clip of, of, of, a scholar speaking about something, it was this piece, it was informational text, it was, you know, she said it was all right there. And she said, "And I know that's not everything.

Director of Curriculum and Instruction also pointed out that resources that the district provides needs to allow teachers to negotiate the CCSS that way. She gives the example of the language arts adoption for the middle school that appears, according to middle school language arts teachers, to allow them to do this. This is a huge improvement from four years ago. She also again stated that the gifted education teachers have many years of experience negotiating the standards this way. The gifted education coordinator reiterated that the gifted education teachers have been writing their curriculum this way for years.

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That was all right there, and I can still bring in other things." Just to hear a teacher say that today, where we were three or four years ago is really exciting. So, so, and it does talk in that article, I thought it was a very good phrase in there about, and you guys already mentioned it, your kids being able to do things in whatever situation comes there way. It doesn't have to be the, it may start out as the messy mathematical way, but then they're able to apply it in that real world situation that comes their way. Kind of what you were talking about, if we, oh I remember we did it this way, now can I use that over here. Same type of, what it talks about in that article. So, you already know that great Wiggins and McTighe stuff that's in there. So . . .

Lori McClellan: And that's how we've been planning our curriculum for years with the understanding by design and with the essential questions and enduring understandings.

Christine Trujillo: That's right.}

{Lori McClellan: And I know we've had more of a focus with the Arizona College and Career Ready Standards.} {And I thought it was

Gifted education coordinator feels we have more of a focus with AZCCRS.

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	interesting as I was looking through these resources, with the, using common core standards for math in ELA, and I know we talked about that in one of our prior PACE meetings, but right in here it talks about a recommendation for Project M2 and M3 . . .	Gifted education coordinator points out that during our gifted education meetings we found a math resource (M2 and M3) that seemed to allow us to negotiate the CCSS at the macro level, and we didn't even read McTighe and Wiggins' book where they recommend this very resource because "it was a great fit for gifted kids." Participant #1 agrees.	06.IMP.01
Re:	Ah!		
Lori McClellan:	And how we came to that conclusion, without reading their book, that this was a great fit for gifted kids.		
1:	Brilliant!		
Lori McClellan:	And so anyway, so it just, you know, affirms that we're on the right . . .}		
{Re:	I forgot to give you guys the checklist because as we were unpacking, I wanted to kind of remind you of some of the strategies that we know, specific needs that gifted learners have, and I left some blanks if we want to add.	Researcher gives group a checklist of gifted needs and strategies to use with gifted students as we unpack this standard.	01.DIRC.01
1:	Well, I was going to say too.		
Re:	I know you have to go (indicating Christine Trujillo).}		
{Christine Trujillo:	I just have one more thing to say, which is, I'm going to utilize this great brilliant group, all day I've been saying, and I apologize you don't have to put this on your paper (laughter). I need another word besides	Director of Curriculum and Instruction says she must leave but before she does she asks the group to brainstorm a new, more relevant term than unpacking, which doesn't include the richness needed.	08.BRNS.01

unpacking the standards. I know it says that in here, but I feel like that's a word that's been around for over ten years. As we think about next year and how deep we want people to go with standards. And to me, unpacking means we take it out and put it here and then we're done with it. And that's not what I want for standards. So, as you're going to sleep tonight, and some new word pops into your head, e-mail me (laughter)!

Re: We will (laughter).

Christine Trujillo: Thank you very much.

Edward Goldstein: She's been asking everyone.

Christine Trujillo: All day long (laughter), I've been like, we're going to come up with the greatest metaphor.

Edward Goldstein: Yeah we need a . . .

Re: Better word.

Lori McClellan: How about apply the standards?}

{1: So, I was going to make a comment to your (indicating researcher) comment about how we choose our stuff.

Re: Right.

1: We know that when we get together that when we are thinking of themes that we are jazzed about that topic. And we know that if

Participant #1 explains that the way we negotiate the standards by starting with the interesting topics or themes, knowing that the one chosen must cover many grade levels simultaneously (K-8) and keeping in mind that we should delve into many different disciplines through the

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Memo: It is interesting that participant #1 states that she does not feel guilty about the way gifted education specialists in her district negotiate the CCSS because

	we are excited about it, our kids are going to be excited about because we know our kids. So, and, and I was also thinking that when we are looking at these things, we know that we have them for six years let's say, ideally. And in that six years we know we need to take them from X to Y.		
Re:	Right.		
1:	And that we know where they need to go in an overall. So this overarching thing isn't just for a year, it's for five or six years at a time. And we know that, okay, we studied this theme. And when we check our themes we say, look we've done science this year and last year, let's do something that's not science. Let's do cultures, let's do . . . because we know that we need to make them a well-rounded child, and a well-rounded child comes from the themes that we approach. I've never, I think that the way we do that by saying, oh that topic is really good, is innate in us, that we know that a well-rounded child needs to have these experiences, and we, they need to know these things. And then when we go through, when we break into our groups and we say oh I'm going to take this, I'll take that . . . the best of	years, and then breaking it down so small groups can tackle pieces of it. Then all the gifted education specialist teachers add their own flavors, so we come up with a very rich unit of study for our students. Doing it the way we tried to do it just now was painful because it is not what we are good at. We are good at doing it this way and she does not feel guilty about that.	she was the one during her pre-interview that said gifted teachers use the standards to build curriculum around, not the other way around. I noted in a memo at that time that she was being subversive about this. She has now stated the opposite and this statement is the truth about the way these teachers negotiate the CCSS. She changed her mind after the Director of Curriculum and Instruction gave her approval of the way the gifted teachers negotiate the CCSS.

us, in whatever groups it is that we've broken into, comes out. And we say, oh we need to do this and this and this. And then when we come together, it's this huge flavorful thing that all of us that all of us with our, our skills have created. So it's not, you know, it's not like we sit and do this. This was painful for me, quite frankly . . .

Re: Yeah.

1: Because it's not what we're good at.

Re: Well, we haven't quite finished it. There's one more piece.

1: We're not good at taking one and going, but when you said, I thought, we'll I don't . . .

Re: I don't want to do it that way. It's hard to do it that way. But I think, think . . .

1: Well, I don't feel guilty (laughter).

Re: Yeah, go ahead.}

{Edward Goldstein: No, no, I want to say as well. With the, the way the new standards are written, or yes, the way the new common core standards are written is different from the way they used to be written. So, using this idea of domains to drive unit building as opposed to standards could be a shift as well. And so if the domain is numbers and operations using

Math coordinator states that the CCSS are written differently than the previous standards and perhaps the idea of domains driving units as opposed to standards could be a shift as well. So where we used to be unpacking the standards, now it would be unpacking the domain. Then when the unit is written and you look at each individual standard

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place value understanding and properties of operation for multi-digit arithmetic, all of those standards under that domain achieve, or try to achieve that. So, where we used to be unpacking the standards, now you may be at this gifted level, it would be unpacking the domain. You know, what do we want the children to do with this domain?

you might find that you are hitting them all under that domain.

1: Oh, I like that.

Edward Goldstein: And the domain is, numbers and operations of base ten. Okay, and I, and any plan that you come up, I, I would bet, as you look at each individual standard, it's being hit because we know what the kids need.

1: Right.}

{Re: I did a unit on other bases, and I used that, that because there's nothing in this, in the common core that talks about other bases. But we use other bases all the time, you know. We use base twelve in our calendar, we use base seven in our week, and base twelve in our clocks, and . . .

Researcher shared that she did a unit on bases other than base ten with her gifted math students and she used this very domain he mentioned as an example because the CCSS didn't have an individual standard that actually mentioned other bases. In the end, the all of the individual standards were implemented that fell under that domain.

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1: Two in computers.

Re: Yeah, and base two with computers, all that kind of stuff. But, my students that went

through that, they loved it so much! They were writing, they were writing their answers in another base and giving them to their teacher, and they were saying, the teacher said this was wrong. And they said, no it isn't, it's base seven. I'm answering the question in base seven (laughter). And of course they were right. And, and they learned all of this about base ten. They had to have, they understood their own, the, the most common base that we use much better by going out into other bases.

Edward Goldstein: Bases, sure.

Re: So, in that case, yeah you're right, it was a domain thing. It was looking at the domain, going at the domain.

Edward Goldstein: Right.}

{Lori McClellan: And I think the next, the next level to that, so unpacking the domain and then applying it to other disciplines as well because so what.

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Gifted education coordinator stated that after unpacking the domain, perhaps applying it to other disciplines is the next step because gifted students are especially good at connecting the dots from one area to another, thinking more globally.

Re: Yeah, the so what.

Lori McClellan: Like what is the pattern, how does this, you know, the so what, connecting the dots then. How does this apply to other areas because that's what our kids are so good at,

	with connecting all those dots. And so they're, you know, they're thinking more globally. And that's what we do when we have all of our different projects and themes, and you know, that we're working on, so . . .}		
{Re:	Well to unpack the last piece, because it's getting late, is the cornerstone tasks. And I'm going to risk saying this, but I felt this is where, when I was reading the common core for the first time and I ran across this, it was like oh my gosh! This is gifted! And this is what kind of set me off to doing this dissertation topic. What tasks would allow learners to apply their newly gained knowledge and skills associated with the content standard to authentic, relevant, and realistic contexts and integrate the twenty-first century skills into the task as well? So looking at this one . . .}	Researcher gives the group directions to unpack the standard for cornerstone tasks or tasks that would allow the learner to apply knowledge and skills in authentic, relevant, and realistic contexts and integrate the 21st century skills.	01.DIRC.01
{3:	That's kind of where we went immediately too.	Participants #3, #2, and #1 as well as the gifted education coordinator and the math coordinator all agree that they went to that piece of unpacking immediately.	05.RELA.01
2:	Immediately, didn't we.		
3:	Grocery store and, yeah, supplies . . .		
2:	Yeah.		
1:	Let's put it into a real life situation for them already.}		

{3: The maze thing. To have to ask . . .

Lori McClellan: But even, and I know I'm getting off track, but I think for the grocery store though. I mean, people don't usually carry so much cash anymore. So, they're using their debit card, credit card, or whatever . . .

3: They have to know what their balance is (laughter).

Lori McClellan: So applying it to that next level though about, you know, kind of that whole money management piece of it, and applying it across, to economics and, you know, making that connection that way.

1: Oh how about I have this many gallons in my car and if I drive this many miles am I going to make it to the gas station without running out.

Re: Or the electrical or the amps on your electric car (laughter).

1: Or in real estate.

Edward Goldstein: And to go totally off topic, N___ (his son who is in the gifted program) asked me, why don't they just make it twenty dollars instead of nineteen, ninety-nine (laughter). So we, we got into this, he said, he said it's a one penny difference . . .

1: It's an obstacle.

All present brainstormed about twelve or thirteen different ideas for cornerstone tasks that would allow the learner to apply knowledge and skills in authentic, relevant, and realistic contexts and integrate the 21st century skills.

05.RELA.01

Edward Goldstein: Exactly. So we went into this entire tangent about psychology . . .

1: Yes.

Edward Goldstein: And how that plays a part in determining how to value items.

Re: And that would be a good math connection here.

Edward Goldstein: Yeah a good math connection.

1: And real estate would be great for that, wouldn't it?

Edward Goldstein: Oh it would be.

1: Oh yeah.

Edward Goldstein: Well, or even the cost of gas. It's to the tenths with a fraction. You've got decimal points and . . .

Re: And a fraction.

Edward Goldstein: And fractions and place value and, yeah so.

Lori McClellan: And, and looking at money then. The value, the usefulness of the penny now. And different, and stuff like that, it's a good stepping solution.

1: Or, you could say that I'm going to Australia in the summer (laughter). And the conversion rate is (laughter). And how much money am I going to get to go, and not only that the bank's

going to charge me five dollars every time I convert something and they're going to charge me three percent down there to . . .

Re: Yeah.

1: on my charge card, so what do I do?

Re: Or how about even just shopping and buying things from China and, you know, Australia or where ever. I mean that's available to our kids right now, and yet . . .

1: Sure it is.

Edward Goldstein: Yes.

Re: That whole thing is, it's, you get on their websites and it's crazy. You can't figure out what is a pound, what does that mean? I don't know how much money I'm spending.

1: I'm going to Mexico for the weekend to go see my Nana. How much money do I need to take in order to buy with pesos down there.

Edward Goldstein: Yeah.

1: So there's real life conversion.

Edward Goldstein: Well, or going into real life. A stock broker. I want to buy and sell currency at different rates and at the end of the week I need to make money, and here are the three currencies, and you know if I buy high and then, then what do you convert to . . .

3: If you buy high and sell low, you're in big trouble (laughter).

Edward Goldstein: That's what I was going to say, if you buy high and sell low you're in trouble (laughter).

3: I want to deal with you, young man (laughter)!

Edward Goldstein: You know, you go from the dollar to the euro to the yen back to the dollar, how they made money, how they lost money. It's a, I mean, it's a, people do that on a minute to minute basis.

1: And some of our kids you could talk to them about financial planning because they're probably there.

Edward Goldstein: Absolutely.

Lori McClellan: And I'd be happy to come in and talk to them.

1: Oh good!

Re: For sure, that's her specialty.

2: Come over and talk to me (laughter)!

Re: Being a stockbroker, so (laughter).

3: I know, I was like, will you just (laugher) . . .

Lori McClellan: We could talk about limit orders.}

{Re: So my question then, what does all of this have to do, what does this mean to our

Researcher directed participants to explain what this unpacking exercise means to gifted education practices.

01.DIRC.01

practice in gifted ed.?}

1: Well it means that you can get rid of the guilt that you had (laughter).

Edward Goldstein: See, you can get rid of the guilt!

3: Keep on keeping on.

1: How do we embrace this? And it not only allows us, our minds run wild anyway and sometimes we have to rein, our minds, our minds in on what we'd like to do. But it means we no longer have to do that. And not only that, we could sit in on the PLC perhaps, and be able to give them ideas about how to extend their stuff. Now whether that's feasible for us to sit on, to sit in on PLC that's another question altogether. But, it makes us and it makes our kids the experts, the resident experts in how to extend it. So, kids are, and our kids already trying to extend it, and they do anyway.

3: Well, I don't know.

1: So maybe in the classroom they can. Now do we want to put them in that position is another discussion, but it frees us.

Re: Well, they push the envelope. They push the teachers.

Math coordinator and participant #1 both said not to feel guilty about the way we negotiate the standards, and participant #3 said keep doing what we are doing. Participant #1 said we should participate in PLC to show general education teachers how to extend their curriculum. It also makes our gifted students resident experts because they are used to this way of learning due to their gifted education classes, but do we want to put them in that position In the classroom is another discussion.

06.IMP.01

Group Discussion #2.4, 2/13/14

Raw Data	Stage #1 Summary Chunks	Stage #2 Codes
1: Well, of course they do.		
Re: And we've known that. We've known that for years, but. And we want them to continue doing that.}		
{Edward Goldstein: But, you know, so if you went to the ADE website and look at some of the sample PARCC questions they just released in the last day or two, one sample, I think from sixth or seventh grade, if a tree grows at, at, the first twenty years a tree was at, you know, 161 feet. The next sixteen years it grew to 361 feet. Find the rate at which the tree grew, and how much taller would it be in fifteen more years. Multiple answers to that. There's not one regular ed. teacher who would have thought that that's what my students are going to be expected to do. I mean, it is a very, very, from their point of view, a very deep, deep question to ask. And so, now that that's the standard, how do we go even deeper for, so I think . . .	Math coordinator shares a sample question from the PARCC and explains that the expectations are not high enough from the general education teachers. He feels there will be an implication for gifted education practices because the expectation gap has narrowed between what should be expected from students by the general education teachers and the gifted education teachers. Further, general education teachers will seek out gifted education teachers to learn how to teach more critical thinking skills, and perseverance, and abstract reasoning because that is what PARCC requires, for students to really think not just follow a straight forward algorithm.	06.IMP.01
Re: That's an implication for our practice right there.		
Edward Goldstein: The implication for your practice		

is that, really, we've, we've, we're kind of narrowing the gap between classroom teachers and gifted teachers. And you've become a very, very high commodity. Or you will become a very high commodity . . .

Lori McClellan: As soon as the PARCC scores start coming out (laughter).

Re: Seriously.

Edward Goldstein: Everywhere. Well, yeah, and, as soon as the teachers see, see those tests you all of a sudden will, will carry great weight because they will come to you asking how, how do we, it's really how do we apply it?

Re: How do we teach . . .

3: Develop problems, and yeah, yeah.

Edward Goldstein: Talking about the application? How do we teach kids to persevere? How do we teach kids how to reason abstractly? It's always been a very, very straight forward algorithm. And it's no longer an algorithm, it's really teaching students to think . . .

Re: Critical thinking, creative thinking.

Edward Goldstein: It is, it's critical thinking.}

{3: And that's what this has done for me, is make me feel good . . .	Participant #3 feels that this study, and particularly unpacking a math content standard	06.IMP.01

1:	Yeah.	has helped her understand the implications of CCSS and PARCC for the classroom teacher. Everything has been ramped up and this makes her feel good about the place where her gifted students spend most of their time, in the general education classroom. However, she does not fear that there will no longer be a need for her services because of the need for gifted students to be with intellectual peers and also because of their social and emotional needs.	
3:	Because I know that for all those hours that I'm not with these kids, they, you know, everybody is going to be pushing them. Their classroom teachers are going to be thinking more along those lines, you know. So I feel like . . . I still think there's still a place for gifted ed. because of the social/emotional needs.		
Re:	Right.		
Edward Goldstein: Absolutely, absolutely.			
3:	They need to be in like groups.		
Re:	Rub shoulders with the same peers and all that.		
3:	Yeah.}		
{Edward Goldstein: It's not about teaching to the middle, you know my worry is we'll just, the middle is shifting, but it's still not teaching to the middle. We still need to extend and we still need to remediate. It's not all kids fit here now, and, it's just where that middle is, is now, is now moving.		Math coordinator sees the middle shifting up and we have to shift our expectations up as well, but there is still a need to extend and remediate at either end since kids don't all fit in the middle.	06.IMP.01
3:	Yeah.}	Participant #1 agrees with math coordinator and also sees that when gifted peers are together they will still go deeper than when in general education classroom.	06.IMP.01
{1:	Well and the thing, you know, and they may...they okay, sentence. Raising the, the bar for classroom teachers, and giving		

them the freedom to be able to access that, like you say, doesn't get rid, even though they're now approaching what we do, they're not doing what we do because we can still go a heck of a lot deeper because when we get those kids by themselves. And classroom teachers don't have the time for them to go deeper.}

Re: And it's even more than that. The kids don't want to look like know-it-alls.

1: Exactly.

Re: They sit there in the class and they know all these answers. They know exactly what the teacher's teaching before she ever teaches it.

3: Some of them don't mind looking like know-it-alls (laughter).

Re: But they don't want to appear that way.

1: Right.

Re: Some of them do, yeah, but a great majority of them would rather just kind of, you know, take it easy. That's not good for these kids though.

2: No it isn't.

3: And the anxiety that builds inside of them when they're sitting there going, I know this, I

Researcher adds that gifted students may be able to go deeper in the general education classroom but for social reasons they may not. Participants #1, #2, and #3 agree.

05.RELA.01

know this, I know this, but I'm a sweet girl and a sweet boy so I'm not going to say. I think about your N_____ (son of math coordinator) especially. He would no sooner offend somebody by saying . . .

Re: Right.

Edward Goldstein: Oh. Of course.

3: I learned this three years ago (laughter), could you please teach me something today (laughter)? But, but, so the anxiety that it's creating in him to remain that sweet young man, that respectful young man, and yet, no my needs aren't being met. Somebody needs to notice me, please. So that, that internal struggle.

Re: So there's some good and, and, and some challenging both in the implications, but . . .}

{Edward Goldstein: I would be curious to know if we had gen. ed. teachers here, how they would impact the same standard and what their expectations of students would be...

3: I bet it would look very different.

Edward Goldstein: Compared to your expectations.

3: It'd be fun.

Edward Goldstein: Just to see from a frame point,

Math coordinator is curious about what general education teachers would have added if they had been present while gifted teachers unpacked the math content standard because how the gifted teachers unpacked it is closer to where the general education teachers should be taking their unpacking. However, they are still unpacking standards as they have historically,

05.RELA.01

from a frame point, you know from a point of view. You know, are they at the right level of expectation for?

"this is what the standard is asking students to do so this is how we are going to teach it."

Re: Well you saw us, just now, unpack this.

Edward Goldstein: Hmm, huh.

Re: I mean you saw where we went. I mean it was instant.

Edward Goldstein: Immediately, yeah.

Re: And you should sit in, I mean, you're the one. You should sit in and see . . .

Edward Goldstein: And we're still very much at, this is what the standard is asking the students to do, so this is how we're going to teach . . .

3: Well you see, we're unpacking it with our kids in mind. They're unpacking it with their kids in mind.

Re: I asked you to.

Edward Goldstein: Yeah, but, are they . . .

3: You know, so they're going to look at it differently.

Edward Goldstein: But they're not unpacking it with what the expectations for their kids will be.

Re: See, that's the problem.

Edward Goldstein: They're, they're unpacking it with, here's the history with how I've taught this.

3: Yeah.

Edward Goldstein: This is what I think kids, kids should . . .		
3: In my mind,		
Edward Goldstein: In my mind . . .		
3: This is what I think they're capable of		
Re: But there's a new horizon for them.		
Edward Goldstein: Exactly.}		
{3: But I think it depends on the, the help.	Participant #3 agrees with the math coordinator that most general education teachers aren't unpacking standards with proper expectations in mind, but feels that at some schools they are closer since they have higher populations of gifted students who have pushed the teachers already to go deeper due to their sheer numbers or the teachers have received more expert help unpacking CCSS. She feels the shock value for some will be more than others.	06.IMP.01
Edward Goldstein: Oh, yes. Of course, of course.		
3: I think, I think teachers at some schools where they've had fifteen gifted kids in their room, their, their perspective is going to be a lot different.		
Edward Goldstein: Sure, sure it'll be a lot different. But now every kid is going to be expected to, the bar's been raised for all kids.		
1: Some of them may just . . .		
3: The shock value is bigger for some of them than others.		
1: I was just going to say some of them may just be very, very shocked about where it needs to go.}		
{Edward Goldstein: I just wanted to say for the record, this was a blast. Thank you for having me.	Researcher gives the participants instructions about making journal entries and turning in their journals at the halfway point. They	01.DISC.01
1: Oh! Yeah!		

3: Bye!

Edward Goldstein: Bye guys.

{Lori McClellan: See you at the ranch tomorrow.

Edward Goldstein: See you at the ranch.

Lori Mcclellan: Are you going to Laird tomorrow?

Edward Goldstein: Probably.

Lori McClellan: For the leadership meeting?

Re: I'll take all that out of the transcript (laughter).

2: I wouldn't worry about that.

3: We're going to the ranch!

1: We're all going to the ranch (laughter).

Lori McClellan: We're going to the ranch.

Re: Ok. We could actually stop the recording. There's really only one more thing on the agenda that I wanted to make sure that we addressed. And that is, I'm going to need to collect your journals next week.

1: Okay.

Re: So I want you to make an entry about this meeting today.

2: Are you collecting them?

Re: Well, I'm going to give them back to you. I'm collecting them at about the half way maybe the three-quarter way? And I'm going to

discuss which faculty meeting they could turn their journals in because schedule of meetings had changed. They also discuss when their last group discussion session could be, but decide to handle that via e-mail.

round up (laughter).

3: And there's some implications for the expectations (laughter) . . .

1: So is it four sevenths? Are we doing four sevenths of next week or three sevenths of next week?

Re: Right. You got it. And then, so you should have at least three entries already, unless you also entered for the personal, the pre-interview. Then you'd have at least four. You can also enter anytime. Anytime you want to enter something in your journal feel free.

3: Okay.

Re: And then after, and so after this one you should have four or five if you, if you did some entry, did an entry after your pre, pre-interview. And, I don't know, you could probably just send them to me. We're not meeting as a group.

1: We're not meeting on the twenty-first?

Re: Oh! Maybe the twenty-first would be a good time to give them to me.

1: Yeah, are we meeting the twenty-first?

Lori McClellan: Yes.

1: I've got it on my calendar.

Re: Yeah, it was cancelled, but then it's not

cancelled?

Lori McClellan: That's the, is that the March meeting that was cancelled?

1: Was the March . . .

Lori McClellan: It was the March meeting that was cancelled.

1: Yeah. It was the March. The twenty-first one where we were having birthday party was cancelled.

Re: Okay, so the February meeting is still on.

Lori McClellan: February is still on.

Re: So if you guys could bring me your journals, that would be great. And I'll, I'll, I'm just going to be looking over them and taking some preliminary notes so I can start my analysis, and then I'll give them back to you because you're going to need them to do the last parts. And then we have one more of these meetings, and I want to set a time when that would be good for everyone.

3: Is it with what group?

2: Is that with the . . .

Re: It won't be with the administrators.

2: Okay.

3: I'm now tutoring until 4:30 every day, and I had to cancel today.

Re: Well, how about if I e-mail you some possible days and times later.}

Group Discussion #3.1, 4/11/14

Raw Data	Stage #1 Summary Chunks	Stage #2 Codes
{Re: Agenda for third group discussion session, April 11, 2014. This study examines the similarities between the curricular needs of gifted students, according to the Arizona State Statutes and the dictates of the Common Core State Standards. Additionally, this study examines how gifted education specialist teachers negotiate the Common Core State Standards in Arizona as they translate and implement the Common Core State Standards, also known as the Arizona College and Career Ready Standards, for their gifted students' curriculum. The questions guiding this investigation are: • In what ways do the CCSS address the needs of gifted students? • What is the relationship between the CCSS and gifted education? • To what extent do the CCSS support exemplary gifted curriculum, best practices for gifted education, and instructional strategies and techniques used with gifted students? And I just want to quickly review the cycle	Researcher goes over the purpose of the study with them, again, and what is left with the cycle of group discussion session, journal entry, post interview, journal entry, turn in journal, and member checks. Researcher asks if they can revisit the ides of transfer goals and unpacking, are they the same thing to gifted education teachers?	01.DIRC.01

with you one more time. We will have this with you one more time. We will have this group discussion and you'll make your final entry in your personal journals, and then we will schedule your post interview and at the post interview I will collect your personal journals and that will be the end. Of course, there will a member check, I should say not quite the end, because there will be a member check on this discussion and on your post interview. Then that will be all the data. A couple of concepts from last time that I thought I wanted to see if we could further clarify. And again, I kept coming back to what is the difference between transfer goals and unpacking because we seem to be still using those interchangeably. And, I'm okay with that as long as we are all okay with that as a group of gifted specialists. Are transfer goals the same thing as unpacking, at least from a gifted point of view. And the unpacking part is, well, it could be . . .}

{3: I guess I don't know what transfer goals is. I'm not . . . I don't remember using that terminology in our discussion. So, I'm kind of

All three participants have a different idea about exactly what transfer goals are. Participant #1 changes her mind, but she begins with transfer goals being the information that the teacher should transfer

04.CCSS.1

lost about where it came from.

1: Well last time, we had a, there was a twofold understanding where I was saying that . . .

2: You were saying that transfer goals is when it transfers to the student and they're doing and they're, I think that's what you were saying.

1: No. I wasn't.

2: No?

1: I was saying that it's our, it's us. That we transfer the information from, from, from the understanding of it to the implementing of it. From the understanding of what we are supposed to be doing then to the implementation of it as we pass it down to the students. So we transfer that information.

Re: We're the agent that transfers.

1: We're the transferer and they are the transferee. So they get what we, when we have a standard we, for wont of a better word, we brainstorm with ourselves and decide how we're going to implement that particular standard and then that's the transferring part of it where we glean an understanding and pass it on to them. That's what I thought a transfer goal was. That that,

to the student. Later she agrees that transfer goals are concepts that students take, apply, use in new situations inside and outside of the classroom. Participant #2 believes that transfer goals are the goals that transfer from one grade to the next so the next grade level can build on them. She admits that this is probably because she was trained on CCSS as a general education teacher, not as a gifted education teacher. Participant #3 sees transfer goals more globally. She believes they are the concepts, ideas, skills that students take from their classroom education out into the everyday world and use or apply. However participant #3 also says she was thinking transfer goals are the knowledge, skills, content that transfers back and forth between general education and gifted education.

that that goal is the standard but implemented with the student.

2: Well where did that originate from . . .

1: I don't know?

2: Transfer goals?

3: To me, I'm thinking that it's, the transfer goal is once we teach them what we want them to do with it, how is that going to transfer into everyday . . .

1: For their everyday life?

3: Yeah.

2: Okay, you ready here (laughter)? I'm going to interpret that differently and say that transfer goals are more of when we look at a continuum of the, their goals throughout their education and how is, how is this transferring now to the next grade level.

3: That's what you see it as? Or is that, did, is that from your understanding . . .

2: Initially . . .

3: Or is that from your training? Because you've had much more recent educational training than I have as far as knowing terminology and . . .

2: Yeah. Initially that is how I was looking at it.

3: But do you know why?

2: Umm, well, because, I think because as a . . . I'm probably looking at it as a grade level teacher point of view, having that . . .

3: Uh, huh. Yeah, that's your more recent experience.

2: Yeah. And, as a grade level teacher you familiarize yourself with the grade level before and the grade level after and maybe even before that and after that. And what do they need to have before they are transferring on. So, what are their transfer goals? You know, what are their goals as they're moving on? So that was my, when I heard transfer goals, that was, I can't say that was my first, but that was one of my thoughts when I was thinking about what are, what does that mean.

3: That's really close to what my thought, my first thought was. What I said out loud, wasn't my first thought (laughter). My first thought was transfer between gifted education and regular education.

2: Oh! Interesting!

3: How do we see, how do we see the goals they have playing out in our room and in our

support, and how we help them use those standards in different ways and deepening their understanding.

Re: I have yet another take on it (laughter). Because in my mind, transfer goals are what we want the kids to take out of education all together and use in their life.

2: Like real world application.

3: Well that's the first thing I said, was, was how does this transfer to the real world . . .

Re: Yeah, the real world.

3: And everything else out there.

Re: Yeah. On page four of "From Common Core Standards to Curriculum: Five Big Ideas" by McTighe and Wiggins, and I have a copy of this for you guys again. This is the same article I've given you three times now.

2: Thanks. I actually brought my things in my backpack this time.

1: So did I.

2: She made a copy of it (laughter). Stop that.

Re: So on page four. If you look on page four is where transfer goals are mentioned. I think it's on page four.

1: Yeah.

3: Yeah, I see it.

2: Page four, second paragraph from the bottom, the first category "Transfer Goals."

Re: Yeah, identifies the effective uses of content, understanding, knowledge, and skill that we seek in the long run. That is, what we want students to be able to do when they confront new challenges both in and outside of school. So, I don't know, maybe everybody's right because it is, in a way, what you said (indicates participant #3) about transferring what we teach in gifted ed. to, you know, and the standards in the regular ed. and back and forth. And it is what I said too and what you also said. It is . . .

3: Outside, yeah, yeah.

Re: I think, it is. It could be what, all of us could be right about it. They reflect the ultimate goals. The reason we teach specific knowledge and skills.}

{3: And the kids—I have, have a book that I've been using with my third graders and it's, you know, real life uses of math. And it was like one of them was a Pizza Hut. And so they had to use math to figure out how many heads of lettuce they were going to have to buy that week, and they had to do all kinds of stuff with	Participant #3 gives an example of a math resource she is using that contains real life math application problems for students to solve and participant #1 says it is probably very good for students since questions on the PARCC are similar to that.	03.APR.01

	fractions. And there's another one where there's a veterinarian and this poor dog had awful, you know, so and they loved it. They love being able to see and act like a veterinarian and work like that. So, they're hungry for that transference, I guess we can say.		
Re:	Yeah, yeah! I think that's a good way to put it. They're hungry for that sort of connection.		
1:	Which is a good idea considering that's what the PARCC is going to be testing them on, isn't it?		
Re:	Yes!		
1:	That kind of stuff.}		
{Re:	Well that's why I was trying to make this, trying to figure out, trying to clear this up because when you unpack . . .	Researcher asks the group again, if there is a difference between transfer goals and unpacking a standard.	01.DIRC.01
1:	So unpacking a standard . . .		
Re:	When you're unpacking a standard . . .		
1:	And transferring is for them.		
Re:	I don't know. I don't have the answer.}		
{3:	Unpacking is what we do so we can prepare them to transfer . . .	Participant #3 says teachers unpack the standards to prepare them (the standards) to be able to be transferred by the students with deep enough understanding to what awaits them further in	04.CCSS01
1:	To transfer . . .		
3:	And have a deep enough understanding of		

	where it's going and when, in school . . .	school, as well as outside of school. Participant #1 agrees with that summary.	
1:	Right.		
3:	Outside of school. So we can prepare them to be able to do that.		
1:	Right.}		
{Re:	Well if you look at the third paragraph up from the bottom on page four, it says when working with the Common Core we recommend that educators unpack them into four broad categories: long term transfer goals, overarching understandings, overarching essential questions, and then a set of recurring cornerstone tasks. And we never really talked a lot about our cornerstone tasks last time, but I personally think that's right where gifted ed. fits neatly into this whole thing.	Researcher reads to participants what transfer goals are according to the article written by McTighe and Wiggins that was read and referred to during the last two group discussion sessions. Then researcher asks participants to comment on the difference in gifted education, if any, between aligning and teaching to the standards, again.	01.DIRC.01
1:	Hmmm.		
Re:	Anyway. The other clarification I was interested in is still, is there a difference in gifted education at least between teaching to the standards and aligning our curriculum to the standards if any.}		
{3:	I think that it almost, because of the fact that we don't have the pressure of the standards, it's, by nature, it's going to be different	Participant #3 feels that since gifted education teachers don't have the same pressure on them concerning the standards as the general education teachers have	05.RELA.01

	because our ultimate goal isn't the standard...	that for us aligning with and teaching to the standards will look different. Further, our goals aren't the standards in gifted education. Participant #1 agrees.	
1:	Right.		
3:	We're going to make sure it's there, in my mind, but I'm not held to the same level of scrutiny or whatever. Can't think of the right word, as a teacher is to make sure those standards are there.		
Re:	The checklist mentality.		
3:	I think what we're doing is going to make sure they're there, but I think that . . .		
1:	We're aware of it . . .		
3:	Our focus isn't the same.		
1:	Right, we're aware of it, but because we teach it at such a variety of levels, we're not, we don't go through the checklist of, oh I'm teaching 5th grade quant. so what's the 5th grade quant. stuff going to need?}		
{Re:	But did you get the feeling from the administrators last time that the way we do it is what they'd like to see classroom teachers do it more like?	Researcher asks participants if they think the administrators who were at the last group discussion session want classroom teachers to do more aligning to standards rather than teaching to standards, more like the gifted education teachers negotiate standards, on a macro level. All three participants agree with that assessment,	04.CCSS.01
1:	Yes, that's exactly what I got.		
2:	Uh huh.		
Re:	Which isn't teaching to the standards, it's definitely aligning the standards to the		

	curriculum, in my mind. You know, we make sure that there's, we're not way off here in, in…	however, participant #3 points out that it could be just those administrators who think that way, whereas other administrators in the district might not.	
3:	I think that the administrators who were with us in the room at that moment, but I think that there's some, quite frankly, some disagreement at that level of how that should go about and what that should look like because I know there are places where, if you, you know, where it's less acceptable to try to present this information in a different way.		
1:	I agree.		
Re:	Yeah, I really agree with that too, thinking about my two schools and the difference.		
3:	Yeah, yeah of how you can stray from, and what it's allowed to look like.}		
{2:	Well even the, I would agree that there's a big difference between teaching to the standards and aligning our curriculum to the standards. But even aligning curriculum to the standards can look so different. You know, we look at these, these units of study and we align the curriculum to, to what we're doing, but . . .	Participant #2 points out that there can be vast differences with what various people consider aligning curriculum to the standards. She gives an example of aligning a Harcourt textbook to the standards. She feels that maybe what gifted educators do is more authentic learning for students and less textbook type learning and that's why aligning our curriculum to the standards looks different from the general education teacher who	05.RELA.01
Re:	On a macro level.		
3:	Right.		
2:	But one polar opposite example of still		

aligning our curriculum to the standards would be looking at, you know, a textbook, pulling out an old Harcourt book and say, ok let's align this to the standards. That could, you could align that book to the standards.

also claims to be aligning her curriculum to the standards. Maybe that's what some administrators really want to see general education teachers do more of.

1: You could.

2: So even, I think, aligning our curriculum to the standards can look very different.

Re: Uh, hum.

3: Ours, yeah, will. Working backwards.

2: And then it becomes, then it becomes this, teaching to the standards. So, some teachers might think, Oh I'm, oh I do that, I align my curriculum. You know, but I think for us, aligning our curriculum to the standards looks very different.

1: Yeah. It does.

Re: And we do work like that.

1: And I think there are some administrators who would like to see more of that aligning.

Re: That we do, or?

1: Yes. That we do.

2: Well, and maybe not just saying, maybe it's going beyond saying they would like to see more of the aligning, maybe they'd like to see more authentic learning, maybe they'd like to

see . . .

1: Well, I think that's probably true.

2: More thinking outside of the textbook.

Maybe.

1: I think you're right.}

{3: I think there is a lot of fear too though. Fear of what the PARCC is going to look like, fear of, you know, so I think more than teaching to the standards it's going to be teaching to the PARCC, and, and . . .

2: Teaching to the test.

3: You know, but which . . .

Re: That's not going to be as easy of a task as it used to be.

3: But what I was going to say, yeah, which is teaching to thinking and which is, you know, so it's kind of a backwards way of doing that too. That's the thing they're piloting at Broadmor and they're like . . . they're asking those kids to explain their thinking and they're bogging down, and, you know, so in that way I think the PARCC is going to get a lot more into the discussion, you know, explain your thinking, why do feel that way . . .

Participant #3 points out that general education teachers fear what the PARCC looks like because they want to be able to teach to the PARCC, not necessarily teach to the standards. However, if they do try to teach to the test they will have to teach to thinking which is a very different way then they are used to.

07.FRC.01

Re:	Evidence, data, gathering information, making those connections, a lot of things that we just do so naturally with our kids and with our units when we're making them up. It will be interesting, next year, I think.} {So, I wanted to look again at the section titled "How Do We Align the Common Core State Standards to Gifted Education Programming Standards" from this article. I have copies of it for you. This is the article that Lori also had with her. So how do we align Common Core State Standards to gifted education programming standards? Let's see. They give us three recommendations and I just wanted to look at those a little bit more. One is to provide pathways to accelerate the Common Core State Standards for gifted learners. Number two, is to provide examples of differentiated task demands to address specific standards. And number three, create interdisciplinary product demands to elevate learning for gifted standards and to efficiently address multiple standards at once. So those are the three strategies that they, that the national, the NAGC has suggested for gifted educators to use. What do you guys think about those	Researcher gives directions to again consider the position paper from NAGC which outlines three recommendations to align CCSS to gifted education programming standards. She asks them again what they think of the three recommendations starting with the first one "provide pathways to accelerate the CCSS for gifted learners."	01.DIRC.01

three? Let's look at the first one, provide pathways to accelerate the Common Core State Standards what does that mean to us?}

{2: Providing the opportunity for them to move on.

3: Keep moving.

2: Not holding them back.

3: Feed that thirst.

1: Yes.

3: And keeping them from being disillusioned about school.

1: Yeah, and being able, like you say, to provide them with a release so that when they, when they come to us they're at their own levels but they're working intently in their own level while being in their own classroom too because we have differentiated places for them to go, if they will go, but you have to give them that pathway to do it. Not close them off. So if there's something that they want to do and it isn't necessarily something you had planned on you can still accommodate it.

3: And I read this more as we've got to help make sure those pathways are in the regular classroom. I didn't take that as a "What I should be doing in my room." I took that as,

02.ARTC.01

Participant #2 says move them on. Participant #3 says keep moving and feed that thirst to keep them from being disillusioned about school as well as be sure those pathways are provided for them both in the general education classrooms and the gifted education classrooms. Also making sure general education teachers and administrators know the importance of keeping those pathways to acceleration open which includes a lot of options including leveling, grade skipping, and others. Participant #1 says provide them with a release and not close them off to how ever far they want to go.

overall we need to make sure these kids have pathways to keep moving forward.

Re: Like grade skipping for some kids. Is that what you mean?

3: No I mean in the classrooms, making sure across, like leveling or whatever it is . . .

Re: Leveling, right.

3: Yeah, making sure, right, so leveling, grade skipping . . .

Re: Not necessarily, but I mean, as one of the things that we can do. Not block that.

3: Right, but . . .

Re: If that is the right thing for that particular child.

3: Well, or for those twelve particular children, you know, who are so ready, who are ready for so much more then they're getting. Making sure that the classroom teachers understand that they don't have to say, "No. Sorry hon. I know you're ready but you can't have that."

Re: We have to do this . . .

3: Empowering them, helping them, making sure . . .

Re: Lockstep.

3: Yeah, yeah. And getting the message to the regular ed. teachers and to the administration

	that it's important that these kids keep being fed.}		
{Re:	And the second one is provide examples of differentiated task demands to address specific standards.}	Researcher directs the participants to the second recommendation from the article, provide examples of differentiated task demands to address specific standards.	01.DIRC.01
{3:	See again, this is all collaboration sounding to me, you know, And that's one of the things . . . I haven't decided if I'm going to the kindergarten first grade math unwrapping session that the district is offering at Bustoz on a Saturday. And I'm going to do the unwrapping with the regular ed. teachers, and then I'm going to go off on my own and do my planning. But that's what I want to do is, you know, these are some things that you can have in your room, first, first quarter, that you can do with these little guys. But . . .	Participant #3 reveals that she is going to attend the unwrapping of K-1 math standards class as well as work over the summer with the kindergarten general education teachers at her school to specifically provide examples of differentiated task demands for specific standards in their classrooms for next year. Further, that she sees a need for differentiation even though CCSS should ramp up the demands made on students. It still won't be enough for our gifted students.	06.IMP.01 Memo: perhaps this is an example of catalytic validity since the study and the focus on the CCSS have directly prodded her to take further action, which is to seek out more knowledge on her own during a Saturday workshop, and participate in a group unwrapping and planning session on CCSS over the summer.
Re:	Helping them understand what . . .		
3:	I'll be busy doing that . . .		
Re:	That we still need to differentiate even though we've gone to standards that are ramped up for everybody, there's still a need for differentiate for gifted students. Is that what you were saying?		
3:	Yeah.		
Re:	Ok. Which is, these are both things that we've		

	been doing, forever. It hasn't changed. Adding complexity. Adding creativity. Using a more advanced curriculum base.}		
{1:	I've been wondering though if they are going to be asking us, more, to help them do what they do or they won't. I'm kind of, I'm not anxious, but I'm kind of questioning whether or not we're going to become more of the go-to-type people for more of this . . .	Participant #1 wonders if gifted education teachers will become the "go-to-type people" for differentiation because in reality gifted education teachers have few if any opportunities to work alongside general education teachers in the unwrapping and planning of their curriculum.	07.FRC.01
3:	Differentiation?		
1:	Yeah because you know they have, when they have their meetings, their grade level, whatever they are, when they get together to plan things, you know, we're not invited. I'm not invited. I'm not asked to come.		
Re:	I can't come to . . .		
1:	In reality, I was just going to say . . .		
Re:	The PLC's because I'm seeing kids.		
1:	Yeah they have them during the day so you can't even go to them, even if you wanted to.		
3:	Yeah. Most of the time not.		
1:	Right.}		
{Re:	And then finally, create interdisciplinary product demands to elevate learning for gifted students and to efficiently address multiple standards at once. And I think that's where	Researcher directs the group to consider the third recommendation, create interdisciplinary product demands to elevate learning for gifted students and to	01.DIRC.01

	we, are really, we really shine at that. We're really good at that.	efficiently address multiple standards at once.	
1:	Yeah. We are really good at that.		
Re:	We're good at all of this, but we're, and we do all of this, but the . . .}		
3:	I think this is the focus of what we do, as our program here in Tempe.	Participant #3 feels this is the main focus of gifted education specialists in our district because it is the one gifted education teachers have the most control over. We can't attend general education teachers' PLC meetings very easily, which is why she is taking the opportunity to work with them this summer and on that Saturday, and the general education teachers have the control for the most part about whether pathways to acceleration are provided or not. Participant #2 agrees and says that recommendation is how most of the gifted education teachers' planning time is used.	02.ARTC.01
Re:	Right.		
3:	Is focusing on giving them that opportunity, in one or more of the groups that we work with.		
2:	It seems like in planning that's usually where, almost, where we start and then it's, okay, how do we get them there? You know, what do we need to provide them with so that they can create. So they can make it to that step.		
3:	And I think it's the one we have the most, for lack of a better word, control over as well. You know, how much they're moving forward in the curriculum is really more about the classroom teacher that has them for five days a week . . .		
2:	Hmm, huh.		
3:	And for various amounts of time, and the, you know, the other piece . . . same thing. We don't have that much control over it and we can't force ourselves into their meetings . . .		

1: Right. Right.

3: And that kind of thing. I think they're open to it. I think, you know, I've got more people saying, you know coming to me this year then I have in the past. But, I think that's the other piece of it too, is, that's why I'm glad they're giving us the opportunity to do training this summer, so that, and the planning this summer, so that I'm not feeling like I'm trying to plan my job and someone else's as well.

2: Hmm, huh.

3: You know, I'm seeing it as this is my job, and it is part of my job during the school year, it's just . . .

Re: Well I think . . .

3: One of the many, many things we do.}

{Re: Yeah, I've heard PACE teachers say, in the not very distant past, like in the last few weeks even, that they want to see materials bought from the monies that we have available to us that they can just hand this over to the teacher and say, "Here do this, you know, book with your gifted verbal kids. This will work." Versus explaining how to truly differentiate. In other words, they've said, you know, "Teachers don't want philosophy. They want

Researcher feels assisting general education teachers in differentiating their curriculum is better than just doing it for them, but participant #2 disagrees somewhat because she does do it for them as a way to get her foot in the door and because sometimes if she doesn't, her gifted students won't get any differentiation. Better to work on the philosophy of the teacher along the way, and at the same time provide for her students' needs.

07.FRC.01

stuff." Well I can't do that (laughter). It's not a matter of giving them all the fish. You need to teach them how to fish.

3: Yeah, yeah. I think if there's a balance. You can give them a piece of fish and say this is how you ...

Re: And you know I do that too.

3: Right, right.

Re: But it's never meant for me to be the one that plans all their little centers that their gifted kids are going to get more out of and do all that differentiation for them. I've never seen myself as that, having that role. I can give them an example of one or two. Do one or two, but then the idea is for them to learn how to do that. To see what it is that it takes to, to ramp it up for those gifted kids so that whatever they're teaching, that piece gets added in.

3: I think both are, are important because there are some teachers who don't see the need. But, they'll, they'll eat the fish if you give it to them. So, and it's not them eating the fish, it's their kids. And if they're not going to get that challenge otherwise, I would like to place it in those kids' hands or their teachers' hands.

And maybe even get them to say, hey, you know, maybe! That's how I've gotten into a couple of doors, but you know, they were just like hey where'd you get that. Do you have more? This is how this goes. Let's sit down and talk.

Re: I, I think that's great. That's a wonderful door opener and I totally agree with you. That isn't what I heard that other, another person say but.

3: No, I know what you're saying. It shouldn't be the be all and end all. It should be a bridge building, hopefully.

Re: Okay.

1: Exactly.}

{Re: So, the, the main question that I still want to keep asking and still trying to get ideas from you is, how do we, as gifted education specialists, interpret and apply these three suggested strategies to marry gifted curriculum and instruction with the Arizona College and Career Ready Standards?

Researcher directs the group to consider how gifted education teachers interpret and apply the aforementioned three suggested recommendations to negotiate and connect gifted curriculum and instruction to the AZCCRS?

01.DIRC.01

1: You mean like the process that we go through?

Re: Yeah, definitely. How do we negotiate it?}

1: It's kind of interesting. There's a little intuitive

part that goes into it, I think. Where we're looking at stuff. Or maybe I should just speak for just myself. When I'm looking things, I, every once in awhile, I'll, I'll think, oh that would be really cool to write up as a unit because they'd really get a kick out of that because "A" it's, I don't know, it's a profession that they could go into or maybe it's something that they could do as a hobby, or just whatever. And you think, gosh that would be really cool. So then you sit down and you think well let me put this together. And then when put it together you have to think about the components that go into it. And the, you know, that there are standards that you need to have with it. Sometimes it's a matter of lets go look for the standards that support what I already want to do, and sometimes it's well I know that that's a standard that could be satisfied by this particular thing. So sometimes it's a standard that will drive it and sometimes it's a standard that is going to support it. And when you do that, you also have to remember your own kids. So a lot of what we're doing, or what I'm doing, are good for my kids that I know really well, but may	Participant #1 outlines the process for herself as having her reticular open to ideas for curriculum that would interest gifted students or would be at least part of a career choice that gifted students might choose. Then, you begin writing up the components of the unit and while writing, you think about what standards you would need to have with it or you actually go look for standards that will support it, and sometimes you already know of standards that could be satisfied with this unit. She says that sometimes standards drives it and sometimes standards are found to support it. All the while, keeping your own particular gifted population in mind due to differences in such things as background knowledge, socio-economic background, and what you have taught them in the past. Also keeping in mind that you want to provide authentic learning for them because that is one of their needs as is differentiation within the gifted classroom.	05.RELA.01

not be good for somebody else's kids. That they would have to tweak for their particular kids that their working with because although our kids are gifted they're all different and at and every school they're a little more different. Then some things need to be addressed more thoroughly at one school then at another school.

3: They may need more backstory.

1: Exactly. They may need more background.

3: Yeah, it was very much different at my two buildings in the past.

1: They may need more support. And when you look at the socio-economic level of these kids, that's going to drive a lot of what you do too.

2: Hmm, huh.

1: Because you have to be able to provide them with authentic learning and if they don't have that background you have to feed that first before you can move into anything else. So when I'm looking for this pathway, I'm looking at my kids as I know them because we have them every year. I know what they learned last year from me. And I don't know what they retained, but I know I would have taught it

and hopefully they retain most of it. So if I already know that I know that I don't have to address that again. But if I get a new kid in there that doesn't have it, he has to be brought up to speed. And I think that that's the differentiation, I mean they're tasks but they're also just backfill tasks. Maybe it's just a shorter understanding. You, you already understand that, you can go with this and take this further, but while I'm over here I've got to explain this to this kid who's brand new and doesn't know this stuff yet, but will. Ok, that in gifted is differentiated as well.

Re: Within gifted is. We differentiate within our own . . .

1: Right

Re: As well. Yes, and I think we do. I think we do that.

1: And we have to because our, our own kids don't come to us with a full boat, they come, you know.}

{Re: Well, like when we were looking at that math standard last time. It, we know, and if you look on page 153 of the, of the article from the NAGC, the position paper, it talks, in the first full paragraph, about the needs for our gifted

Researcher directs group to look at a portion of the NAGC position paper that explains the needs of gifted students for greater depth, complexity, critical thinking opportunities, creative production, and research based on

01.DIRC.01

	kids to have opportunities for greater depth, complexity, critical thinking opportunities, creative production, and research based on the individual needs of the gifted students. That standard didn't have that.}	Individual needs and compare all of that to the standard they unpacked in the last group discussion session. Was any of that in that standard?	
{3:	No.	Participant #3 and participant #2 both said the individual math content standard does not contain any of that.	04.CCSS.01
Re:	We just randomly chose a third grade standard. And I would, you know, it was all about place value. But I didn't see any of that staring at me.		
1:	Huh, uh.}		
{Re:	I think when you take a look at the standards, the Common Core State Standards in a bigger, you know, back out, and look at it in a bigger picture you see some of that. But in that one particular content standard, I couldn't say that it had any of those things. Yet I have to have those for my kids.	Researcher asks participants how greater depth, complexity, critical thinking opportunities, creative production, and research based on individual needs gets into the curriculum based on the CCSS?	01.DIRC.01
1:	Right.		
Re:	I have to make sure that what I present to them it is in greater depth, it is complex, it is, it does offer them critical thinking opportunities, it is a way for them to have creative production. So how do we get from this . . . well we go backwards, I know that.}		
{1:	But we do go backwards (laughter). Well we		

	have to go backwards because, because we don't do the checklist and because we know that we're going to have them for a long period of time. We know what the end product needs to be when they're done being in fifth grade.	Participant #1 states that gifted education teachers work backwards, meaning they don't look at the standards first and try to figure out how to teach it with all of those other components or teach standards as a menu or checklist, they first find a topic, theme, or unit that encompasses all of those needs, and then find standards that support it at whatever grade level they have to go. She adds that we also do a lot of filling in of information and content that students will need in order to understand the unit in depth.	03.APR.01
Re:	So, we get a unit. We think it's really great. The baseball unit, flying things, whatever. And then we go look and see . . . we know the unit very well because we wrote it. So because we know it so well, we know the little tiny skills that are going to be needed in order to accomplish it and we go look in the standards and we find those skills and we list them. Does that sum it up or am I off base?		
2:	Yeah that's . . .		
1:	No, no, I think you're on, you're quite right. And I would add to that too that when, when we're looking at any unit, or any unit we want to write up, or anything that we, we think that our kids could benefit from or with, we, we do a lot of that backwards filling in. We'll look at it. We'll say this is the end product. This is what I want them to know, now let me find a standard that supports that even if we have to go to different grade levels that's higher.}		

{Re:	I have to laugh. I remember years and years ago when McTighe and Wiggins first came out, and everyone was talking about it. You (indicating participant # 3) were, as a, as a way to look at the standards and the backwards design was what everyone was being taught how to do, and I remember you (indicating participant #3) saying, "Well, that's how we always do it" (laughter). It's the way we've always done it (laughter).	Researcher reminisces about a time when McTighe and Wiggins' *Curriculum by Design* first came out and the general education teachers were struggling to embrace it while participant #3 said, "How else would you design curriculum but by starting from the end that you want to achieve." That was how the gifted education teachers had been designing curriculum for years and it seemed odd to participant #3 that anyone would even have to be taught that.	07.FRC.01
1:	And now somebody put it in a book and made a lot of money out of it (laughter).		
Re:	Why is that? Why do we need in-service on this (laughter)?		
1:	Isn't that how it's done (laughter)?		
Re:	It's true (laughter).}		
{1:	But I think there's a lot of teachers who still look at the standards and the standard is this so I will do this in order to check that standard off.	Participant #1 comments on how even with *Curriculum by Design*, there are many teachers who still approach teaching as a list of standards to be checked off after teaching it.	04.CCSS.01
Re:	I agree.		
1:	And we don't do that.		
Re:	I know, and I think that's, I think that's one of the big differences and it's something I'm emphasizing.} {But, I lost my train of thought.	Researcher brings group back to the way they negotiate the CCSS.	01.DIRC.01
1:	Picking the standards first or picking them		

	last.		
Re:	Right.}		
{1:	And I think we, we as a unit of teachers don't, we're, we're looking at ways to make these kids well rounded as adults. And there's a certain number of things that we as adults know that they're going to need to know in order to be a functioning adult. We know that they're going to need these particular things. They need to know gas mileage and, you know, there's certain things they need to know that maybe every child needs to know. But sometimes our kids need more than other kids because they don't . . .}	Participant #1 explains that another piece of the puzzle is to know what students need in order to become well rounded adults.	04.CCSS.01
{Re:	Well earlier. Earlier.	Researcher and participant #3 remind participant #1 that gifted students may want or even need that information at an earlier age than their age peers, and that our goal in gifted education should be beyond survival skills. Participant #1 agrees that gifted students have a different readiness timeline.	04.CCSS.01
1:	Right. Ok.		
3:	Well, they're ready to grasp it earlier.		
1:	When they're ready for it. And they're going to need it, they need it just as everyone else does.		
Re:	But I think it's deeper than that thought. I think it's more than just the survival skills.		
1:	I know, but I'm not done (laughter). And so, and so that's the point I was going to make was, that our kids, yes they need the survival skills, we know that, but they need more than		

	that. They need, because they're brains are capable and ready and they . . .		
Re:	Ache!		
1:	They thrive on it and they need that right now at their age which may be four or five years younger than anybody else, but they have to have it. And because we give it to them and we understand their needs, then we, we, we find stuff, curriculum for them or write our own curriculum that will fulfill that need, at their age, at this point of time. But we know that we need to have standards.}		
{Re:	It's just, almost to me, like the standards are an addendum (laughter), and I don't know it that's . . .}	Researcher questions the exact place in the process for the CCSS.	01.DIRC.01
{1:	Sometimes I feel that way, yeah. It's like oh my gosh. I have this unit on the Hobbit, now I've got to go find a standard for it.		
2:	I feel like you (indicates participant #1) said it well when you said we look, we look at this, we have an idea, and we then try, we look at the standards and we say, okay what, which ones will I cover with awesome idea, this amazing unit that I have planned. Which ones do I already cover with what I already have here and which ones do I need to cover. And	Participant #2 explains that gifted education teachers look at a unit or idea, then look at the standards to see which ones will be covered by this awesome unit and sometimes even what can I do to cover these standards too that seem to go well with the unit. Gifted education teachers start with the end and build backwards. Participant #1 agrees and adds that we evaluate past units to enhance them too.	05.RELA.01

maybe I need to incorporate some other things that may go along with this that might also cover those standards. So, I think we start with the, start with the end and then we look back at the standards and say, ok so . . .

1: And along the line we tweak what we've got. Oh gee I could have done this, this, and this. Hummm. Next time I'm going to do that. Oh, and here's a standard that I could use to cover with that. You know, I'm, I, I, I am constantly looking at that and then you read the standards. You'll be looking at something else and say Oh here's a standard I could use with this unit. Write something down, attach it to that unit . . .

Re: What I . . .

1: Because it's something you can cover.}

{Re: What I liked, what I am seeing, and what I like about the Arizona College and Career Ready Standards versus the older standards that we used to use is that it is easier to take that, it seems like it anyway, like I just don't even think about standards. I just start with awesome unit. And I look at how it is going to be interesting to gifted kids because I know that certain things are interesting to them

Researcher directs the participants to compare previous Arizona standards to the AZCCRS, and she iterates that she personally likes the AZCCRS better because she finds it easier to embed the standards into her awesome unit than with the previous Arizona standards.

01.DIRC.01

Group Discussion #3.2, 4/11/14

Raw Data		Stage #1 Summary Chunks	Stage #2 Codes
	and certain things are not. I know their interests are different from a regular kid. I look at how they are going to be able to connect to other units we've done, or other things we've studied, or other things that I know they're interested in. I look at all of that kind of stuff before I ever look at standards. And then, it's like an, it's like added in, you know, at the end. But, it's to me, the Common, the College and Career Ready Standards are easier to find things that go with, that are going to be covered in my awesome unit then it used to be. It used to be a real struggle. It seems like it went a lot faster once we started using the Common Core standards because...}		
{1:	They're more over reaching.	Participant #1 agrees that it is easier to negotiate the AZCCRS than the previous Arizona standards because the AZCCRS are not as tiny or detailed. Participant #2 agrees, especially because of the 8 math practice standards that are more overarching and thread throughout the grade levels and allows for differentiation easier as well as being able to use them in other content areas.	04.CCSS.01
Re:	Yeah I could find . . .		
1:	They're not as pin picky. . .		
Re:	I know that we used to have to go all the way to high school . . .		
1:	For some of them, right.		
Re:	So much of time. Now we don't seem to have to do that so much, so I don't know.		
2:	Well, especially in math because those eight		

	mathematical practices are the same throughout. So, and they're, I guess they're vague enough that you can . . .		
1:	There's manipulation within . . .		
Re:	There's more, there are, I don't know if vague is the right word, but they're . . .		
2:	Yeah, I don't think it was either, but it allows for differentiation . . .		
Re:	They blanket . . .		
2:	They're general enough.		
Re:	They blanket more than just math, like Edward said before . . .		
2:	Yeah.		
Re:	You could use those same things in, in language arts and science and . . .		
2:	Yeah.		
Re:	And so forth.}		
{3:	But I think that's why they were specific in, in the number one comment on page 151 about the discrete skills because that's the difference too. Because in math they also, and I was relieved to finally see those because I was like, okay, but what are my kids supposed to know, you know. Multiplication, when do they need to know multiplication, when do	Participant #3 liked the math content standards because they still pinpoint when discrete skills such as when multiplication tables are taught so she knows what math skills her gifted students have so she can go deeper or accelerate them or compress their curriculum.	04.CCSS.01

	they need, and so I was relieved to see the discrete skills . . .		
Re:	Content standards.		
3:	Actually, in math actually spelled out, you know, so that I could make sure that operations and everything else I was covering were appropriate for them from a grade level standpoint, and I was able to look ahead because I knew they were hungry for something new. So I was able to say, okay I know they have these discrete skills, I can feed them a little bit of this and let them feel like they are moving forward in math and . . .		
Re:	Oh, and they are.		
3:	Yeah, yeah, so in that little bit I'm able to do what they're saying when they're talking about compressing and saying okay you guys now have counting by ten, well guess what, you know, counting by five is just as easy and, and, you know, it's called multiplication (laughter).		
1:	Let's skip count.		
3:	Yeah, yeah.}		
Re:	Okay. The only, the task that I felt that we didn't quite do justice to last time was	Researcher directs the group to again discuss the cornerstone tasks as part of the process of unpacking a standard,	01.DIRC.01

unpacking the standard, the particular standard that we were looking at for cornerstone tasks. What tasks would allow learners to apply their newly gained knowledge and skills associated with the content standard to authentic, relevant, and realistic contexts and integrate the 21st century skills into the task as well. I made a brainstormed list.

3: Ideas for?

Re: I took all of the ideas that we came up with last time and put them in a list for us that we came up with.

1: Boy we're good. Look at all these.

Re: We are good. This is from the second group discussion session. And so, I thought we could look again at them. And maybe look at also our checklist. Remember the checklist that I gave us for, these are things that, the checklist that we know are the needs of specific gifted students. It is student driven, allows choice, utilizes higher order thinking skills like application, analysis, evaluation, creativity, utilizes authentic learning, utilizes the 21st century skills of creativity, innovation, critical

and she compiled a list of all the tasks the group brainstormed in the last group discussion session so participants could examine if these tasks allow learners to apply newly gained knowledge and skills to authentic, relevant, and realistic contexts as well as integrate the 21st century skills. Researcher also asks them to compare these tasks to the checklist of curricular needs of gifted students that they received last time.

	thinking, problem solving, communication, collaboration, technology skills, flexibility, adaptability, initiative, self-direction, social skills, cross-cultural skills, productivity, accountability, leadership, or responsibility, differentiates in content, process, product, assessment, or environment, utilizes critical thinking skills, utilizes creative thinking skills, utilizes problem solving skills, utilizes interdisciplinary study. And these are, these overlap quite a bit. But looking at that checklist and then looking at the brainstormed list that we came up. I mean, we weren't, we weren't brainstorming, but I found it easy to make a list out of the things that were mentioned. How many of these satisfy a good quantity of these needs that we know gifted students have and how many of these would also be good cornerstone tasks as far as unpacking the standard, and we're talking about place value was the one that we chose?}		
{1:	It looks like. I don't know. I'm looking at this, this list and it looks like every single thing on this list fits inside this. It's probably because	Participant #1 and participant #3 both feel that the list of possible cornerstone tasks would easily comply with both the curricular needs of	05.RELA.01

we're so good.

3: Well that's why I'm like, I don't understand the question because I'm sitting here going this is pretty good.

1: I know. I'm looking at all these thinking, wow how many of these could be written up for us to use. I mean, we could write up any of these into an InterAct (laughter). Guys we could do this.

Re: I mean, some of these we've actually, we have written up.

1: Exactly. But, I mean, we could. Some of these like political polls when rounding to sway voting opinions and the implications of it. We've never done anything like that, but we could.

Re: We could do an entire unit on . . .

1: Yes.

Re: The politics and statistics and . . .

1: You could, I mean I've. . .

Re: And, and getting to all of that place value . . .

1: Yeah.

Re: And rounding, the standard that we looked at, but a whole lot more.

1: Well, when you think about how this actually could be used, I mean, you could take several gifted students list and allow learners to apply newly gained knowledge and skills about rounding and place value to authentic, relevant, and realistic contexts as well as integrate the 21st century skills, as per definition of what a true cornerstone task.

	election, key elections, the economy of the time, you know, what swayed the voters to do what it did. You could do the percentile of people voting, you know. I mean, this could go heavy into statistics on something like that, and it could also be demographic and geographic when you think about something like that, that would be a heavy unit.}		
{Re:	So, one of the things we know gifted kids need is interdisciplinary studies.	Researcher points out that many of the cornerstone tasks are interdisciplinary studies which is one of the curricular needs of gifted students. Participant #1 agrees. And after the unit is written gifted education teachers visit many disciplines, not just math, to pull standards that would be covered in this rich interdisciplinary study. She asks if that is one of the keys as to how gifted education teachers negotiate the standards. Participants #1, #2, and #3 all agree and give specific examples of how each of them can even take the same unit and use it in their quantitative class or their spatial class or even their verbal class because it is interdisciplinary and covers multiple standards simultaneously across several disciplines.	05.RELA.01
1:	Right.		
Re:	Which is why we do our integrated group as well as our individual quantitative, verbal, and spatial focus groups. On, I just see a lot, I agree, I see a lot of these that are interdisciplinary studies. So you would be looking at standards, not just at in math, but then you, with your unit, then, which is what we do. We don't stop at just looking at the math standards.		
1:	Right.		
Re:	Then we go look at the social studies, we look at the science standards, we look at the language arts standards, we look at the technology standards. And we pull all of those standards . . .		

1: Even art standards.

Re: Yeah, all of those standards in . . .

1: Which is why our units end up with five and six pages of standards that we've been covering.

Re: Because they're interdisciplinary, so many of them.

1: Right.

Re: And maybe that's, you know, maybe that's one of the keys about how gifted teachers really do negotiate these standards that, you know. We don't feel like, ok now it's math time. We're doing math standards now.

1: Take out your math books . . .

Re: It's just not like that for us.

3: Well that's like, you're doing The Maze in your quant. group and I'm doing The Maze in my spatial group (laughter). I'm focusing on the spatial aspect of it and throwing in a bunch of math.

1: And I'm doing, and I'm doing mine in my spatial group but they have to measure things. So we have grid paper that we're . . .

3: Yeah, and they're making on . . .

1: That they're making their mazes on and they

know how big it is . . .

3: And keeping track of their withdrawals and freaking out because they don't have near enough money in order to do that walls (laughter) they're going to need.

1: And I could be taking a few of those out because I don't need a wall next to the outside of my box.

Re: Yeah.

1: So, you know, but the logistics that go, and the logic that goes into that, and the critical thinking that goes into just that is enormous.

3: It's a good example of, it how it covers so many different things that you could put it in any one of the focus groups, you know. They've got to write a sales pitch too, so there goes your verbal piece.

1: It is. And, you know, you could take . . .

Re: Or negotiate, you know, if you're, you could get a negotiation piece in there.

1: Or if you run out of money, you have to be able to beg (laughter) from somebody else in the class.

3: I gave them overtime work (laughter) that they could do at home and make extra money, and that's there time.

1: Oh, I love that. Excellent.

2: I run sales and stuff too on walls (laughter).

1: Do you? (laughter)

Re: Of sales! (laughter) and they'd have to figure out the, oh it's 25% off! (laughter)

1: I like that.

Re: That's great!

1: And then they'd have to figure, ok what's the equivalent of 25% and then . . .

Re: And that's also real world, you know,

1: It is real world.

Re: That's getting into, and it's very relevant.

1: And what was the original price?

2: Yeah, one student asked if there were coupons available.

1: Oh I love it. We have a groupon going here.

2: We have a groupon today boys and girls (laughter)!

3: At open house, one of my dads was like, ten bucks! Bud, I got these walls at home (laughter) for five bucks! And I was like, but his are inferior (laughter), inferior products (laughter).

1: That's pretty funny.

3: So we were going back and forth . . .

Re: It won't pass inspection.

3: Yeah, no. They're not allowed. We only deal with the V___'s construction company (laughter).

1: Sorry. No competition here.

3: That's right.

1: Moving on out.

3: But anyway, I just think that's a good example of what we do and . . .

Re: It is.

3: How it fits all over the place.}

{1: It does, and I think that once you, I remember once making the comment that, that the, after I left regular classroom from the school where I was in where everything was very lockstep that. I had, it actually took me almost a year to take my brain out of that thinking and put it back in creativity. And I'm a creative person, so I was really surprised that it left that quickly.}

Participant #1 laments on how difficult it was to be a general education teacher who was told what step to take next in a very structured school environment and that once she became a gifted education teacher it took her awhile to get out of that lockstep mentality and open her mind to being more creative again, but she did.

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{Re: That's what I was going to say earlier. I know people who have come into gifted education, learned how we do things, how we, you know, more than just negotiate the standards, but that is definitely a piece of it. Then return to the regular classroom, there have been several who have done that, and one of the

Researcher shares that she has seen many gifted education teachers who have decided to return to the general education classroom but say they will never be able to teach the same way they used to before their gifted education training, and they feel they will be better general education teachers now.

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comments they make often is, I'm never going to teach the same way I used to teach now that I've experienced this. And I've often thought that about myself. If I ever went back to the regular classroom, I would never teach the way I used to teach.

3: I'd kill myself because I'd feel like I had to do what we do for five subjects a day, every day, yeah. It would be really hard to . . .

Re: Yeah.

3: With knowledge comes responsibility . . .

Re: Right.

3: And whooo.}

{1: Well I remember the first year I taught, trying to buck it. You know, I was constantly at loggerheads with I'm not going to do that, and I'm not going to that because it just didn't seem like a good practice to do even though they kept saying, oh yeah this is the way you need to do it. I was miserable, absolutely miserable because I'm, I'm thinking, well, you know, I can do this, this, and this. And, yeah I can make a snowman out of this foam at Christmas time and be able to find standards that go to it and was actually challenged. Fine. You can do that, but you have to have

Participant #1 shares story of first year teaching in general education after homeschooling for many years, and the difficulty of the requirement to list the standard being addressed for each and every lesson on the board.

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	standards for it. And I thought, that's a piece of cake. And I remember doing that and being called for that. But it, but I was able to substantiate it, and it was like why can't I do that. So, then the next year it was very frustrating for me because I think that at that point in time it was like, I'm tired of bucking the system, and then, then it was fortunate that I was able to move into PACE where I didn't have to buck the system. Now I'm used to doing what I've been doing forever. And being able to just feel the freedom, but it did take me a little bit of time to, to say, well wait a minute, I don't have to do that anymore. I can be, I can do this other stuff like I used to be able to do and, and feel free to be able to do it and not have to have somebody going, well I'm sorry, you can't do that. You don't have a standard for it.}		
{Re:	Well you have to, you know, there are schools where even the PACE teachers have to list their standards on the board.	Researcher states that even gifted education teachers have to list what CCSS they are addressing on the board at some schools.	06.IMP.01
1:	I do just because, just in case someone comes in, but like for the, for the, the integrated I don't. I just put the whole lesson	Participant #3 says that is to help the students, not because of some administrators need to know your standard. Participant #2 says that is the part of the teacher	

plan and stick it up on the board, and then if someone wants to know what we're doing they can go read it because it does cover multiple standards.

Re: You mean the agenda? You put the whole agenda up on the . . .

1: I put our unit plan up on the wall.

Re: Oh, okay.

1: Yeah up on the wall . . .

Re: Oh up on the wall. I see.

1: Yeah up on the wall where my standards, because I have standards for the quant. and spatial and verbal. And so it goes, that thing just goes up on the wall page by page and it just sits up there. Because yes, because then they can look at it. They go up with the Eu's and Eq's, and then here's the four pages of the standards that we're going to cover this semester. And I recall having a, an evaluation where, where I was told that I needed to reiterate the standard that I was teaching that day, and I said, you have them in front of you. They're in that eighteen page document that's sitting there, all four pages. Well you can't possibly be covering all of those today. No, but I'm going to cover a good portion of them.

evaluation that bothers her because it doesn't fit gifted education to list an individual standard that is being taught. We teach multiple standards simultaneously at a more macro level. Participant #1 says that is why she puts the entire unit which lists possibly four pages of standards that will be covered by the end, up on the wall.

2: That's something that I don't like about the evaluation. In other words, you need to state the standard. Not only have it posted, but you need to state it.

1: And more than once.

3: Yeah. But it's not for the evaluator's benefit. It's for the kids.

Re: It's supposed to be for the kids, right.

1: But the kids have an agenda, so they already know.

3: Yeah. Yeah. Oh I'm not, I'm not questioning whether or not they've got it in front of them. And I, and I had to point that out with my evaluator last year . . .

1: So did I.

3: When he asked me a question about the objective. And I said well it's, it's right here on the, on the agenda . . .}

{1: The, the Eu's and the Eq's and then what we're going to be doing today and this is how we're going to be doing it. So, it was frustrating for me, but I continued to do the same thing, and I. Well, I won't even get into the evaluation. I don't think it's for us anyway. I mean, you know what I mean? It isn't specific for us.

The teacher evaluation process is also in transition along with the AZCCRS vs. the previous Arizona standards and the AIMS assessment vs. the PARCC assessment.

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Re: Well I think it's in a transition . . .

1: It could be a better . . .

Re: Just like they're in a transition right now between AIMS and PARCC and the old standards and the Common Core State Standards and our evaluation is no different. It's in there also. It's kind of an interesting time to be a teacher. You have one foot in the old school and one foot in the new school. And we don't know which way the wind blows depending on the administrator that's hanging around.

3: And I had the same evaluation when I was a counselor. They used the same form.

1: See, I don't, know how can that apply?

3: There were pieces that applied and I, you know, I didn't get evaluated on what a lot of my job was. I got evaluated on classroom lessons that I did as part of my job.}

{Re: We're just about finished. I wanted to just address the three questions that we started with one more time, and if there's any final comments that you guys would like to on that. In what ways do the Common Core State Standards or Arizona College and Career Ready Standards address the needs of our

Researcher directs the participants to consider the three questions driving the study one more time, starting with ways the CCSS or AZCCRS address the needs of our gifted students. For example the 8 math practice standards address the needs of gifted students, any others?

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	gifted students? Any comments you'd like to make on that one? I think the, I think the math practice standards address our, the needs of our gifted kids very well. Those eight practice standards? That's one place where I've seen it works . . .}		
3:	Yeah it does.		
Re:	For our kids. Any others? Any other comments that you guys can make about that?}		
{3:	I think that, I guess their, to me their needs aren't any different, that's going to sound funny, as far, as far as what the standards address as, as regular ed. kids. They're a good place to start, but we are the ones who, you know. It's a good starting point, I guess. And yeah, they need those things just like other kids need it, but they also need the other pieces as well.}	Participant #3 doesn't think the needs of gifted students and the needs of general education students are different as far as what the CCSS address because for gifted education they are a good place to start, but it is the gifted education teachers' responsibility to see that the other pieces (curricular needs) are addressed as well.	05.RELA.01
{1:	Sure. But you look in, in even the language arts and that kind of stuff, you know. They know, they know a good portion of them already. We don't need to re-do them.}	Participant #1 thinks that gifted education teachers need to know the CCSS so they don't repeat what general education teachers are doing. Participant #3 says gifted students still need the skills even if they can acquire them faster with fewer repetitions and even if they don't address their	05.RELA.01
{3:	Well, they need the skills, even though the skills don't address their needs, they need the skills. They need to apply them.		

Re:	They can get the skills faster . . .	unique curricular needs. Participant #1 reiterates that they often learn them in their classrooms and even on their own and we shouldn't repeat them but take them deeper with the concepts instead.	
3:	Yeah.		
Re:	With fewer repetition . . .		
3:	Yeah.		
Re:	And all that. But, yeah, they still need the skills.		
1:	And a lot of time, they learn them in the classroom so that we don't necessarily need to . . .		
Re:	And they teach themselves too.		
1:	Right. We don't, we don't need to keep continually going over them. They've already got it. There's no sense in repeating it. So we move on, and that's where the depth comes in.}		
{Re:	So what is the relationship between the Arizona College and Career Ready Standards and gifted education? We still need to differentiate?}	Researcher asks participants to consider the second question driving this study: what is the relationship between the AZCCRS and gifted education?	01.DIRC.01
{3:	Hum, huh. Yeah we need to make sure . . .	Participant #3 thinks the relationship is to support gifted students' education by differentiating the standards, such as in the expectations of the standards because it is all part of what their curricular needs are.	05.RELA.01
2:	We still need . . .		
3:	That we are supporting their education in that way, but there's a whole lot more to the picture.		
Re:	In that way, you mean in, in the standards way?		

3:	In, in the expectations of the standards. Yeah. Because I think it's, it's all a piece of what they need.}		
{1:	We can't just throw the standards out and say they don't apply to the gifted because they do. So we have to, we have the freedom to move within them, I think, a little bit more than, than maybe classroom teachers have the freedom to do it because we can go multiple grade levels where as they might not be able to. And, and we should. Not only that, it's best for the kids if we do because they need that. They need that higher level.}	Participant #1 says the standards apply to gifted education, but we have freedom to move within them using multiple grade levels' standards in order to meet the curricular needs of gifted students.	05.RELA.01
{3:	And we can be more product driven then concept driven.	Participant #3 feels the CCSS allow gifted education teachers to be more product driven then concept driven. Participant #1 agrees.	06.IMP.01
1:	Right. I love that. That's perfect.}		
{2:	Well, and the, those eight mathematical practices. They are, they allow us to go above that grade level standard because they are at every grade level. So it, they tie directly to our kids because we can go where ever we need, we'd still see those eight mathematical practices.	Participant #2 thinks the 8 math practice standards tie directly to our ability to differentiate for gifted students. Participant #1 agrees.	05.RELA.01
1:	Right.}		
{Re:	And finally, to what extent do you all think the Arizona College and Career Ready Standards	Researcher directs the participants to consider the third question	01.DIRC.01

	support exemplary gifted curriculum?	driving this study: to what extent do the AZCCRS support exemplary gifted curriculum?	
{1:	Well, I think it does because, because they're flexible. Their over all, their over all statement is broad enough to be flexible and allow for us to go into the depth that the kids need. And if that particular level doesn't work, we go to another one.}	Participant #1 thinks the AZCCRS support gifted curriculum because they are broad and flexible, allowing us to go into depth even if we have to go to above grade level standards.	06.IMP.01
{Re:	I think it specifically helps us present critical thinking skills. Critical thinking skills are embedded very well in the, in the Arizona College and Career Ready Standards.	Researcher thinks AZCCRS allow for presentation of critical thinking and problem solving. Participant #1 agrees.	06.IMP.01
1:	I agree.		
3:	But I think it actually gives . . .		
Re:	And problem solving}		
{3:	A lot of flexibility to the classroom teachers if they have the skills and the support to, to run with it like we do.	Participant #3 thinks AZCCRS give general education teachers more flexibility to implement them more like gifted education teachers implement standards if they have the support from administration and develop the skills. She also believes that the smaller class sizes of gifted education teachers sometimes makes it easier to implement standards the way we do.	05.RELA.01
Re:	And maybe they just need to be given permission to do it.		
1:	I was just thinking that!		
3:	That's what I'm saying. The skills and the support. The support from administration. The support from folks who can help them to run with it and feel okay. I think the other piece is, and it's not true in all buildings where some of us have twenty-five kids in a group.		

	But I think we also have, because we try to keep our class sizes smaller, we also have a little more, that that dictates what you're able to do. When you're working with ten kids instead of twenty-five or thirty kids, you can see things a little bit differently. And, and imagine doing things a little bit differently. So, I think the structure sometimes . . .}		
{2:	I don't know. I agree. I agree with that, but then there's also, you know, if you have twenty-five or thirty kids in a classroom doing a project, there's built in differentiation.	Participant #2 feels that it isn't the size of the groups so much as the fact that AZCCRS support projects that more easily and allow for needed differentiation in the classroom, any classroom. She gives an example of the wax museum project. Participant #1 agrees. Researcher reminds them that the Director of Curriculum and Instruction told us last time that we will hear words like inquiry based learning and project based learning more with the AZCCRS.	05.RELA.01
1:	There is.		
2:	You're going, you just, I don't even need to tell you where to go with it because you're going to go with it . . .		
1:	But that's true even with a classroom of ten.		
2:	But then I'm going to work with this group to continue . . .		
1:	In any one of ours they differentiate themselves. I mean, we don't have to build it in. We can provide them the opportunities to be able to support what they're going to do. But like you say, they're already going to create their own differentiation because they are already functioning at those levels.		

Re: Well, like Christine said last time. We're going to start seeing, hearing, and we already have, more inquiry-based learning, the words, project-based learning. Those words are coming up from regular classroom teachers. And I think you're right. I think that, if people, if teachers could figure out that project-based learning, inquiry-based learning, those kinds of ways of teaching, which is what we've been doing in gifted ed. forever, can be used in the regular classroom, the differentiation is automatic.

1: It is.

2: Yeah, it is, almost, yeah . . .

1: You don't have to build it in. You don't have to. So your center doesn't have to be, here's the center for you guys and here's the center for you guys and do one of three and whatever. So it's not that anymore.

2: So in fifth grade we would do projects when I was a classroom fifth grade teacher, and like Wax Museum. You know, certain, certain students could go this far with it and they'd end up with, you know, you have different options available for additional ideas and inspiration. And then you have other kids,

	maybe on the opposite end that need a little bit more support. They choose from these figures to research because you have the, you know, you have an article right here. We have these book's available.		
1:	Whereas some of the other ones are going to be . . .}		
{3:	I think that's, that's probably also the difference between working with third, fourth, and fifth graders who can be that independent no matter where they are on that spectrum as opposed to, you know, a classroom of twenty-five first graders who are . . .	Participant #3 thinks that there is a difference with age levels though, there is a difference in how independent K-2 students will be working on a project versus 3-5 graders. She gives the example of perhaps having 25 first graders and ¾ of them are not readers yet.	07.FRC.01
2:	Who are more independent.		
3:	Yeah, yeah. Where, you know, the idea of doing something with twenty-five first graders when three-fourths of them can't read. You know. How much can you give them to be in? And I guess that's that. I have such a primary perspective now. So it's there.}		
{Re:	So the Common Core State Standards, if the Common Core State Standards support project-based learning and inquiry-based learning, they automatically support our gifted kids.}	Researcher asks if CCSS support project-based learning and inquiry-based learning does that automatically mean they support curricular needs of gifted students? Is that a conclusion we can come to?	01.DIRC.01

{3: Yeah.

Re: So if we come to that conclusion.

1: I agree.

Re: I mean, I'm asking you. If we, are we concluding that the Arizona College and Career Ready State Standards or Common Core State Standards takes people down a path, teachers down a path that allows them to do inquiry-based learning, project-based learning, problem-based learning, authentic learning. It, it, it, it, it. It, it, what am I trying to say, it, it pushes them towards that, it's, it . . .

1: It, it funnels them in there.

3: It depends of the interpretation to it by the head of the school . . .

1: I agree. with you.

3: I think it opens the doors of, of so many opportunities for so many different types and directions and looks as far as you are, you are wrapping your hands around this. But in some places they are told, this is how you will wrap your hands around this . . .

Re: Still.

1: Yes.

3: And it is still that way.

05.RELA.01

Participants #3 and participant #2 agree that AZCCRS support project-based and inquiry-based learning, so therefore AZCCRS support curricular needs of gifted students. However, participant #3 warns that our interpretation might not be how some administrators see it. Some administrators in some buildings are going to interpret and demand that the AZCCRS be implemented in the way the previous Arizona standards were implemented with no room for implementing multiple standards simultaneously, across disciplines, and in a macro sense. However, because the PARCC will eventually drive the interpretation of the AZCCSS, we may then finally see a closer relationship between the interpretation of the AZCCRS and the curricular needs of gifted students, especially with the requirement of metacognition required in the assessment.

1: It is still that way.

3: For some, for some, in some settings. But I think that even in those setting because of the PARCC requiring so much ability to speak about your thinking, that's becoming at least a big part of what is being told even in those settings. You know, they may not be doing as many of the hands on things, but they are being required to ask those kids to think and explain their thinking because they want their kids to do well on that test.

1: That's right, and so it's almost . . .

3: So it's the thinking piece, I think, is supported by PARCC (laughter).

Re: So it's not so much the standards, but the assessments! The assessment is still driving things, but at least it's driving it in a direction that it's good for our kids. It's good for all kids, but I mean, for our kids it, it's, it's that thirst, like you said, that they need . . .

3: It needs to be fed.

Re: Yeah.

1: And there's the freedom to be able to . . .

3: Otherwise there's all those anxiety issues that come up.}

{1: And not only that, it should give classroom

	teachers also an extra freedom, and like you said that maybe they need to be given permission. I think, I think that's a prime ingredient . . .	Participant #1 adds that the AZCCRS and the PARCC assessment should also give general education teachers more creativity in their teaching.	05.RELA.01
Re:	Giving them permission.		
1:	Giving them permission to be able to do what they know they can do . . .		
3:	Giving them permission and the support and the help for figuring it out, and letting them see what that looks like.		
1:	Well, and not only that, but most classroom teachers are really creative, but they, they either have forgotten or maybe they, they, and maybe they come from places where principals have said, yes, please be creative and do this and do that. And other places where they say no do not. But, I think you're right. I think the PARCC is going to push that to a different level.		
Re:	I think, I think . . .		
3:	The metacognition piece of PARCC is.		
Re:	The metacognition piece.		
1:	Yep, yeah. I agree.}		
{Re:	Well I want to thank you ladies so much. I think I've got a lot of really good data.}	Researcher thanks them for their input and ends meeting.	01.DIRC.01

APPENDIX R

STAGE 3: SUMMARIES OF CODES FOR GROUP DISCUSSION SESSION TRANSCRIPTS

Stage #3 Summaries of Codes for Group Discussion Session Transcripts

01.DIRC.01 .....directions given by researcher

Researcher read questions driving this research and purpose of the study as well as explains cycle of at what point participants should be making entries in personal journals. Researcher described member checks and when they will be done. Researcher gave directions to participants about reading various articles and what to focus on during readings. Researcher asked participants for summaries of what they read. Researcher directed participants to brainstorm strategies, choosing one of the brainstormed strategies, and trying that strategy in their classroom as an experiment. Researcher asked participants for their preferred date, time, and place for next group discussion session. Researcher clarified question about which standardized testing, AIMS or PARCC, will be used at year's end, clarified questions about making copies of artifacts from participants' lessons, asked for clarification between transfer goals and unwrapping a standard, and asked for clarification between teaching to the standards and aligning to the standards. Researcher asked participants to report out on the strategies used to implement one or more of the 8 math practice standards as well as be a best practice from gifted education. Researcher gave directions for reading position paper from NAGC on aligning CCSS with gifted education programming standards. Researcher gave directions to read first half of NAGC position paper and to pay particular attention to the three strategies or recommendations (provide pathways to accelerate the CCSS for gifted learners, provide examples of differentiated task demands to address specific standards, and create interdisciplinary product demands to elevate learning for gifted students and to efficiently address multiple standards at once.). Researcher asked participants and guests to address the question of how gifted education teachers connect the CCSS for math to the gifted curriculum. Researcher gave directions to unpack a math content standard using Big Idea #3 from McTigue and Wiggins' article *From Common Core Standards to Curriculum: Five Big Ideas*. Researcher asked participants if the transfer goal they found for the math content standard they unpacked was any different for general education students. Researcher gave the participants a checklist of gifted curricular needs and strategies to use with gifted students as they unpacked the standard further. Researcher gave directions for turning in the personal journal at the halfway point as well as discussed next meeting day, time, and place. Once again the researcher asks the participants to revisit the ideas of transfer goals and unpacking, are they the same thing to gifted education teachers? Researcher asks again if there is a difference between transfer goals and unpacking standards. Researcher reads to participants what transfer goals are according to the article by McTighe and Wiggins that was read and referred to during the last two group discussion sessions. Researcher asks participants to comment on the difference in gifted education, if any, between aligning and teaching to the standards. Researcher gives directions to again consider the position paper from NAGC which outlines three recommendations to align CCSS to gifted education programming standards. She asks them again what they think of the three recommendations starting with the first one "provide pathways to accelerate the CCSS for gifted learners." Researcher direct the participants to the second recommendation from the article, provide examples of

differentiated task demands to address specific standards. Researcher directs the group to consider the third recommendation, create interdisciplinary product demands to elevate learning for gifted students and to efficiently address multiple standards at once. Researcher directs participants to consider how gifted education teachers interpret and apply the aforementioned three suggested recommendations to negotiate and connect gifted curriculum and instruction to the AZCCRS. Researcher directs group to look at a portion of the NAGC position paper that explains the needs of gifted students for greater depth, complexity, critical thinking opportunities, creative production, and research based on individual needs and compare all of that to the standard they unwrapped in the last group discussion session. Was any of that in that standard? Researcher asks participants how greater depth, complexity, critical thinking opportunities, and research based on individual needs gets into the curriculum based on the CCSS. Researcher brings group back to the way they negotiate the CCSS. Researcher questions the exact place in the process for the CCSS. Researcher directs the participants to compare previous Arizona standards to the AZCCRS, and she iterates that she personally like the AZCCRS better because she finds it easier to embed the standards into her awesome unit than with the previous Arizona standards. Researcher directs the group to again discuss the cornerstone tasks as part of unpacking a standard, and she compiled a list of all the tasks the group brainstormed in the last group discussion session so participants could examine if these tasks allow learners to apply newly gained knowledge and skills to authentic, relevant, and realistic contexts as well as integrate the 21st century skills. Researcher also asks them to compare these tasks to the checklist of curricular needs of gifted students that they received last time. Researcher directs the participants to consider the three questions driving the study one more time, starting with ways the CCSS or AZCCRS address the needs of gifted students. For example, the 8 math practice standards address the needs of gifted students, any others? Researcher asks participants to consider the second question driving this study: what is the relationship between the AZCCRS and gifted education. Researcher directs the participants to consider the third question driving this study: to what extent do the AZCCRS support exemplary gifted curriculum. Researcher asks if CCSS support Project-based Learning and Inquiry-based Learning does that automatically mean they support curricular needs of gifted students. Is that a conclusion they can come to? Researcher thanks them for their input and ends the meeting.

02.ARTC.01.....comments about articles or handouts read during group discussion sessions

Participants discuss what "front matter" means in the article by McTighe and Wiggins *From Common Core to Curriculum: Five Big Ideas*. First big idea is to thoroughly read and understand all CCSS. The second big idea is explaining that the standards are the goal and not how to get there. Standards don't dictate how to teach, just what needs to be learned. One participant was introduced to the CCSS as a general education teacher and only given her grade level's standards which is not what the article recommends. Gifted education teachers in this district have used the overarching understandings and essential questions mentioned in this article for a long time. One participant feels that we are

perhaps doing in Arizona what the article warns against, unpacking the standards too finely or into too small of chunks, too minute of skills. When unpacking a math content standard according to McTighe and Wiggins' article *From Common Core to Curriculum: Five Big Ideas,* all three participants gave the transfer goal of being able to estimate when shopping to know if they have enough money. In response to the first recommendation of providing pathways for acceleration, participant #2 says move them on. Participant #3 says keep moving and feed that thirst to keep them from being disillusioned about school as well as be sure those pathways are provided for them both in the general education classrooms and the gifted education classrooms. Also making sure general education teachers and administrators know the importance of keeping those pathways to acceleration open which includes a lot of options such as leveling, grade skipping, and others. Participant #1 says provide them with a release and not close them off to however far they want to go. In response to recommendation #2, creating interdisciplinary product demands, participant #3 feels this is the main focus of gifted education in our district because it is the one gifted education teachers have the most control over. We can't attend general education teachers' PLC meetings very easily, which is why she is taking the opportunity to work with them this summer and on that Saturday, and the general education teachers have the control for the most part about whether pathways to acceleration are provided or not. Participant #2 agrees and says that recommendation is how most of the gifted education teachers' planning time is used.

03.APR.01.....approaches to CCSS by teachers

Gifted education teachers are allowed to go above grade level to find standards that are appropriate for the curricular needs of their students. In some cases, the only way to implement curriculum that is appropriate for gifted students is to go to a higher grade level. The standards at a particular grade level are missing the concept, so impossible to take that grade level's concept deeper. The gifted education coordinator stated that gifted education teachers align their curriculum to standards because a grade level's standards are generally just a starting point due to need to differentiate from there by going two to three grade levels above, embedding multiple standards or clustering, and implementing them at a higher level. Participant #1 explained in detail a graphing lesson using the Rubik's Cube she did with her older students and a geometry lesson using the Rubik's Cube with her younger students, and how one student from each group understood the concepts rapidly, so she asked those students to teach the others and they did. This was one of the brainstormed strategies, teach a peer, from the first group discussion session. She felt this was a very successful strategy. Participant #3 explained the geometry lesson using a puzzle mystery format as her strategy. Her students also collaborated to solve the mathematical based puzzle mysteries. She stated that the motivation was very high, not really because of competition to be first, but to actually solve the puzzle and help peers solve it as well. She felt this was a very successful strategy. Participant #3 described another lesson using the strategy of building or construction, in this case 3-D mazes while using math facts to keep a budget and do measuring while following a plan. Highly motivating and successful. Participant #2 shared the strategy of using a game format. She

used an InterAct purchased curriculum called MathQuest and the students were again, highly motivated to do the math in teams to earn travel dots to move along the path to the treasure. She explained that MathQuest also incorporates other strategies that were brainstormed such as teach a peer, create problems for others to solve, and working collaboratively to solve problems. She explained that she was a bit concerned because it felt like an external reward system, but even when she took that aspect away as an experiment, the students were still highly motivated to continue and do the math, even to the point of asking to come in at lunch recess to do math. Participant #1 said that she used the same game format used in MathQuest with other problems such as those found in Ed Zocarro's books, and it worked well. Participant #2 realized and verbalized this this strategy of this particular game format could be used with any math problems or concepts at the appropriate level and it would work very well as a strategy with gifted students. Researcher shared using the strategy of allowing the students to construct the meaning, in this case, of a symbol (n) representing "any number" in an algebra equation. Constructivist strategy worked extremely well. Participant #1 again described an instance where she used the strategy of collaboration but this time between schools with the aide of technology in which students wrote a document together to present to scientists at ASU without ever meeting face-to-face until the day of the presentation. Participant #3 gives an example of math resource she is using that contains real life math application problems for students to solve and participant #1 says it is probably very good for students since questions on the PARCC are similar to that. Participant #1 states that gifted education teachers work backwards, meaning they don't look at the standards first and try to figure out how to teach it with all of those other components or teach standards as a menu or checklist, they first find a topic, theme, or unit that encompasses all of those needs, and then find standards that support it at whatever grade level they have to go. She adds that we also do a lot of filling in of information and content that students will need in order to understand the unit in depth.

04.CCSS.01.....comments about what teachers understand about the Common Core State Standards or Arizona's College and Career Ready Standards

Participant #3 explains that she only looks at the CCSS when she has to find one that fits what she is doing during the principal's observation for her evaluation. Researcher asked the participants how they think general education teachers negotiate the CCSS. Participant #3 felt that the focus of CCSS is for the general education teachers, not gifted education teachers, yet general education teachers have probably not read this article because they are too overwhelmed with just trying to make the transition to the CCSS. Participant #1 points out that gifted education teachers are also accountable to the CCSS. Participant #1 states that the Arizona's educational leaders unpacked standards for the general education teachers, so they should also unpack them for gifted education teachers. When participant #2 was introduced to the CCSS, she was never given time to unpack them even for her grade level, nor was she given the unpacking that state educational leaders had done. Participant #3 feels that the unpacking portion of the

standards shouldn't be any different for gifted and general education. The implementation will look different, but not the actual analysis of the standard. "I don't think our unpacking will be any different, it's just what we do with the garments once they're out of the suitcase." Participant #3 thinks classroom teachers have used more guided discovery in the past then they are able to do with the implementation of the CCSS because their practices are being watched so closely for fidelity to a set curriculum even if that curriculum doesn't embrace the fidelity of the CCSS. Participant #2 thinks that ironically, collaboration among teachers, flexible grouping of students using data, and sharing students among and even between grade levels puts restrictions on teachers that force them to stick to prescribed time periods to teach certain standards in order to assess and regroup students as needed. This practice can end up not allowing a general education teacher the time to delve deeper into a concept and use a guided discovery method such as project-based learning. Gifted education teachers, on the other hand, continue the practices mentioned in the article which embrace the intent of the CCSS to reach the goal of young people that are independent, creative, problem solving thinkers. Participant #3 thinks the higher order thinking skills are actually a part of the CCSS. When reading the 8 math practice standards, participant #3 summarized the first one as adapting when problem solving. Participant #2 summarized the second one as read and make sense of a problem and then apply. Participant #3 summarized the third one as construct arguments using concrete referents and then comments that this one may actually make gifted students move backwards in their math concept development since many of them are past this and on to abstract reasoning. Participant #1 summarized the fourth one as applying math skills and knowledge to areas other than math. Participant #3 summarized the fifth one as "work smarter, not harder." Participant #2 summarized the sixth one as being precise. Participant #1 summarized the seventh one as seeing the patterns that numbers make and understanding the underlying structure. Participant #3 says many quantitatively gifted students can do this effortlessly, without any prompts. Participant #3 summarized the eighth one as check for reasonableness. Participant #2 thinks that these 8 math practice standards should be reported on report cards or progress reports instead of giving students a letter or number grade. Participant #1 says that unpacking a standard is taking it apart to see how to implement it while transfer goals is applying concepts. Participant #2 agrees that transfer goals can mean that, but another idea of transfer goals is what the students take with them from one grade level to the next as they mature, especially concerning the 8 practice standards which are throughout the grade levels. Participant #1 agrees it could be that too. All three participants agree that there may not be much difference between the two phrases, aligning the curriculum to the standards and teaching to the standards, but they prefer aligning to the standards because teaching to the standards sounds like a checklist way of negotiating the standards. All three participants have a different idea about exactly what transfer goals are. Participant #1 changes her mind, but she begins with transfer goals being the information that the teacher should transfer to the student. Later she agrees that transfer goals are concepts that students take, apply, use in new situations inside and outside the classroom. Participant #2 believes that transfer goals are the goals that transfer from one grade to the next so the next grade level can build on them. She admits that this is probably because she was trained on CCSS as a general education teacher. Participant #3 sees transfer

goals more globally. She believes they are the concepts, ideas, skills that students take from their classroom education out into the everyday world and use or apply. However participant #3 also says she was thinking transfer goals are the knowledge, skills, content that transfers back and forth between general education and gifted education. Participant #3 says teachers unpack the standards to prepare them (the standards) to be able to be transferred by the students with deep enough understanding to what awaits them further in school, as well as outside of school. Participant #1 agrees with that summary. Researcher asks participants if they think the administrators who were at the last group discussion want classroom teachers to do more aligning to standards rather than teaching to standards, more like the gifted education teachers negotiate standards, on a macro level. All three participants agree with that assessment; however, participant #3 points out that it could be just those administrators who think that way, whereas other administrators in the district might not. Participant #3 and participant #2 both said the individual math content standard does not contain any of the curricular needs of gifted students (greater depth, complexity, critical thinking opportunities, creative production, and research based on individual needs). Participant #1 comments on how even with *Curriculum by Design*, there are many teachers who still approach teaching as a list of standards to be checked off after teaching it. Participant #1 explains that another piece of the puzzle is to know what students need in order to become well rounded adults. Researcher and participant #3 remind participant #1 that gifted students may want or even need that information at an earlier age than their age peers, and that our goal in gifted education should be beyond survival skills. Participant #1 agrees that gifted students have a different readiness timeline. Participant #1 agrees that it is easier to negotiate the AZCCRS than the previous Arizona standards because AZCCS are not as tiny or detailed. Participant #2 agrees, especially because of the 8 math practice standards that are more overarching and thread through the grade levels and allows for differentiation easier as well as being able to use them in other content areas. Participant #3 liked the math content standards because they still pinpoint when discrete skills such as when multiplication tables are taught, so she knows what math skills her gifted students have so she can go deeper or accelerate them or compress their curriculum.

05.RELA.01 .....relationship between gifted education curriculum and CCSS

Participant #1 points out that gifted education teachers get to choose how to teach the curriculum and even what part if any of the CCSS they implement. Gifted education teachers have the freedom from the district administrators and from test accountability to teach a curriculum chosen or written by them that will be best for their gifted students and still implement the CCSS. CCSS should free students to make more connections with large concepts since spending less time on trivial small detail concepts or experiencing curriculum as a "drive by" in order to get it all in is counter to the CCSS. Time should be available to understand the concept listed in the standard at a deep and complete level. This is similar to how gifted education has operated all along. The 3rd big idea in the McTighe and Wiggins' article makes the participants think of project-based learning, problem-based learning, transfer goals (applying learning to real world situations), and

the application piece, all familiar to gifted education specialists. Exemplary gifted education curriculum is mentioned directly in the McTighe and Wiggins article as what will be seen to increase as teachers implement CCSS. Gifted education pedagogy matches exactly with CCSS. Participant #1 thinks that because of CCSS, general education teachers are moving more towards gifted education pedagogy, albeit slowly. Further, she believes that gifted education teachers have long taught a "game centered" rather than a "skill centered" curriculum (using the article's soccer metaphor), and that CCSS and gifted education see the importance of the long term goals of developing independent, creative problem solvers, and to get there with a guided discovery approach. Participant #3 was struck by how well the 8 math practice standards match the ECCEL skills that are part of the district's gifted program. The gifted coordinator mentioned two different mathematical units she has observed in the gifted classrooms (learning the Rubik's Cube solution and a study of baseball statistics), and how each demonstrated how students were highly motivated, persevering in solving difficult and complex problems, delving deeply into the problem, and applying their reasoning skills to real world experiences. She felt both were examples of what was mentioned in the NAGC position paper as a good marriage between the CCSS and gifted education pedagogy. Participant #2 felt that we do very well on pacing the material presented to students in order to accelerate as well as delve deeply into concepts, and being sure we don't hold them back based on our limited knowledge of a concept. All three participants discovered that what they have been doing all along to meet the needs of their gifted students is exactly what the NACG position paper explains should be done to implement the standards while meeting the needs of the gifted students. The gifted education coordinator agreed that when gifted teachers write curriculum each year, they embed multiple content areas and have all along, before the AZCCRS because it is best practices for gifted students. This is a nice pairing. Participant #3, #1, and gifted education coordinator all agree that another strategy is give the student no limit on how deeply they delve into a concept because that is their nature anyway, to go into a subject of interest until they feel they have exhausted their interest in it. This is creating pathways to acceleration. Participants #1, #2, and #3 all say to keep doing what they have been doing all along and to be ready to feed them new concepts when they are ready to keep the fever of learning going. Gifted coordinator points out that gifted education teachers want their students to struggle so they learn how to persevere and that this actually gets into the social and emotional needs of gifted students. In response to the researcher asking if the transfer goals might be different for gifted students than for general education students, the participants responded that at what time a gifted student encounters the need for estimation, or at what age or grade level a gifted student might need to know estimation might be different than when a general education student might encounter this standard in the general education curriculum. Also, how it is taught to gifted students might be different, what the instruction looks like. The products to demonstrate understanding might be different. How they use it might look different, for example they may use estimation in an engineering sense while learning it, or when estimating the coordinates in their Mars Student Imaging Project that they are currently working on, not in a grocery store shopping sense. They will also learn it much faster. They might need this knowledge when working on an authentic project such as Empty Bowls in a practical

sense because they needed to know; however, this need to use estimation might not have occurred to a general education student yet nor be in the general education standards for that grade level yet. They might need to take this concept deeper such as when it might not be appropriate to round up. An example might be 2.5 children per family You can't really have .5 of a child. Gifted students might want to ponder this aspect of estimation. Also when it might be bad to over or under estimate such as with medication, busses for a field trip, people attending a wedding dinner reception. Participant #3 says she doesn't exactly feel guilty about unpacking the standards backwards because she feels gifted education teachers have a different responsibility, which is to keep these gifted learners excited about learning. Participant #2 feels that even if you start at the micro level you eventually get to the macro level with the entire unit and add the other standards that happen to also be covered with the "awesome unit," and that goes for any teacher, general education or gifted education. Participants #3, #2, and #1 as well as the gifted education coordinator and the math coordinator all agree that they went to that piece of unpacking (meaning cornerstone tasks) immediately. All present brainstormed about twelve or thirteen different ideas for cornerstone tasks that would allow the learner to apply knowledge and skills in authentic, relevant, and realistic contexts and integrate the 21st century skills. Researcher adds that gifted students may be able to go deeper in the general education classroom but for social reasons they may not. Participants #1, #2, and #3 agree. Math coordinator is curious about what general education teachers would have added if they had been present while gifted teachers unpacked the math content standard because how the gifted teachers unpacked it is closer to where the general education teachers should be taking their unpacking. However, they are still unpacking standards as they have historically, "this is what the standard is asking students to do, so this is how we are going to teach it." Participant #2 points out that there can be vast differences with what various people consider aligning curriculum to the standards. She gives an example of aligning a Harcourt textbook to the standards. She feels that maybe what gifted educators do is more authentic learning for students and less textbook type learning and that's why aligning our curriculum to the standards looks different from the general education teacher who also claims to be aligning her curriculum to the standards. Maybe that's what some administrators really want to see general education teachers do more of. Participant #1 outlines the process for herself as having her reticular open to ideas for curriculum that would interest gifted students or would be at least part of a career choice that gifted students might choose. Then, you begin writing up the components of the unit and while writing, you think about what standards you would need to have with it or you actually go look for standards that will support it. Sometimes you already know of standards that could be satisfied with this unit. She says that sometimes standards drives it and sometimes standards are found to support it. All the while, you keep your own particular gifted population in mind due to differences in such things as background knowledge, socio-economic background, and what you have taught them in the past. Also, keeping in mind that you want to provide authentic learning for them because that is one of their needs as is differentiation within the gifted classroom. Participant #2 explains that gifted education teachers look at a unit or idea, then look at the standards to see which ones will be covered by this awesome unit and sometimes even what can they do to cover these standards too that seem to go well with the unit. Gifted education

teachers start with the end and build backwards. Participant #1 agrees and adds that they evaluate past units to enhance them too. Participant #1 and participant #3 both feel that the list of possible cornerstone tasks would easily comply with both the curricular needs of gifted students list and allow learners to apply newly gained knowledge and skills about rounding and place value to authentic, relevant, and realistic contexts as well as integrate the 21st century skills, as per definition of a true cornerstone task. Researcher points out that many of the cornerstone tasks are interdisciplinary studies which is one of the curricular needs of gifted students. Participant #1 agrees. And after the unit is written gifted education teachers visit many disciplines, not just math, to pull standards that would be covered in this rich interdisciplinary study. She asks if that is one of the keys as to how gifted education teachers negotiate the standards. Participants #1, #2, and #3 all agree and give specific examples of how each of them can even take the same unit and use it in their quantitative class or their spatial class or even their verbal class because it is interdisciplinary and covers multiple standards simultaneously across several disciplines. Participant #1 thinks that gifted education teachers need to know the CCSS so they don't repeat what general education teachers are doing. Participant #3 says gifted students still need the skills even if they can acquire them faster with fewer repetitions and even if they don't address their unique curricular needs. Participant #1 reiterates that they often learn them in their classrooms and even on their own we shouldn't repeat them but take them deeper with the concepts instead. Participant #3 thinks the relationship is to support gifted students' education by differentiating the standards, such as in the expectations of the standards because it is all part of what their curricular needs are. Paricipant #1 says the standards apply to gifted education, but we have freedom to move within them using multiple grade levels' standards in order to meet the curricular needs of gifted students. Participant #2 thinks the 8 math practice standards tie directly to our ability to differentiate for gifted students. Participant #1 agrees. Participant #3 thinks AZCCRS gives general education teachers more flexibility to implement them more like gifted education teachers implement standards if they have the support from administration and develop the skills. She also believes that the smaller class sizes of gifted education teachers sometimes makes it easier to implement standards the way we do. Participant #2 feels that it isn't the size of the groups so much as the fact that AZCCRS support projects more easily and allow for needed differentiation in the classroom, any classroom. She gives an example of the wax museum project. Participant #1 agrees. Researcher reminds them that the Director of Curriculum and Instruction told them last time that they will hear words like inquiry-based learning and project-based learning more with the AZCCRS. Participants #3 and #2 agree that AZCCRS support Project-based and inquiry-based learning, so therefore, AZCCRS support curricular needs of gifted students. However, participant #3 warns that our interpretation might not be how some administrators see it. Some administrators in some buildings are going to interpret and demand that the AZCCRS be implemented in the way the previous Arizona standards were implemented with no room for implementing multiple standards simultaneously, across disciplines, and in a macro sense. However, because the PARCC will eventually drive the interpretation of the AZCCRS, we may then finally see a closer relationship between the interpretation of the AZCCRS and the curricular needs of gifted students, especially with the requirement of metacognition required in the assessment.

Participant #1 adds that the AZCCRS and the PARCC assessment should also give general education teachers more creativity in their teaching.

06.IMP.01 .....impact of CCSS on gifted education

Participant #1 thinks the standards would be unpacked differently by gifted education teachers than by general education teachers because gifted education teachers would interpret slightly different goals for their students. Researcher, participant #1, and participant #2 feel that assessments should be more performance based such as in project-based learning to be truly following the intent of CCSS because that gives students practice in independent thinking, creative thinking, and problem solving, the very same skills and practices that are the ultimate goals of the CCSS. Further, these assessments should increase in gifted education and general education. Participant #3 adds that she wants to be sure to support what the general education teacher does with the standards, hence align what she does to the standards, but unlike a general education teacher she doesn't feel pressure to teach all the standards because her focus for her gifted students is on the thinking part, the experiential part, and the interaction part of the curriculum. Participant #3 sees the acceleration and delving deeply happening even in the regular classroom, even though the ability levels there are extremely wide, because general education teachers are coming to her asking for ways to extend the curriculum for the quantitatively gifted students. The gifted coordinator points out that one impact CCSS are having on our gifted students is their teachers are seeking out advice from the gifted education specialists on how to raise the bar for the gifted students even higher because the bar was just raised with CCSS for all students. This makes gifted specialists an asset to the general education teachers and "a vital piece of their success." The math coordinator feels another area that will impact all levels of students, including gifted students, is the PARCC assessment because of the cognitive demands. He first thought when examining what will be required of all students was, "this is what we asked our gifted students to do and now it's being asked of all students." He feels that with the increase in rigor, some teachers might feel that they are providing enough for all their students, including gifted students, but in reality the gifted students' curriculum now needs to be ratcheted up too. Researcher agrees and also wonders about the emotional side of the gifted students when curriculum is ratcheted up due to that element of "having to succeed" that many gifted students feel. The math coordinator gave a sample question that all third graders would get on the PARCC based on this estimation standard. They would be asked how swimming races at the Olympics might differ if they didn't estimate to the hundredths place but only to the tenth place. This is a much more rigorous question, so how can that be extended for gifted students if they went even deeper? Participant #1 gave an example of using rounding for the baseball statistics unit and also an example of when it might be necessary to go even to the thousandths place such as with the downhill racing in the current Olympics that resulted in a tie for the gold medal because they didn't go to the thousandths place. Participant #2 suggested having a debate with the gifted students about when to use estimation in certain situations. Participant #3 suggests looking at the relevance of decimal points rounding. Researcher thought about

the stock market unit which was a simulation where students were buying thousands and thousands of shares and rounding one direction or the other made the difference sometimes of going bankrupt or thriving. Participant #1 thought the question should be looked at from the affective viewpoint as an extension for the gifted students. What's the moral implication of rounding such as in politics? Participant #2 said perhaps the extension would be a community outreach element such as writing to a baseball player about his statistics and showing him where one more hit per season could change his overall statistics by a certain amount and perhaps they would like a new agent. Researcher reminded participants that the baseball statistics unit did help the gifted students realize that they could have a career in baseball that was based in numbers instead of at-bats. Perhaps career education is the extension for gifted students or the transfer goal for gifted students which is ramped up from the general education transfer goal of being able to survive at the grocery store. Math coordinator pointed out that looking at this one particular standard so closely is what classroom teachers do and every student will get it that way, but a gifted student should be able to take multiple standards that are similar and use them. So instead of looking at NBT.A.1, perhaps gifted teachers should unpack all of NBT which is all about place value and extending the thinking in the domain of place value understanding. Director of Curriculum and Instruction said that what the article was talking about was the macro and micro which is exactly where this discussion has led. Looking at one particular standard and negotiating how to teach it is at the micro level and it does not extend students very far. As gifted education teachers, in her opinion, you have to back off and plan your curriculum at the macro level. Further, she said that two years ago had she been asked if gifted education teachers planning their units first and then see what standards the units are covering i.e. backwards, she would have said they were doing it backwards and to stop doing it that way. However, "what common core is doing for regular ed. is why they're now coming to you…because it's allowing them to think more on a macro level." She believes general education teachers will look to gifted education teachers as guides in how to negotiate the CCSS because gifted ed. teachers have the experience to unpack standards at the macro level. She further stated that we are hearing words such as project-based learning and content inquiry learning and Instruction in the general education realm now when those words used to only be used in the gifted education realm. She is thrilled about this because she feels it takes general education away from the "teach it, test it, teach it, test it, teach it, test it" cycle. She believes gifted education teachers will experience even more collaboration requests from general education teachers. The impact for gifted students is that their general education classrooms might become more gifted friendly resulting in "them feeling more comfortable in their own skin" while in their general education classrooms. They will be experiencing the way they best learn in more than just the gifted classrooms. Director of Curriculum and Instruction also pointed out that resources that district provides needs to allow teachers to negotiate the CCSS that way. She gave the example of the language arts adoption for the middle school that appears, according to middle school language arts teachers, to allow them to do this. This is a huge improvement from four years ago. She also again stated that the gifted education teachers have many years of experience negotiating the standards this way. The gifted education coordinator reiterated that the gifted education teachers have been writing curriculum this

way for years. The gifted education coordinator also feels we have more of a focus with AZCCRS, and she points out that during our gifted education meetings we found a math resource (M^2 and M^3) that seemed to allow us to negotiate the CCSS at the macro level, and we didn't even read the McTighe and Wiggins' book where they recommend this very resource because "it was a great fit for gifted kids." Participant #1 agrees. Researcher shared that she did a unit on bases other than base ten with her gifted math students and she used this very domain that the math coordinator mentioned because the CCSS didn't have an individual standard that actually mentioned other bases. In the end, the individual standards were implemented that fell under that domain. Gifted education coordinator stated that after unpacking the domain, perhaps applying it to other disciplines is the next step because gifted students are especially good at connecting the dots from one area to another, thinking more globally. The math coordinator and participant #1 both said not to feel guilty about the way we negotiate the standards, and participant #3 said keep doing what we are doing. Participant #1 said we should participate in PLC's to show general education teachers how to extend their curriculum. It also makes our gifted students resident experts because they are used to this way of learning due to their gifted education classes, but do we want to put them in that position in the classroom—another discussion. The math coordinator shared a sample question from the PARCC and explains that the expectations are not high enough from the general education teachers. He feels there will be an implication for gifted education practices because the expectation gap has narrowed between what should be expected from students by the general education teachers and the gifted education teachers. Further, general education teachers will seek out gifted education teachers to learn how to teach more critical thinking skills, and perseverance, and abstract reasoning because that is what PARCC requires, for students to really think not just follow a straight forward algorithm. Participant #3 feels that this study, and particularly unpacking a math content standard, has helped her understand the implications of CCSS and PARCC for the classroom teacher. Everything has been ramped up and this makes her feel good about the place where her gifted students spend most of their time, in the general education classroom. However, she does not fear that there will no longer be a need for her services because of the need for gifted students to be with intellectual peers at least during part of their educational time, and also because of their social and emotional needs. The math coordinator sees the middle shifting up and gifted education teachers have to shift their expectations up as well, but there is still a need to extend and remediate at either end since kids don't all fit in the middle. Participant #1 agrees with the math coordinator and also sees that when gifted peers are together they will still go deeper than when in general education classroom. Participant #3 agrees with the math coordinator that most general education teachers aren't unpacking standards with proper expectations in mind, but feels that at some schools they are closer since they have higher populations of gifted students who have pushed the teachers already to go deeper due to their sheer numbers or the teachers have received more expert help unpacking CCSS. She feels the shock value for some will be more than for others. Participant #3 reveals that she is going to attend the unwrapping of K-1 math standards class on a Saturday as well as work over the summer with the kindergarten general education teachers at her school to specifically provide examples of differentiated task demands for specific standards in their classrooms for

next year. Further, that she sees a need for differentiation even though CCSS should ramp up the demands made on students. It still won't be enough for our gifted students. Researcher states that even gifted education teachers have to list what CCSS they are addressing on the board at some schools. Participant #3 says that is to help the students, not because of some administrators need to know your standard. Participant #2 says that is part of the teacher evaluation that bothers her because it doesn't fit gifted education to list an individual standard that is being taught. We teach multiple standards simultaneously at a more macro level. Participant #1 says that is why she puts the entire unit which lists possibly four pages of standards that will be covered by the end up on the wall. Participant #3 feels the CCSS allow gifted education teachers to be more product driven then concept driven. Participant #1 agrees. Participant #1 thinks the AZCCRS support gifted curriculum because they are broad and flexible, allowing us to go into depth even if we have to go to above grade level standards. Researcher thinks AZCCRS allow for presentation of critical thinking and problem solving. Participant #1 agrees.

07.FRC.01.....friction, tension, or angst for teacher

Participant #3 feels that even though no one (administrators) pays attention to gifted education teachers, there's still a feeling that we should be sticking to grade level standards but going deeper. Gifted education teachers are a bit frustrated because they are unsure how to best support general education teachers, by taking grade level standards deeper or forging ahead with standards from a higher grade level because that will enrich their curriculum better, or do both. Participant #1 thinks that district administrators do dictate "how to" teach instead of just "what to" teach or the CCSS, at least to general education teachers. Further, she feels that general education teachers have the standardized test (AIMS) hanging over their heads so they feel pressure to "march through" a list of topics or skills to prepare students for what they may see on the test. Also, the transition between previous Arizona standards and the CCSS is creating "holes" in students' learning, But as time goes on and transition is complete, she thinks we will see fewer and fewer educational holes in our gifted students' learning. Researcher and participant #1 recall a previous math curriculum used in the district called "Fast Track Math," and how difficult it was to miss even one day in the grading period, let alone miss one day every week to attend gifted education classes. But the CCSS are supposed to be the opposite of that. Participant #1 states that in order to reach the goal or a standard, a teacher needs to understand the purpose of the standard, why it was included, what were the long term expectations of learning this standard, what are the overarching understandings, but that unpacking has been left up to teachers, both general and gifted education teachers. However, unpacking and implementing the CCSS simultaneously is too large a task. Participant #3 points out that students are still being taught Arizona's previous standards simultaneously with the CCSS because AIMS is still the assessment tool and it is aligned to the previous standards. General education teachers are expected to teach "double standards" because we are still using AIMS testing. This is causing a lot of frustration and tension across the district. Additionally, the new PARCC test is all on the computer and that is likewise causing great anxiety for teachers. Participant #3 points

out that even if we move to performance based tasks instead of tests, there might still be pressure to complete a Friday task instead of a Friday test. It comes down to grades and parents wanting grades as accountability measures. The participants discussed if grades for work and on the report card should be in the gifted program. They currently write a narrative progress report with no actual grades. Participant #3 is frustrated trying to even put a check mark on the progress report used in the gifted program, but at least there are several areas to look at, and they don't just get boiled down to one letter grade or number. Participants speculate what changing the grading system would do to college entrance. They also reviewed with each other types of report cards they have seen in the past. Director of Curriculum and Instruction mentioned that there is legislation that might affect standardized testing and reporting to the public. Researcher, gifted education coordinator, and participant #3 bemoan that a pullout model doesn't give the students enough time with their gifted education teachers. Gifted coordinator said wanting more time was frequently mentioned by parents and students in the survey. The math coordinator questioned why the 8 math practice standards are just for math because the 8 practice standards seem to apply to all learning in all content areas. For example, he says why just persevere in solving a math problem? Wouldn't you also want students to persevere in solving a social studies, language arts, or science problem? Further, he focuses on providing pathways to accelerate and how that would look. He's very concerned about the fifth graders when they go to middle school because they have to take a giant leap in one year. He feels that their math pathway in elementary school may not accelerate at a continuous rate with their general education teachers, but their one constant in the equation is their gifted education teacher and perhaps these teachers become the key for these students to make a smoother transition from elementary to middle school. He also brings up the end goal for gifted math students using the comparison of how we can see where disadvantaged students need to get to grade level and we work on closing that gap, but what is the correct goal for gifted students? Do we try to close the gap between where they are and their potential? How do we measure that? Participant #1 agrees that the general education teachers are coming to gifted education teachers more now because there was a drought for a few years and perhaps the CCSS is allowing for more creativity on the part of teachers so they want suggestions. Researcher iterated that perhaps it was due to learning curve for general education teachers and the CCSS. She also mentions that challenging gifted students is important or they seem to stagnate with their NWEA scores or even decline. Researcher wonders if teachers panic and come to gifted education teachers for suggestions when this happens. Participant #1 explains how difficult it is to go up when you are already several grade levels above yet gifted students often feel like failures when they don't "improve" a certain number of points. She explains to them it is difficult to improve when a challenging curriculum isn't implemented with them. All of this once again gets into the social and emotional needs of gifted students. The math coordinator explains that Descartes, or some similar tool, might be a tool that teachers could use to see the next steps for gifted math students to take. Participant #1 reminds group that those types of questions are very difficult to evaluate fairly which is one of the reasons we do not put letter or number grades on our gifted students' progress reports. Without that "grade" pressure students will naturally go as deep as their interests take them. Participant #3 feels that the rigor that has been increased

by the CCSS will level out as each grade level contributes so that in a few years by the time the 4th grade teachers receive students, they have been working with these kinds of rigorous curriculum for four years. The 4th grade teachers will not be introducing it to them as they are now. Researcher asks the math coordinator and the Director of Curriculum and Instruction what "extended" means in the standards because it doesn't appear to be extensions of the individual standards, but actually remediation strategies of each cluster of standards. They agreed that these are extended strategies to use if more building blocks or scaffolding is necessary, especially for remedial students. Researcher points out that this study is trying to see exactly how a gifted education teacher negotiates the CCSS and how that might be different than a general education teacher. The gifted education teachers struggle with this tension between doing what the district directs them to do along with all the other teachers, but in reality they don't actually negotiate the standards the same way. They find a topic or theme to study and then find the standards that would involve, which often means going two to three grade levels higher to find the standards. Researcher asks Director of Curriculum and Instruction if that is backwards from what they should be doing because it feels backwards from what gifted teachers hear is the way to negotiate standards into their curriculum. Participant #1 explains that the way we negotiate the standards by starting with the interesting topics or themes, knowing that the one chosen must cover many grade levels simultaneously (K-8) and keeping in mind that we should delve into many different disciplines through the years, and then breaking it down so small groups can tackle pieces of it. Then all the gifted education specialist teachers add their own flavors, so we come up with a very rich unit of study for our students. Doing it the way we tried to do it (i.e. unwrapping a single math content standard) is not what we are good at. We are good at doing it this way and she does not feel guilty about that. Math coordinator states that the CCSS are written differently than the previous standards and perhaps the idea of domains driving units as opposed to standards could be a shift as well. So where we used to be unpacking the standards, now it would be unpacking the domain. Then when the unit is written and you look at each individual standard you might find that you are hitting them all under that domain. Participant #3 points out that general education teachers fear what the PARCC looks like because they want to be able to teach to the PARCC, not necessarily teach to the standards. However, if they do try to teach to the test they will have to teach to thinking which is a very different way then they are used to. Participant #1 wonders if gifted education teachers will become the "go-to-type people" for differentiation because in reality gifted education teachers have few if any opportunities to work alongside general education teachers in the unwrapping and planning of their curriculum. Researcher feels assisting general education teachers in differentiating their curriculum is better than just doing it for them, but participant #2 disagrees somewhat because she does do it for them as a way to get her foot in the door and because sometimes if she doesn't, her gifted students won't get any differentiation. Better to work on the philosophy of the teacher along the way, and at the same time provide for her students' needs. Researcher reminisces about a time when McTighe and Wiggins' Curriculum by Design first came out and the general education teachers were struggling to embrace it while participant #3 said, "How else would you design curriculum but by starting from the end, the goal that you want to achieve?" That was how the gifted education teachers had been designing

curriculum for years and it seemed odd to participant #3 that anyone would even have to be taught that. Participant #1 laments on how difficult it was to be a general education teacher who was told what step to take next in a very structured school environment and that once she became a gifted education teacher it took her awhile to get out of that lockstep mentality and open her mind to being more creative again, but she did. Researcher shares that she has seen many gifted education teachers who have decided to return to the general education classroom but say they will never be able to teach the same way they used to before their gifted education training, and they feel they will be better general education teachers now. Participant #1 shares story of first year teaching in general education after homeschooling for many years, and the difficulty of the requirement to list the standard being addressed for each and every lesson on the board. Researcher notes that the teacher evaluation process is also in transition along with the AZCCRS versus the previous Arizona standards and the AIMS assessment versus the PARCC assessment. Participant #3 thinks that there is a difference with age levels though, there is a difference in how independent K-2 students will be working on a project versus 3-5 graders. She gives the example of perhaps having 25 first graders and ¾ of them are not readers yet.

08.BRNS.01 .....comments about the brainstorming during group discussion sessions

Participants brainstormed a long list of strategies to try, and they put the numbers of the 8 math practice standards that each strategy would involve next to their brainstormed strategy. During the sharing of how the brainstormed strategies went in the classrooms, the gifted coordinator commented on how students in participant #2's class were highly motivated when she was observing. She also commented on how one student transferred the math information learned during MathQuest to his research in another class, and how he made those connections. Participant #1 also saw that the student was transferring concepts from one area, math, to another, science. Director of Curriculum and Instruction says she has to leave but before she does she asks the group to brainstorm a new, more relevant term than unpacking, which doesn't include the richness needed.

APPENDIX S

STAGE 1: POST INTERVIEW TRANSCRIPTS

Post Interview #1.1, 5/20/14

Raw Data		Stage #1 Summary Chunks	Stage #2 Codes
Re:	First of all, what do you know about the Common Core State Standards?		
1:	I do know that the Common Core State Standards are supposed to align themselves with the curriculum that we have, they are supposed to aid us in making sure that the students are getting the full flavor of what they are supposed to be learning, that it is supposed to be things that are going from short term and long term goals, that they are supposed to be able to be applied through time across a broad spectrum of curriculums and in between each one of them, so if you are doing a math standard you should also be able to apply it to other areas. You should be able to apply it in maybe even science or social studies or even in English. So, they are broad standards. They are broad, not even suggestions, which is what I was going to say, it's not really suggestion. They are broad spectrum guidelines for driving curriculum and for driving instruction and for making sure the kids get what they need to get before they move on to something else.	CCSS are broad guidelines that drive curriculum and instruction. Curriculum and instruction should be aligned to CCSS. A single standard should be able to be applied across the disciplines because it is broad. CCSS should aid teachers in reaching goals for students' learning.	01.PERC.01

Re: Ok. How, exactly, do you use the CCSS when choosing or creating curriculum for your quantitatively gifted students?

1: I, I bantered this back and forth for years. I can't say that I. When I was in the classroom it drove instruction. You found a standard, you said this is how I'm going to teach it, then you went and taught it. We don't teach our gifted kids that way. We have multiple standards and multiple ways of applying those. So, I don't necessarily choose a standard or set of standards or even a grade level of standards and say I'm going to teach this. But, I find myself more and more finding topics that to me say oh here is a really good career for a student. It will give them a flavor of this career and in the meantime, I'm going to be covering all of these different standards. So I go through them and I say, oh look here's English standards, here's this, here's that, and applying a whole variety of them into one thing that I'm going to be teaching. And I, I just can't, I can't pull myself back into that oh here's a standard I'm going to teach. Oh this one looks good too, I think I'll teach that. To

Unlike the general education teacher who chooses standards to teach first, participant #1 chooses topics that are relevant to her students because of exposure to a career, or because of interest, and then finds standards from a variety of disciplines and grade levels that would be covered by that topic.

02.APR.01

me, it is redundant, but it is, it it's. I don't know, it just cramps my style. I guess is the best way of doing it. I'm more of a, here's a broad thing. Like for instance, ok so we're doing animation and cartooning. Ok, so that's the theme, but within that theme are all of these technology standards that can be applied to it as well as verbal standards and quantitative standards and even spatial standards. And so when we, we did that theme, and we planned all that it out, and we went and looked at all the standards that could be done, it was something that to me was kind of mind boggling because there were pages of them. Now if I was to take one thing and say oh I was going to teach the standard of opening up the computer and turning it on that's going take me fifteen seconds. It's not going to take me an hour. So I, you know, so for me, it, it these standards are great but they're too slow. They're too restrictive for PACE students because gifted kids go through them so much faster.

CCSS are great, but too slow, too restrictive for gifted students. They go through them so much faster than general education students.

05.RELA.01

Re: The, the current standards are too slow?

1: Yeah. If you take one standard and you say,

because in the classroom here's the standard we are going to teach today. And they teach that standard. Ok, so in my classroom it would be, here's the standard I'm going to teach for the first five seconds and then we're going to move on to another one. So, in one hour and a half time period, I'm going to cover probably, and cover in depth, probably ten or fifteen of them. So I can't say that I'm going to take one standard and I'm going to apply this. You can't do that with gifted kids.

Re: Is integrated curriculum, is why you cover . . .

1: Right, right. Because I'm not going to cover one technology standard with doing an iMovie. I'm going to be covering multiple standards. We're going to be creating our own music, which isn't necessarily a standard per say, but goes along with the creation of stuff when you're doing technology. So we do, they're using cameras, they're learning what goes in to a camera, they're learning how to use them, they're learning what's good and bad use of a camera, why you can't do certain things. And when you look at all of that, I can't just say ok today we're going to sit down for

02.APR.01

Covers multiple standards across disciplines simultaneously when teaching an integrated theme or topic. Teaches what students need to know "as they need to know it" while they are applying knowledge.

	this five minutes and talk about here's how you use a camera. These kids already know how to use a camera. They probably have their own stuff at home. And some of them may have already created their own movies at home. I'm not going to sit and bore them to death. So you compact it, as you need it because you know your kids because you loop with them every year so you know what they know and you know what they don't know. I'm not going to spend my time spinning my wheels. If there's one that doesn't get it, yeah pull them aside, bring them up to speed. So the Common Core Standards, yes I like them. I like how they're being used. I feel really sorry for the classroom teachers. I wish they could teach like us. But this is how I do it. So I don't necessarily choose a standard and go forward. I choose a thing and then I go look for the standards.	Chooses a topic and then looks for the standards, not the other way around which is how the general education teacher is told to do it.	03.RELA.01
Re:	Ok, so how do you use the CCSS when implementing your curriculum with your quantitatively gifted kids?		
1:	Ok. So I am aware of the standards that are necessary for them at their grade level	Implements standards in a more in depth way than general education teacher, a way that fits more with gifted students' curricular needs.	04.NEED.01

because I've looked through the standards and I'm aware of them. And globally, I set up in my brain, these are the things that they're going to need to know. Well, I'm going to address those things they need to know. But, I'm also going to assume that the classroom teachers are doing their job and addressing it in that. But, I'm going to be addressing it, not as the classroom teacher, but in a more in depth way in a curriculum that fits more with their needs. And, so I'm going to use these. I am going to implement them. I am knowing them. And, and, it's really, it's really kind of sad to think that we as PACE teachers have to know, pretty much, the standards from kindergarten up to eighth grade. Because most teachers don't have to do that. So it's more difficult for us, but also we see a more global application to it and we know that at some point in time, well that will be taken care of maybe in fifth or sixth grade, but right now I need it, and I need to use it in this particular way. So I'm not going to duplicate what's in the classroom, although the standards may be the same things the classrooms are doing, I'm not going to do it in

Gifted education teachers need to know all the CCSS from kindergarten through 8th grade, unlike general education teachers who know their grade level.

03.RELA.01

Uses standards in a more global and in depth way without duplicating general education activities, and uses standards from multiple grade levels.

02.APR.01

the same way. I'm going to be doing it in a way that's more fitting for a gifted student that isn't going to entail the classroom activity. It's going to be a different way of doing it. It's going to be more in depth, but yeah, I'm going to use them.

Re: To what extent do you think the CCSS support the curriculum and instruction that you choose and create to implement with your quantitatively gifted?

1: Ok. So I think they do, they do support it. They support it in a very broad way, and I'm glad that the Common Core are in a broader sense. The guidelines that we have used in the past, but are more non specific in how you apply them. I, I, I think that for that reason they're more, that they are more applicable to us then the standards that we have had for the last fifteen or, ten or fifteen years or however long we have had those. So, using these standards and being able to implement them across a broad way rather than in a narrow way is something that I've appreciated. And I need to look at the question again because I forgot the last half of it.

CCSS support gifted education curriculum because they are broader than the previous standards which were very specific. The CCSS are more applicable to gifted education curriculum than previous standards, and she appreciates that.

05.IMP.01

Re: To what extend to you think the Common

Core Standards support the curriculum and instruction that you choose?

1: Ok. Yeah, so they do because they're so broad. And because I can take them and I can move them around. And I can take a standard from eighth grade if I need to because my kids function at that eighth grade level at some point in time. And if they don't, then I'll go to a grade level that is going to work for them. But I think that we're given that ability where other teachers are not and I think that gives us the ability to address our kids' needs better.

Able to address curricular needs of gifted students better because she can take a standard from a higher grade level as needed. 02.APR.01

Re: Ok. Ok. Are there components of the CCSS that support your efforts to modify curriculum and differentiate instruction for your quantitatively gifted students, and if so could you explain those components that assist you?

1: Because they're broken down the way they're broken down, and because they are set up to be broad in spectrum, that gives us the flexibility to pick and choose for those things that we need. And like I've said before, because we can go up to all the way to high school we can pick out specific components

The CCSS support gifted education curriculum because many standards spiral through the grade levels, going deeper as the standard moves through the grades which allows gifted education teachers to use higher grade level standards that are still addressing the same content, such as graphing, but more in depth. 03.RELA.01

that are going to address whatever needs we are going to address. So, for instance, ok, so let me just take, ok the Rubik's cube as an example. I could take that and I could just skim over how to do the Rubik's cube and the motions that are involved, and I could maybe take a little bit and say ok we'll find area, we'll find perimeter, and we'll count the squares, and we'll look at different kinds of Rubik's cubes, and we'll say these have this kind of an area and these have this kind of a perimeter. And if I wanted to build a fence, how long would it need to be. And I would take those things and I could make them very superficial, and they would, they would learn it but it wouldn't be fun for them. And because Common Core allows you to go as deeply as you want to go without restrictions, now I can open that up and I can say, ok, now let's look at this cube, and let's look at how other three-dimensional figures are going to fit with it. And what makes it. What makes the Rubik's cube an interesting thing by looking at it in a three dimensional way? And how can I graph this stuff? And how can I flip it? And how, when I turn it how does that, when I'm

turning the colors and turning the sides, how does that work in a three dimensional figure and how does that apply to a maybe even a geometry thing? And although the Rubik's cube came with a variety of levels of different kinds of instruction, you can even take one of those and just, like for instance the graphing part of it we spent weeks on it. Simply because they hadn't had that kind of graphing, and the Common Core allows me to do it because that graphing mode goes all the way up to a high school level. So it supports my ability to go in depth because so many of the components such as graphing start out at a very young age and it they get more in depth as you go. Our kids can handle it at a younger age because of their intellect whereas when they get to high school they'll be on to something else. So, so if, so those specific components are just, you know, a little example. It doesn't even go into big examples, just little.

Re: So the Common Core spiral around you mean?

1: Yeah, they do. They start at a, they, they they're, they have the ability to be built upon and to be and to go in deeper, deeper, deeper,

because you can build on the same concept. And, you can, and, and learning should be a concept that is built on over a period of years. The Common Core Standards are designed for that. They are set up specifically for that where you can take one thing such as the graphing and you can learn, ok I'm a kindergartener, here's my graph, you know, and I can, I can go in and I can say, I can count the number of cubes on there, and I can graph the number of red and I can graph the number of blue. And if I mix up one side I can say oh on this side there were blue but there were green and there were yellow on this side and there were white ones on that side. But if I turn to another side, now it's a different graph. And so I can make a bar graph and I can make all sorts of different graphs. And I can do that at an elementary kindergarten level. When I'm getting up to my fifth and sixth grade they don't need that anymore, and so because they don't need it anymore I've skipped over that. Now they're into graphing using ordered pairs, or switching or turning it and when they turn it now the graph looks different. And so, now you have the

mathematics involved where they're playing with numbers which is what they need. They don't need the colors anymore, they need the numbers. And so, when, and, and that particular one little standard of graphing is going to go all the way up into a calculus and all the way up into a trigonometry and through an algebraic equation and it's going to take them all the way through high school and that's just one standard that can be graphed on, that, I mean of graphing that can be built on. And that's what I like about it.

Re: Good. What relationships do you see between the CCSS and the modified curriculum and differentiated instruction that you choose and create to implement with your gifted students? So, what's the relationship? You spoke about building and that's, that could be one relationship. Do you see others? The fact that you can build from kindergarten all the way through high school on one standard is a relationship to what we, what is done in gifted ed. because in gifted ed. you don't teach kindergarteners kindergarten material.

1: Right.

Re: But you can take it further. What other

relationships, or do you want to expand on that relationship?

1:	Well, I just think in general the, the Common Core Standards because they spiral the way they do, and because they can be built on because, because of the way they're worded. And because they are given a broad, because, because they have a built in relationship to be an end game at the high school level. There's a, there's ability for them to be stretched. And an ability for them to be deepened. And that goes through, you look at the math standards or the English standards and then you apply those to our verbal, quant., and spatial areas. Well they've got science. Well so do we. Our science is going to be at a different level. Ok, they're learning scientific method. That's great. Let's make the scientific method work for us. Ok, yes we're going to do an experiment. Ok, they do an experiment maybe on a film or in a book or whatever. We're going to take the chemicals and we're going to make it. Ok, so when we're applying it, we're applying it in a different way, in a deeper way, in a more	Because the CCSS spiral concepts through the grade levels, and because of the way they are worded, there is an ability to stretch concepts and deepen understanding of concepts to better meet the curricular needs of gifted students.	03.RELA.01
		In gifted education, we apply the concepts we are trying to teach in a different way than the general education teacher. She may read about an experiment in a book with the students whereas we would actually do the experiment with the students. We implement curriculum in a more investigative way.	02.APR.01

investigative way. But you still have the standards that can be applied in the classroom in a way, and yet they can be applied to us in a very different way. And so, the relationship between the two is that we can carry them further, deeper, at a more complex level, at a level which are going to, that's going to stimulate the brains of our kids at a deeper level instead of very topically. And I think the classroom teachers, although they would love to be able to do it in a broader deeper way, they don't have the time and they don't have the ability to address their whole classroom in that. We do. So we're given the freedom. So the relationship between these standard and what we do, only tell us that yes we have a standard, and here's the everyman standard or the every-child standard that every child needs to know. And then we take it and we go, well that's fine and dandy, you know that. Now let's explore it in a way that's going to make it so that your brain is going to want to absorb it at a deeper level and be able to apply it at a deeper level and maybe even apply it for the rest of your life. Rather than, oh yeah, I remember learning that in

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The relationship between the CCSS and gifted education curriculum is that the CCSS allow us to carry the concepts from the "everyman" standard or "every-child" standard deeper, further, at a more complex level to better match the curricular needs of gifted students. Also, the CCSS allow us to go deep enough with concepts that gifted students can apply it now and for the rest of their lives through authentic learning or what participant #1 calls career learning, and because of authentic learning or career learning, the concepts are forever memorable.

elementary school, but I don't do it anymore. And I can remember back to my elementary school, and there's stuff there I'm never going to use. I don't know why I ever learned it. It's just extraneous stuff. But if they had taken it and said, oh, ok, so we're going to learn about this kind of a triangle today, and when you're grown up and you're in construction, and you need to make a brace for a corner, you're going to use this theory because this theorem here shows you how your going to put across, now you can hang your planters in the corner of the gazebo you just built. Ok. That's what our kids are going to do. That's what they're doing with it. In the schools, in the regular classrooms, it's like ok, here's your three, four, five triangle or here's a scalene or here's this, and the reason that they're this way is that way. But they're not going to take it and say, oh gosh, you know, you could build a building out of this. We would. That's the relationship that I like.

Re: To authentic learning, real world . . .

1: Well yeah definitely. Career. I call it career oriented. Authentic learning. Same thing. I look at it as something that once they've

learning it, they're really, they may not use it right away, but at some point in time in their life they're going to think, oh yeah I can use it this way. They can recognize that this is, oh yeah I learned that, you know, way back in third and fourth grade and here I am, you know, using a parabola, and my headlights work like that on my car. And gosh, I never knew that, but this is how it works. Or gosh, you know, now I have this mirror and I could build a periscope out of it, and just by knowing the properties of how this thing is going to work. I, I like that because that is something that is, see it's not only authentic, but they're never going to forget it.

Re: Ok. How do you think the Common Core State Standards impact the kind of curriculum and instruction you implement with your quantitatively gifted students?

1: See, I'm not sure. How does it impact it? I don't know. I, I don't. I think that regardless of what I was doing, I would want to cover things that they would be able to use for their life. Whether it's a standard or not a standard, I'd still teach it. My thought is that it would be a standard if it's important because I think the

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Many important life concepts are standards, but not all important life concepts are standards, so the ones I feel are important allow me to align my curriculum to them, but if important ones are missing, I still teach them, just without a standard listed next to them. So the CCSS do impact my choices, but

standards are made and created in order to cover those things that we know kids need to be life long learners. I'm not sure that the standard, if it wasn't there, I wouldn't teach it kind of idea. I'm going to teach it anyway because they need to know it. So, even if there's no standards for making a headlight and realizing it's a parabola I'm still going to teach it. There may not be a standard that says in order to build a gazebo you're going to need these kind of braces. And look, hmm, look at that. You've got the Pythagorean theorem going on here in your gazebo. You know, I'm not sure that I would, I would say oh I need to teach that, but if it wasn't in there I still would do it. So it's going to impact me, but, but, more than that is my understanding of the way life works and what they're going to need to know. And if a standard fits with that, that's great. I would include it anyway and I would look for a standard that would cover it, but if there isn't one, I'm still going to teach it.

my knowledge of the way the world works and the things students are going to need to know impact my curricular choices even more.

Re: Ok. Ok. What are some of the curricular needs of quantitatively gifted students?

1:	Ok. So, they need, they need to know that there is a basis for why they are learning what they are learning. So many of them want to know why am I doing this? And the standards may have it in there, but we are the facilitators for that, and we're the ones that present it to them and we are the ones that create that. So, they're going to need, they need to know a certain background. They have, you know, there's that back filling that they need to come to class with and if they don't have it you need to fill it so that they can understand it. So, and then, the other needs are, you need to have a curriculum that's going to be something that they're going to enjoy doing. And they're not necessarily going to know that they enjoy doing it until they're actually doing it and they find it fun. They don't know what they need and they don't know, they know what they like, but they don't whether something that you're going to present to them is gong to be something that they are going to enjoy. So the needs of, of the quantitatively gifted ones are that, that you know how their brain works with math. And each one of their brains is going to be tweaked	Gifted students need to know that there is a foundation for what they are learning, the "why" they are learning this, certain background, curriculum that they will enjoy, and that the teacher understands how each student learns math.	04.NEED.01

a little bit differently. And the key is to try to get in there and get your finger in there enough to realize what they are doing with the numbers in their head so that you can address what they need to know. And, and that sometimes can take awhile. And, but you have to figure that out because not all of them are going to think the same way. And as a matter of fact, I just had an incident today with one of my kids when we're working in the, the algebra maze, you know, the algebra mystery maze? And we're working on it. And I realized that one of my students had missed out on a concept that I had taught, but he apparently wasn't listening. And when, when he came up with an idea, or he came up with an answer, I said explain your thinking to me because I'm not sure how you got there. Explain it to me or show me where you wrote down your scribblings so I can, I can understand how you got there because this answer is so far from what you should have gotten, that I'm thinking that maybe I missed something along the way. And so when he took his thinking and explained to me it was very clear to me what he had done. He was

solving for "b," but it was "b" plus a number, minus a number, plus "b" again gave you some other thing. And what he had done in that answer was not realize that "b" was one number, and it was the same number. He took the answer that he had gotten and split it between the two "b's." So he was getting a far different number then he should have been getting. And when I explained to him that, no "b" is the number, you just have it twice. You don't cut it in half. It was, he went OHHH, OHHH, well that's very different (laughter). Ok, now I understand. And so then it was like the, this whole new thing. The light bulb went off. And that's the kind of things that I'm talking about when you need to know what your kids know and what you don't know. That the needs of the quantitative gifted students are different because each one of their brains are going to be functioning, even with them, at a different level. Some need a set formula, some need a broad understanding, and some need you to be able to think what they are thinking and take them through where their fallacy was because I might not have taught that to him in a way he

understood. And so now I got it and so did he (laughter). Which is good (laughter). Really good.

Re: Do you recommend or use certain curriculum models, programs, instructional strategies, or techniques that meet the curricular needs of your quantitatively gifted learners? I know you just mentioned math . . .

1: I certainly hope I do.

Re: Well, I mean, some that you know that work,

1: Yeah, that work.

Re: That work really well? So the Algebra . . .

1: So the Algebra Mystery Maze, I love that one. And I love MathQuest. I also like the undersea . . .

Re: Into the Unknown?

1: Into the Unknown. Yeah, I love that for the little kids. And I like the clock . . .

Re: TickTock?

1: Yeah, TickTock, and also Marilyn Burns has one about clocks and I like to put those two together. The other ones that I really like, I love Ed Zocarro. And I like to take Ed Zocarro, and, and just have them, you know, for a short period of time like when you're getting new kids but you've, but you have finished one of

Participant #1 uses a number of commercially prepared approaches with her gifted learners including Algebra Mystery Maze, MathQuest, Into the Unknown, and Tick Tock which are all from InterAct. Additionally, she uses curriculum from Marilyn Burns and Ed Zocarro. Other approaches she uses include acceleration, compacting the curriculum, taking certain concepts deeper, using authentic learning situations, metacognition, teaching a peer, putting the concept into a different context, or physically demonstrating the concept.

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the others. It's a really good filler and it's a lot of fun because he has an ability to teach that concept of that unit in a way that they understand that's easy. But you could also take it, like the other day I was, one of my kids was on chapter eleven of the elementary school Ed Zacarro. And we were talking about, it was talking about, like, finding the heights of shadows. And so he, it went through and explained the heights of the shadows. And he was using the explanation of, you know, that this kid is standing here and he's standing next to this and he wants to build this certain thing and he doesn't really know how to figure it out, but suddenly he realizes that he's standing next to something and his shadow is half the size of this and so he figures that the shadow of this tree must be like him, and so his shadow is, if his shadow is half the size then the shadow of the tree must be the same thing, so the tree must be, I think it was like 200 feet high. Ok. You can take that strategy for kids that are just learning how to figure it out and you can teach it to them and by the end of the chapter, I'd taught him proportions. Ok, so that's what I like about that particular

thing is, you can take it, you can teach it at a very simplistic method. But then once they get the hang of what they're doing and why they're applying it the way they're applying it, now suddenly, I can say to him, well here's an interesting formula. Here's a proportion and here's where you put it and here's how you fill it. Now, do this problem using this proportion. And, and the first couple of times they're kind of, they're kind of dry at it and it takes a little bit of time because they're trying to figure out, ok where the numbers going to go, where's my "x" going to go. And once they've got it, it's like oh! Well, they're never going to forget that.

Re: No.

1: And not only that, that's an algebra one thing that they're not going to get until, what, seventh or eighth grade? Maybe they'll get it sooner than that. But that algebra concept is an algebra concept that regular kids are not going to get until they're what, ninth or tenth grade I think is when they get that.

Re: So algebra, you would say algebra might be some, algebraic reasoning something that . . .

1: Yeah. Yeah. And not only that the number

sense that goes with trying to figure out how those numbers go together. So when you're thinking about all of the, the different, the different things that can be taught in a math class you can go from the very simplistic, oh here's a mathematics formula that now suddenly is algebra or suddenly is geometry or now you can go higher. And if they're capable you could even take them into trig. If you could. If they have that ability to go there and some of they do innately know that information without being able to know that that's what it is. Does that answer that?

Re: Um hum. Certain curriculum models, programs, instructional strategies, or techniques that meet the curricular needs of your quantitatively gifted. So, would you say that you would, you would introduce some, like for example say algebraic reasoning, earlier than the regular curriculum?

1: Yeah, yeah. You could

Re: So one of the strategies is be acceleration?

1: Oh yeah. Absolutely.

Re: But . . .

1: And not only acceleration, but you can skip

over certain things if they've already got it, and accelerate a whole bunch. So I could teach at kindergarten about time, and then launch into in crossing the international date line. And we could, we could do an activity that makes them figure out the time zone difference between here and Australia which is tough because you're not only going ahead, but you're also crossing the international date line. And so, when you're trying to figure that out, they have to, that amount of just playing with that numbers and number sense which is involved with that takes them into a completely different thing. So it's algebra and it's number sense, and it's, you could put them into a geometry on it. You could even, with the time, the time stuff you have elapsed time which, you know, sometimes it's really hard for even adults to get that concept.

Re: And what about going more in depth or putting authentic learning? Are those strategies that are good for gifted, quantitatively . . .

1: Absolutely because the authentic learning, if I'm taking it and I'm going to say, ok, I'm going to Australia this summer and I need to know

what time it is when I get there, if I'm leaving here and I'm going to arrive there, that's authentic learning. A bus schedule, authentic learning. A twenty-four hour clocks, authentic learning. So those strategies, and I'm just trying to think of a, you do it innately. You don't necessarily think about, oh this is the strategy I'm going to employ today. I don't. It just seems to kind of come with, oh we could do it this way. Or, ok you're not getting that, so let me try reviewing this, let me try going back and filling in a hole, let me try you telling me how you got to your answer, you explaining it to another student. Maybe what I'm saying that student isn't getting, so if you explain it because you know it to that student to show them then maybe what you're saying to them is going to work. So peer learning works very nicely. Maybe approaching it from a different point of view. Ok, if this isn't going to work. If, if understanding time zone isn't going to work, how about if I show you how we go from England and then go backwards. How about if we talk about the sun rising and setting and how it rises and sets earlier in a different way. So taking it out of the context

maybe and dropping it into another context will work for them. So changing context on it. Perhaps even finding a story that, that explains it in words. So maybe verbally they'll get it. Maybe they're not going to get it with me or even another student or even showing them on a, I could even take out a flashlight and putting it on the earth and show them where the sun is going and how the other side is dark. Maybe even demonstrating it would work. So, I'm still trying, like I said, I'm trying to throw up some strategies, but those are some I could think of.

Re: Ok. What characteristics, components, or traits do these curricular models, programs, instructional strategies or techniques have that make you confident that they do meet the curricular needs of your quantitatively gifted students? So what characteristics or components, what is it that they have that makes them work?

1: Ok. All of them, all of them that make them work is they are geared toward children that think differently. They are geared toward children who can think at a deeper level. They are all geared toward making it fun for kids to

Gifted students need curriculum that allows them to think deeper about the concepts, that will be fun and enjoyable for them. Gifted curriculum needs to allow the teacher to pull

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learn what they need to know without them realizing they're doing the learning. And all of them allow you as a teacher to pull a component out that they're not getting and do it deeper, or do it in a different way. So it's not cut and dry. It isn't in a book that says teach it this way. It's not scripted. And because it isn't that, it gives you the freedom as a gifted teacher to do what you know you need to do in order to get it across it to them. So as a gifted teacher you are expected and taught to think in a different way. And, which is, again why I think that gifted teachers ought to teach the gifted and non gifted teachers ought not teach gifted because I think if a gifted teacher gets it and they know that they are thinking differently, they've examined their own thinking. They know how they think so they can take that and they can say, ok, you know, when I was learning it didn't make any sense to teach it this way. I didn't learn it that way, but I learned it this way. And maybe that's the strategy, maybe that's another strategy. Just taking how you know how you learned and assuming, well, they're going to learn this way too because they're gifted as well.

out a component and go deeper with it to fit the students' needs, not scripted or presented from a textbook in one stilted way. It needs to be curriculum that can be built on. Gifted teachers should teach gifted students because they both think differently than general education teachers and students, and because gifted students need teachers who have examined their own thinking (metacognition). The curriculum needs to be flexible enough to allow gifted students to go on tangents with the concepts and jettison unnecessary information. Gifted students need teachers who are willing and capable of researching how gifted students learn in areas they are not necessarily gifted in.

Re: Or just having a variety of strategies available because, instead of just the way the textbook offers it.

1: Right. Because the textbook isn't a be all, end all. It's more like a guideline really, and when you're talking about gifted kids it's really just a guideline because they're going to go in tangents that you didn't think of. I'm always amazed that, you know, I'll present something and suddenly they're coming up with a different way of doing it themselves, and I'm going, that works. I didn't necessarily think of that, that works. I like that. And two, you know, gifted teachers may not be gifted in that particular area but they understand that because they are not gifted in that area, that they need to learn more about how to teach it in that area, or learn more about their kids. So let's say that I'm not quantitatively gifted. But I know my kids are and I know that they need to be taught in that way. So I'm going to go research how they learn. And I'm going to research in depth how I think about it. And maybe some of things that I have learned as a, as a child are going to be able to work for them and maybe they won't. But I'm free to

jettison those things that aren't working for them and do something else. So, those curriculums that I chose I know are good for the kids and I know that the kids are going to like them. And if they don't like them, and I get constant negative feedback about it, then I'm not going to necessarily use it again. If it's not going to work for them, it's not going to teach them , it's not going to be fun for them, then, and it's not something that I can build on, then I'm not going to use it.

Re: I like the jettison idea. Ok, I think I've asked you this question, but I'm going to ask again in case there's something more you want to add. How do you think the Common Core State Standards impact the kind of curriculum and instruction you implement with your quantitatively gifted kids? How do the standards impact your work?

1: Again, they, they do because, well we have to use them, and so they have to impact the curriculum some where along the line. But there may be something when I'm reading along. Like, ok, the claymation thing that we taught. When I was looking at that, I wasn't, I didn't really know if I was going to be able to

The CCSS impact the gifted curriculum that participant #1 chooses because she measures the value of what she is teaching to the CCSS. She does not, however, look at every standard and try to figure out a way to teach it. Some standards, according to her, are concepts she just would never bother to teach to her gifted students.

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have standards that would justify me teaching it. And that was a concern. And so before I even decided to go into it and, and plan a unit out. I had to make sure that what they were doing was something that they could do. And I did that on the Dragonology that I wrote as well. I wasn't really sure that the things that I wanted them to learn about were going to be things that could be justified for a long period of time. If it was one little concept I throw it in anyway. But we're talking about a curriculum for reading *The Hobbit* and applying it, ok. And so that's a semester. And I can't just say well I'm going to teach this and it doesn't really matter. And it, It's not going to matter. So they have to be looked at. They have to be integrated. But it's not necessarily going to drive what I do. In the essence of, if I, if I look at it and I say, that's a standard I don't think I would ever teach. I'm not going to try to figure out a way to do it. Instead I'm going to figure out those things that I know that kids enjoy and I'm going to try to manipulate it so that I can cover standards with it. It's kind of backwards, but that's the way I do it. And that's the same thing, you know, when I was

Post Interview #1.2, 5/20/14

Raw Data		Stage #1 Summary Chunks	Stage #2 Codes
	doing the Dragonology. I also have one where I build a computer. Well the standards in, you know, for building a computer aren't necessarily there, but the mathematical standards are there and understanding spatial things are, and, and besides that kids need to know how to build a computer. It may not be a standard, but they need to know how to do that. And so I can manipulate that and I can teach them how to build a computer, and I can teach them troubleshooting, and I can teach them programming, and those are things that they need to know.	Sometimes there are concepts gifted students need to know that are not in the CCSS, so participant #1 will teach the concept anyway even without a standard to align to it.	04.NEED.01
Re:	Final question. How would you compare the old standards that we just moved away from to the new Arizona College and Career Ready Standards?		
1:	I have to say that I did not like our old standards at all. They were restrictive. They were constrictive. They were, they were too scripted, and, and they were, I don't know, they really bothered me. When I was teaching in the classroom and I had to do them I remember thinking oh my gosh, you're	Participant #1's perception of the previous Arizona standards is that they were restrictive and constrictive when compared to the CCSS being used today.	01.PERC.01

kidding me. I could think of a gazillion ways of doing this, but this is the way I have to do it, and I hated it. So, even, even when we were doing them in PACE. You know, we were planning out our, our, I think we were doing cultures. We did the cultures unit and we did the toy company unit under the old standards. And I can remember thinking, ok that's not going to work, nope that's not going to work, that isn't going to work, but if it were phrased a little bit different it might work. And for me it was just, it was, it was frustrating to try to be able to get the kids to learn at a level that you knew they needed to learn at. And I can remember when we were going through figuring out the standards for cultures everybody's yanking out high school standards, and I'm thinking can we do that? And then it was like well yes we can because yes we have to because this is where they're learning this stuff and I kept thinking well that's really cool because I couldn't do that in the classroom. And now we have these, which I really like and I'm really, really hoping that the classroom teachers can embrace the way

Participant #1 is hoping the classroom teachers can embrace the CCSS and implement them more like gifted education teachers do so

05.IMP.01

that we do it with the things that they're doing. I think that it would make teaching much more fun for them because I really. I look at them now and I think, wow, there's so much more that you could be doing and it would be so much more fun for you and the kids. They would love learning the way they	that the gifted students in their classrooms will get more of what they need.	
used to. I mean when I was growing up, I loved learning. I'm sure we had standards back then, but I don't know what they might have been. I mean, you know, being in grade school how would you? All I know is that we had lots of really fun things that we worked on all day, and we did math with them, and we did art, and we did. And it wasn't, ok, put away your book now. Now we're going to do math. Ok now put away your book we're going to do social studies. It was like, you had a topic and you did everything and wrapped around it. And that's what I feel PACE is. You have a topic and you can wrap it. And that's what I did this year when we did the Mars thing. You know, not only did we do, we had a whole bunch of quantitative stuff in there figuring out size of planets, and how far they	Gifted students need a rich integrated curriculum that allows them to make cross disciplinary connections.	04.NEED.01

are and how many astronomical units, and what a parsec is, and how you can travel, and and how fast can you travel, and what's a light year, and what's a light year compared to a regular year, and you can take all that stuff. Well they're never going to be able to do that in the class even if they studied space. It's not anything that they cover. And I feel really, really sorry for them because the regular kids can't get this really cool stuff. I think they would learn it. I think they could learn it. I think they would learn it at whatever level their brain is going to accept it. But, I think that those kids that are at the top should be taught at the top. And the career, and these CCRS allow us to be able to teach at the top. And then those kids that are not, even our own PACE kids are not going to get it 100%. But some of them are going to get it more than others, and that's why there's differentiation too within the gifted community.

AZCCRS allow gifted education teachers to teach as far as the gifted students can take concepts.

03.RELA.01

Re: Ok. Thank you.

1: You're welcome.

Re: Is there anything else you'd like to add?

1:	Oh I'm so glad you did this. I really am. I'm really, really glad because not only was it a lot of fun, but it was, I really enjoyed hearing what everybody else had to say. I really, really did. And so I'm really glad that you did this. And I know it's been, I know it's been points in time where frustrating, and not so frustrating for you. But this is a topic, I think that's really, it's really futuristic. I guess if you want to put it that way. Because it's something that needs, it needs to be done for gifted kids. And I think that if you, doing this it will allow more people to realize what we in gifted education go through and do because I don't think they understand what we do. I really, really don't. And I think the more people that understand what we do. I think parents understand more what we do with their kids than other teachers realize what we're doing with the kids. And that's kind of a sad state of affairs. And yet, it just is going to take these kinds of things that you're doing to keep bringing it to the fact that professors in college need to focus more on it as well, and I don't think that they do. I mean I got a little bit of it when I	Participant #1 feels that studies on CCSS such as this one will impact gifted education by bringing it from fringes or margins to a more central area of educational discourse.	05.IMP.01

was in, you know, in Boston, but they're ahead of things.

Re: Well I appreciate that and I can't thank you enough for being a part of the study.

1: Well it's been, it's been fun.

Re: It's, it's fun, it is fun.

1: I've enjoyed it a lot.

Re: Well, thank you.

Post Interview #2, 5/29/14

Raw Data		Stage #1 Summary Chunks	Stage #2 Codes
Re:	So, what do you know about the Common Core State Standards?		
3:	I know that they're intended to be, allow for common ground, hence the name, for all teachers nationwide. And, they're also intended to go more in depth each year rather than cover a wide span of information, go more in depth with fewer, fewer topics you could say. With the eight mathematical practices, what we've been really focusing on, I know that those are the same among every grade level.	CCSS are intended to be common ground nationwide. They are intended to go more in depth each year instead of covering a wide span of information superficially. The 8 mathematical practice standards are the same for every grade level, K-12. Concepts included in the CCSS are intended to be built upon year after year. They were designed purposefully as a continuum.	01.PERC.01
Re:	Anything else?		
2:	Well, they are intended to build, you know, year after year. It's, it sounds like in coming up with the Common Core Standards, they were designed very purposefully so that there was a continuum as they move through their education.		
Re:	Ok. How, exactly, do you use the CCSS, or Arizona College and Career Ready Standards, when choosing or creating curriculum for your quantitatively gifted students?		

3:	Typically, what I would do is I would decide kind of a, I guess you could say a theme, and then look at the students' levels where they are at. So if it's a fifth grader that I'm working with and they're at a seventh grade level, then maybe look at the seventh and eighth grade standards. And, you know, I might also have a student in that group who's at a different level, so looking at those. What's been nice is that those eight mathematical practices are at every level, so they can be interpreted, and, you know, we can continue to develop those skills no matter where the student is at, and it allows easy differentiation. Within one class, you know, within when you have a lot of different students at different abilities within one class it's, you can have one focus and they're all working where they should be. So, I would typically start with, I guess kind of an, an overview and then go to the standards. But what we've found is that in doing that, it's huge, we're usually covering multiple standards with the units that we have.	Participant #2 decides on a theme and then figures out at what grade level her students are with that topic. Next she looks at the CCSS at that grade level on that topic. However, the 8 mathematical practice standards are the same for all grade levels, so if she focuses on those it means she will automatically differentiate for the various ability levels within her class. This process means that she is typically covering multiple standards simultaneously.	02.APR.01
Re:	Is that ok?		

2:	I think it's, yeah! I think it's more, yeah, definitely ok. Yes. Yes.		
Re:	So, so how do you use the Common Core Standards when implementing curriculum with your quantitatively students? That was how you use it when you're choosing and creating, how do you use it when you're actually implementing it? How do you use them?		
2:	Maybe I'm not understanding because I, how do I use it when I'm implementing it?		
Re:	The question I just asked . . .		
2:	Like do I write them on the board?		
Re:	When you're planning and writing. Exactly. So then when you're actually in front of the kids when you're teaching. How do you use them, if you use them?		
2:	Well, I actually have been writing. I have been a, a standard on the board. And, really, for almost a quarter of the year sometimes, you know, our standard can be the same for weeks. We're working on making sense of problems and persevering in solving them. And then we go back to it, and, you know, using those when they need a little bit of, they	Participant #2 writes the standard(s) that the curriculum she has chosen or written addresses on the board as a focus for students, and a way for them to see the end goal to keep striving for.	01.APR.01

need a push, you can persevere through this. Think about the different strategies. What else can you try? So throughout whatever it is that they're working through, reminding them what our goal is here and referring back to that, back to that standard, back to that yeah the standard, but I think of it more of a practice and their goal and . . .

Re: So when you choose a standard to write on the board is it one of those math practice standards or is it one of the content standards?

2: I've been using the math practice, those eight mathematical practices.

Re: So you use that for more than math?

2: I have, yeah.

Re: So those are, that's, those are the . . .

2: And even if we, you know, if we're working on that making sense of problems and persevering in solving them, but we're also working on these, there are specific performance objectives that we're working on, I would still have that eight, one of the eight mathematical practices up there because it's more of an overall, you know, we're

Even when not teaching math specifically, and even if there are more specific performance objectives that she's teaching, participant #2 would write one of the 8 mathematical practice standards on the board as a focus because they are more overarching.

05.IMP.01

working on persevering in solving this problem that happens to be an algebra problem, or that happens to be, so, you know, there's usually overlap and there's multiple, there's specific P.O.'s that we're working on with each lesson, but our ultimate, our big overall focus is that one that, I would choose to write the and refer back to that, the practices.

Re: Ok. That's good. To what extent do you think the Common Core Standards support the curriculum and instruction you choose and create to implement with your quantitatively gifted learners, like the, the eight practice standards that you were talking about?

2: I think, well, probably from my earlier answer you can tell that I, I really like them. I think they're great. I think they're awesome. I remember when I first looked at the math standards, and I was, the Common Core math standards, and I was comparing the grade levels because I wanted to see what students needed at different levels. And, if for example, I'm working with third graders, and if Common Core is intended to go more in depth

Participant #2 really likes the CCSS 8 mathematical practice standards because it was a relief to see them repeated throughout the grade levels which will make going in depth with them much easier throughout the years.

01.PERC.01

in third grade with a certain skill, but they're beyond that what I'm I doing, you know, if I move up, what does that look like for them? So I was really trying to study what the continuum, and I saw the, that those eight mathematical practices are the same, and it was like a relief. It was like, wow awesome. That was brilliant! And I like that they, the ones that were chosen, I think they can encompass more than just math. And in general, they're good life skills. Who wouldn't like to work with a child, I mean, who, what child shouldn't persevere in solving a problem? So, I like them and I think they are great for our gifted students, and . . .

The 8 mathematical practice standards encompass more than just math, they're good life skills, and therefore they're great for gifted students. They allow for extensions and they cross the disciplines making it easier to do multidisciplinary studies, something gifted students thrive on.

03.RELA.01

Re: They're great for our gifted students because they?

2: Well, for many different reasons. Because they allow for an extension, if the teacher plans for it. They allow for, and they're really, there really doesn't seem to be a limit. The only limit would be the person who puts the limit on, you know. And they allow for, they can go across the curriculum, not just in math. And a lot of what we do might, you know, in integrated when we're going all across the

board, we can still use those eight mathematical practices, those eight practices that just happen to be under the math standards.

Re: Good. Are there components of the Common Core State Standards that support your efforts to modify curriculum and differentiate instruction for your quantitatively gifted students and explain those components if they assist you in this task? And you just talking about . . .

2: Well, I, I think a big part of it is they're not specific to a certain performance objective. It doesn't say persevere in solving an, a geometry problem or persevere in solving . . .

Re: Or a multiplication problem.

2: Yeah, or solve double digit multiplication by, it's, you know, perseveres. So that could be in, you know, with like a kindergartener could show perseverance with a task and all the way up the ladder.

Re: What relationships do you see between the Common Core State Standards and the modified curriculum and differentiated instruction that you choose and create to implement with your gifted students? What's

01.PERC.01

Participant #2 sees the CCSS, and particularly the 8 mathematical practice standards as broader than specific performance objectives, so they are easier to implement with a variety of disciplines and topics.

	the relationship?		
2:	Well, I think the teacher kind of creates that relationship in looking for, looking for the correlation. And, I think that if we limit, as teachers, if we limit ourselves to curriculum that is only, only says Common Core in the, on the front cover, or says Common Core, you know, in the description, then we're limiting our students and our instruction. So, I think the relationship comes from a teacher being able to identify and know the standards and know what, you know, the students are working, you know, what our goals are.	A teacher creates or looks for the correlation between CCSS and curriculum she wants to implement. She should not limit herself to curriculum that mentions CCSS on the cover or in the description.	03.RELA.01
Re:	How do you think the Common Core State Standards impact the kind of curriculum and instruction you implement with your quantitatively gifted students?		
2:	Well, I, I don't want to say that they don't impact, but I think that the students impact the curriculum more than the, more than the Common Core impacts the curriculum. The Common Core State Standards impact the kind of curriculum and instruction, I guess in that they give some direction; however, you know, I don't know. We've been teaching this	Gifted students and their curricular needs actually impact the curriculum more than CCSS, but CCSS do give some direction, but gifted education teachers haven't really changed the way they implement curriculum because of the CCSS. CCSS is closer to the way gifted specialists teach, so CCSS validates that way of teaching more than it impacts it.	05.IMP.01

way before we implemented the Common Core State Standards. So . . .

Re: In gifted education you mean?

2: Yep, yeah.

Re: So Common Core State Standards validates the way gifted education has been taught. Is that what you're saying? Am I, I'm not trying to put words in your mouth, but . . .

2: Yeah.

Re: Ok. What are some of the curricular needs of quantitatively gifted students?

2: Kind of, in being open, being flexible. A, the type of assessment that, kind of like, I guess a performance assessment that allows, that allows a teacher to see what the student knows aside from just a yes or no answer. Or, so . . .

Re: Depth of their thinking?

2: Yeah, there you go. Thank you. Depth of their thinking.

Re: And the reason for that is? To better match curriculum? To better . . .

2: Well, better, yeah! To better match curriculum. Well, that would be exactly it. To see the direction and, you know, also to see interests.

04.NEED.01

Gifted students need an open, flexible curriculum with performance assessments that allow the teacher to see the depth of the students' knowledge rather than just a yes or no answer and to better match the curriculum to their needs. They also need a curriculum that interests them. They also need a teacher that allows students to show what they know in different ways using their strength areas. These are a few of the many, many curricular needs of gifted students.

Re: So that, so quantitatively gifted students, you need to find interests?

2: Absolutely, yeah. So, I'd say one of the needs would be that open flexibility, definitely performance assessments, another need, and this I keep going back to the teacher. A teacher that allows for a student to show what they need in different ways, different types of performance assessments, whether it's in writing, orally, you know being, it's not always just maybe paper and pencil, manipulatives. A student might be quantitatively gifted, but they're not very verbal, and then it's hard to identify that quantitative giftedness if we don't, you know, say ok, well can you show me a different way? If I think of other needs I'll come back because there are a lot, and I know I'm just covering the, that was a few.

Re: Do you recommend or use certain curriculum models, programs, instructional strategies, or techniques that actually meet the curricular needs of your quantitatively gifted learners? Are there some that you would recommend?

2: I'd say, oh gosh. Oh there's a lot (laughter). The type of questions we ask. Like really think about, I think a teacher that's working with

One strategy that works well with gifted students is for the teacher to deeply reflect on the types of questions she

02.APR.01

quantitatively gifted students needs to, needs to really reflect on the type of questions that the students are being asked. The work that they're, that we have them do. And thinking about, thinking about the depth rather than breadth. Thinking about challenge, challenging them with one problem or two problems rather than doing repetition of a hundred, you know, this skill a hundred times.

Re: So one or two well designed problems . . .

2: Yeah.

Re: Versus, one hundred practice . . .

2: Yeah. And challenging the student, thinking about how to challenge the student in different ways. You know, they might know, but asking them, well how they know? Or why does that, why does that work that way? So considering a, a specific challenge, you know, specifically to challenge a student based on their particular needs which may look different even within, you know, one classroom, one group . . .

Re: So you need a variety of materials, models, programs, strategies, techniques . . .

2: Hum huh, but even within those . . .

asks the students. Being sure the work they are asked to do is appropriately challenging is another strategy. Giving them one or two well designed problems instead of a hundred repetitions of something they already know. Asking the student to explain his or her thinking (metacognition), or matching the challenge with specific needs of individual students which requires having a variety of materials, strategies, models, and programs available.

Re:	To allow for, to individualize. So it's more than differentiation, it's actual individual . . .		
2:	Hum huh. And you know, within one curriculum. The teacher still is going to have to, or should, consider their class and their students.		
Re:	What characteristics, components, or traits, do these models, programs, strategies, techniques that you just talked about, what are the components or characteristics that make you confident that they actually meet the curricular needs of your quantitatively gifted learners? What do you see, the students response, responding well? Do you see their scores going up? What makes you confident that this is the approach to take?		
2:	Well, I've seen the scores go up. So I've got the data to prove it. And, it's hard to put, I guess, you have nothing else to go off with besides my word with this but, when a student comes to you, and you hear the conversations among the students about, thank you for getting me out of there, or oh, you should have seen what we were doing in Ms. So-and-so's class. Can you believe she's having us do? Or fifth graders say, we did that in third grade. And,	Participant #2 knows that the gifted pedagogy she employs benefits her gifted students because she sees the scores going up, the data, the growth, but also her students' testimonials thanking her for challenging them appropriately. Also, she feels the classroom environment reflects that their needs are being met because of the sense of wonder, curiosity, motivation, and happiness that they exude because they are	04.NEED.01

and then, you know, we start working together on whatever it is that we're working together, and you really, it's like a feeling that's in, in the classroom, a feeling of, of wonder. And you can like feel them thinking about things, mathematical, and otherwise! And it's a, I guess so, yeah, the data, the numbers, the growth, but also the environment and the sense that you get when you're in a classroom where you, where the students are, their needs are being met, and you can, I don't know, I feel like, I feel that my students are happy being challenged. They're motivated to, they want to do this because it's something new. It's invigorating to them. So, there's an, you can't really, I guess, attach a, you know, we don't have data to necessarily support that, but that's when I feel like I know.

being challenged appropriately. They needs are being met.

Re: This is the data.

2: Hum, huh. Oh.

Re: That's great. How do you think the Common Core impacts the kind of curriculum and instruction you implement with your quantitatively gifted students, which I asked

previously, but in light of, in light of what you were just talking about with? You have this confidence, so how does Common Core come in to that, I guess is what I'm asking? Does it?

2: Well. I don't want to say that it doesn't, but I know, I'm, I'm going to do what's best for those kids, and if what was best for those kids was what I'm doing, then I'm going to keep doing it. If someone came in and said, oh no, these are, these are second graders so they need to be doing the second grade math. I would have a really difficult time with that. I don't know that I could, you know, I'd have to, I'd have to do some negotiating about what that's going to look like because, you know, if the Common Core didn't support their needs, and then I don't know that I, I wouldn't be able to, we'd have to have some, some conversations.

Re: So you don't stick with the second grade when you're working with second graders. . .

2: No.

Re: On the Common Core State . . .

2: So, yeah on the, yeah, within the Common Core Standards, the teacher having access to multiple grade levels, as well as her, his or her

Participant #2 does feel that CCSS impact her curriculum, but mostly she will do what is best for her gifted students first. If, for example, someone says she needs to be doing CCSS at the 2nd grade level only with her 2nd grade gifted students, she would feel like the CCSS didn't support their needs and she would want to negotiate and have conversations with whomever insists she stay at the 2nd grade level only. Further allowing the teacher, any teacher, access to the various grade levels allows teachers to monitor with various formative assessments and other data where an individual student is and provide appropriate curriculum for each student. The CCSS allow for this, but the individual teachers still need to be trained in how to use that document to provide appropriately differentiated instruction for all students. That works for gifted education teachers as well. The 8 mathematical practice standards impact

05.IMP.01

students' data and levels, and continuing to, you know, do formative assessments along the way to monitor where the students are at. That allows the teacher, you know, and if the teacher is able to, and allowed to, I shouldn't even say allowed to, but if the teacher has access to the different levels and is able to move among the different levels of the grade level Common Core Standards, then that will allow us to continue to support our students how they need to be supported. And I go back to those eight mathematical practices, you know. Because it's a continuum, and we can, they're the same for each grade level, that allows us to differentiate easy, easily.

curriculum as well because of the ease of differentiation allowed by that continuum.

Re: So the Common Core State Standards do allow for differentiation?

2: Oh yeah.

Re: It's necessary.

2: Yeah. Hum, huh.

Re: But you still have to do it. It's not, it's not necessarily built in black and white.

2: Yeah.

Re: It still requires the teacher to take all these components you were just talking about, the data from the individual child, the access to

the multiple grade level standards, matching all of that together . . .

2: Hum, huh.

Re: But the, but the, it's a document that does allow that . . .

2: Hum, huh.

Re: If you use it.

2: Yeah. If you use it. If you're, you know, for me, that's how I always, from my first year of teaching that's, that's kind of how it always was. But in, it's what we always did. I can't imagine a teacher only looking at their own grade level standards. I don't, there's no way that the Common Core State Standards within one grade level meets the needs of all the students at that grade level. So, so long as a teacher is educated on how to, you know, go above, go below, and plan a unit, plan a lesson so that all needs are met and being able to look at the whole entire, you know, all of the standards. Then, then Common Core State Standards, yeah great. But, I think, the teacher also needs to be shown and coached on how to do that.

Re: Great. One last question. Can you compare the old standards, the old Arizona standards to

	the current Arizona College and Career Ready Standards? You know, what's your opinion? What do you think of the two, the difference between the two?		
2:	Something I noticed about the old Arizona State Standards is, that's very different, is in the old Arizona State Standards we had the, oh the strands, you know. They had, there were the same strands among every grade level. Like number sense and operations was at every single grade level, and you know, it was intended that if we would build on that number sense and operation. And the Common Core State Standards don't have those, don't necessarily have the same exact strand for every single grade level, but what Common Core State Standards have that's the same among every grade level are the practices. Arizona State Standards didn't necessarily have practices or any activities, I shouldn't say activities, but ways of, of, when I think of practices I think of methods and ways of learning or kind of like life styles. You know, it's a life skill. So, that was missing out of Arizona State Standards. Common Core has it, and those I'd say would be the main	The previous Arizona standards had the same strands repeated for every grade level, such as number sense, and the idea was to build each year on those same strands. AZCCRS don't have strands, but they do have those 8 mathematical practice standards that are really better because they are life skills that can be built on each year. That's the main difference.	01.PERC.01

differences that I noticed.

Re: Anything else you want to add?

2: Thank you for allowing me to participate. It was a nice reflection, and a nice, through our conversations I felt validated in what we're doing. And, and I got some great ideas, brainstorming with all of you. So, thank you!

Re: Well thank you! I can't tell you how much I appreciate it.

Participant #2 is glad to have had the opportunity to be part of this study because it allowed her reflection time, validation for what she is doing, and she gathered great ideas during the brainstorming processes.

05.IMP.01

Post Interview #3, 5/16/14

Raw Data		Stage #1 Summary Chunks	Stage #2 Codes
Re:	Can you tell me what do you know about the Common Core State Standards?		
3:	More than I used to, but still not enough. I know that particularly third grade they come at two different focuses, foci how do you say that? The performance standards or things that they need to be able to do, and one of the things I was happy to discover when I was digging deeper, was that they also had specific skill sets that you're expected to know. They seemed very broad to me when I first started looking. And I thought, gosh how do I know what to teach? And then I found the target skills also which is helpful. I know that they, other than those target skills, I know that they focus on broader thinking as opposed to a standard for everything you are supposed to know how to do.	Participant #3 feels she knows more about the CCSS then she used to but still not enough. She feels the CCSS focus on two different areas, things students need to be able to do or performance standards as well as specific skills students are expected to know. She thought the CCSS were very broad at first, but also saw that they included more targeted skills so she would know what she was supposed to teach when, but in general they are broader than the previous Arizona standards.	01.PERC.01
Re:	How, exactly, do you use the Common Core standards when choosing or creating curriculum for your quantitatively gifted students?		

3:	Well, just as in the past, we have things that we've been using that I know are good for kids and it's good thinking that's going on. And just making sure that I am meeting the standards. So kind of working backwards from what I'm doing and making sure there are standards that it meets. But it has also given me thought about how I present the information. You know, in doing the games and doing the real life situations and those kind of things.	I use the CCSS backwards from the way the classroom teacher uses them because first I choose or write curriculum that I know is good for my gifted students and then I find standards that align with that curriculum. Also, though, how I present the information, such as with games or real life situations or simulations, and the instruction, the expectations, the focus, and the products are more thoughtful now with the CCSS.	03.RELA.01
Re:	So presenting. Your lesson plans look different? Or your . . .		
3:	The lesson, the instruction looks different, the expectations, the products are different.		
Re:	Ok.		
3:	The focus is different.		
Re:	How do you use the CCSS when implementing curriculum with your quantitative students?		
3:	See in my head, I'm not sure what the difference is between those two questions.		
Re:	Ok.		
3:	So, mainly I . . .		
Re:	One is choosing and one is actually implementing the curriculum.		

3: Oh, I guess I covered that then. So when I choose them and the implementation is more, you know, about using the stuff that is more game based, or you know, we're doing some exercises where the kids had to, you know, think like a pizza hut manager, and things like that, where they're the math, but in real life situations.

Re: Simulations?

3: Yeah. Well, and, and they're real quick little snippets. Like if you were a veterinarian, you, in order to know how much medicine to give to your dogs you'd need to know this kind of math. And then, having them, presenting them with a fake dog patient. What would you use, based on the dog's weight and those kind of things. So, you know, they were feeling like they were saving this dog's life if they did it right. Kind of neat.

Re: And that all comes from the way you implement because of the Common Core now rather than . . .

3: Yeah, yeah. I started seeking out more of that kind of real life stuff, once we had our conversations (indicating the group

discussion sessions in this study).

Re: To what extent do you think the Common Core State Standards support the curriculum and instruction you choose and create to implement with your quantitatively gifted learners? By that I mean, you know what's best for gifted students, so how does the Common Core support your choices and the curriculum and instruction that you know they should be getting?

3: I think because of the way the Common Core is set up. And also because of the testing that I know is coming down the pike because of the Common Core. So making sure my kids are explaining their thinking and explaining to each other. So a lot of that, I do, I teach type thing. That is how I figured it out. There's, my classroom is very noisy this year because there's a lot of processing between the kids and explaining their thinking, and kind of setting them free to be able to do that for themselves to help each other out.

Because of the way CCSS is set up and because of the standardized testing that will go along with CCSS, participant #3 has her students doing a lot more metacognition and verbalizing their thinking and processing independently.

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Re: Are there components of the CCSS that support your efforts to modify curriculum and differentiate instruction for your

quantitatively gifted students, and could you explain some of these components that assist you?

3: Specifically today at this moment, no. But I know it did. And I apologize, my, my. I'm stumped. I think when I was trying to figure out, you know, looking at what can I do to support the teachers and the testing that is coming up using the pieces that were, you know, delineating the specific skills, it was nice for me to be able to go back and look at that and say ok, if I'm doing one of these simulations activities, I can try to make sure that there's percentage in there or I can make sure they're converting fractions or something like that so that those skills, the target skills was helpful in that.

Knowing the specific mathematical content standards, participant #3 was able to insert them into her curriculum which uses simulations because that strategy works well for gifted students. For her, knowing the specific skills that she wants them to apply during the simulations and games helped her include them which reinforced those skills they were learning in the general education math class. Also if they didn't know a specific skill such as how to figure out a percentage, and they needed it she would teach that skill to them at the moment they needed it to complete the simulation and teach it to only those that actually needed it (just in time learning).

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Re: Ok. What about the, I don't want to put words in your mouth, but I know you'd mentioned earlier about the two different foci, the performance skills and the content skills in the quantitative. Did the performance, you talked about the specific skills, the content skills, the target skills . . .

3: Well the performance is just kind of what am I

doing? You know, what am I looking at? How am I having my kids use this information? What are they doing with it? Again, what kind of activities with them to reinforce what's been learned. With some of it I gave so of those simulation or those little logic things that I was giving . . . I would just give it to them and say, when you get to something that you don't know how to do you come and talk to me. And so they came to me and said I don't know how to do these with percentages. So, then I gave a lesson on percentages. So they were able to go at their own pace, you know, if they already knew it I didn't need to instruct.

Re: Which is a strategy for gifted.

3: Yeah.

Re: So, what relationships do you see between the Common Core and the modified curriculum and differentiated instruction that you choose and create to implement with your gifted students? Do you see commonalities between those two or relationships?

3: Well I think that the fact that we've frequently have done problem-based learning, the problem, the. That format that we frequently use is well supported by the Common Core.

CCSS supports Problem-based learning, something we do often in gifted education, Project-based learning, Reality-based exercises, as well as metacognition,

03.RELA.01

	And again asking, like in the, not in my third grade, but in my other group, they had to explain how they came up with all of their answers. You know, and come up with real, with, with using math terminology, and so reinforcing the vocabulary and things like that.	verbalizing their thinking, becoming the "experts in the room" for other students to go to for support, and continuing at their own pace. All of these are well supported by CCSS and are gifted education practices.
Re:	Problem-based learning? Project-based learning?	
3:	Yeah, the reality-based exercises. The teacher, you know, the student as the teacher. Any time I had a student who whizzed through some of it, you know, they became the expert in the room. They were allowed to continue at their own pace and keep going. They didn't become the teacher, they just became the expert that people went to for support.	
Re:	Ok. How do you think the Common Core Standards impact the kind of curriculum and instruction you implement with your quantitatively gifted students? I know these questions seem like they're the same . . .	
3:	There's a lot of, yeah, I'm sure you're coming at it from a slightly different direction, yeah.	
Re:	Trying, trying to niggle around to get any pieces of it.	

3: Yeah, yeah. Can you say that again? How do you?

Re: How do you think the Common Core State Standards impact the kind of curriculum and instruction you implement with your quantitatively gifted students?

3: It's, again, it's, it's just made me look at it again and make sure that I, I am hitting the standards that I'm supposed to hit, as far as the performance base, and that the, the specific skills. I'm, it's encouraged me to dig deeper into the Common Standards and that I'm aware of them. I'm actually going to unwrap the kindergarten math standards stuff this summer, so that I can feel better about what can I do to move the quantitatively gifted kindergarten students along because they frequently don't seek out service, either the parents or the teachers have been reluctant to seek out testing and service at the kindergarten area. So my intention is to develop lessons that I can push into the classroom with and or offer ideas to the teachers to support in their classrooms.

Re: Ok. What are some of the curricular needs of

05.IMP.01

Becoming more aware of the CCSS, participant #3 has been better at being sure to include the math content standards in her teaching. She has also decided to join the kindergarten teachers this summer to unwrap kindergarten math standards and develop kindergarten math curriculum that she can push into the kindergarten general education classrooms because too many kindergarten gifted students are not identified and don't receive gifted services. This may be a way for them to receive some services through the backdoor and support the general education teachers.

quantitatively gifted students? You mentioned a few, but . . .

3: I think one of the big things . . .

Re: Like the pace thing, for sure.

3: Yeah. Going quicker. You know, giving them an opportunity to learn something new just as other kids learn something new. So, the excitement of learning something new. Letting them, to some extent they come to me and say this is something I'm curious about. You know, so satisfying their need to know, has been a big part of it. Repeat, can you say the question to me again?

Re: What are some of the curricular needs of quantitatively gifted students?

3: So moving quicker and deeper and also having an understanding of, you know, what this means in their future life. Giving them an exposure to the different types of jobs that they could have or careers that they could have that their quantitative giftedness would make them good candidates for. Things like that.

Re: Do you recommend or use certain curriculum models or programs or instructional strategies or techniques that meet the needs,

04.NEED.01

Gifted students need to be allowed to move quicker, they need an opportunity to have their curiosity satisfied with new learning, going deeper with concepts, relating the concepts learned to possible careers.

the curricular needs of your quantitatively gifted learners? I know you mentioned that we do project-based learning and problem-based learning, any things like that?

3: Those also, you know, the new materials that we've gotten. I haven't had a chance to dig into them, the M2, the M2 and M3, but I know they were written to support, and that's what I'm bringing to the training that I'm going to. The classroom teachers, in the morning we unwrap, and in the afternoon they're using their materials to plan. And I'm going to be bringing my own materials to plan extensions for what they're doing. So, I'm not sure, you know, we've used Into the Unknown and things like that. So, I'm not sure if that's what you mean specifically.

02.APR.01

Participant #3 uses some commercially prepared curriculum for her quantitatively gifted students such as Into the Unknown and M^2 and M^3, but also any good Problem-based learning, Project-based learning, or introducing algebra much sooner with Hands on Equations, another commercially prepared mathematics curriculum. Also logic-based math problems feeding both sides of their quantitatively gifted brains, the number side and the logic side. She even used some created math curriculum such as the building 3-D mazes simulation.

Re: Any of that.

3: Yeah.

Re: So, algebra.

3: Yeah, the Hands on Algebra. They really have enjoyed the, the logic based math problems where they have to solve math problems, but in that also solving logic problems. So it's feeding both parts of their quantitatively gifted brain. Not just the number part, but the

logic piece as well. And they absolutely loved those.

Re: Did you do any of the . . .

3: Arbegla?

Re: Yeah!

3: Yeah. I did do, they got a big kick out of the Mr. Arbegla or Dr. Arbegla. The machine's still hanging on my wall (laughter). It took them about two seconds to realize that it was algebra and I got really put out with them (laughter). They figured it out too quick (laugher).

Re: Mine started looking, finding it every . . .

3: Looking at it the other way around . . .

Re: Are you giving it to us backwards again (laugher)? What are you doing?

3: Looking for it.

Re: So, you used, you used the one for the older kids?

3: I used the one with the younger ones too. I actually found, even though zero, the concept of zero . . .

Re: Yeah . . .

3: You've got to go pretty deep, I found it was a little easy for my first graders. They got a little, you know, but I do think it would be

fabulous for my kinders.

Re: Yeah.

3: Or my first graders at the beginning of the year. And this particular group of first graders that I have, oh my gosh. Crazy good (laughter). So I do think that my, you know, but, but, using the, like doing the maze operations. You know, my kids can, can do some crazy addition in the hundreds and the tens now because they, everything was based on ten. All my walls were ten dollars per inch and things like that. So they're doing crazy mental math because they were really motivated to figure out how much money they had and how much money they needed.

Re: Because of the mazes.

3: Yeah.

Re: Not so much because of the . . .

3: No, no. It was because they needed to know, you know, they went home and did all kinds of overtime projects for me, and would come in and wheel and deal about how much money they should get paid for them.

Re: If I did it over, I would definitely flip flop those and do the zero stuff at the beginning of the year. But we didn't have.

3: Yeah. Sure, sure.

Re: We were piloting and just throwing it in at the end. I agree with you totally. But, I loved it. It was great for those little guys and I had some kinders that were brand new that really took off with it.

3: Yeah. Yeah.

Re: What characteristics, components, or traits that these curriculum models, programs, instructional strategies, or techniques have that make you confident that they meet the curricular needs of the quantitatively gifted learners.

3: Because they're challenging, as far as the, the academic piece is high, how advanced the concepts are. That they're learning, when they come to me that they say this is too hard I have a pretty good feeling that I'm at least challenging, and, and, you know, with support they're able to do it. So, it's not something that they're whipping through. I'm asking them to explain their thinking. I know that's a big part of it.

Participant #3 feels these curriculum models, programs, strategies, and techniques that are supported by the CCSS meet the needs of her quantitatively gifted students because they are challenging, have advanced concepts, students are learning new concepts, they need time to complete not just whipping through it, and they are explaining their thinking which is a big part of how she knows their needs are being met.

04.NEED.01

Re: Ok. How do you think the Common Core State Standards impact the kind of

curriculum and instruction you implement with your quantitatively gifted students. Very much a repeat, but go ahead.

3: Yeah. Just continuing to. Raising the awareness. I think that, that, well for me, you know, I guess it is as much about your study as it is about the Common Core itself, but I think it is important for me to understand the expectations of not only the classroom teachers but of the students so that when they come to me for support, for curriculum support, I can help support them. So, I think that's a big part of, of how the standards help me do my job is by giving me a framework to start with for the classroom teachers. I know this is something you're responsible for. This is how I can help you run with it for my kids.

Participant #3 feels that being more aware of the CCSS through this study is allowing her to do the part of her job of supporting the general education teacher in providing appropriate curriculum for the gifted students when they are still in their general education classes much better. She is better equipped to support the general education teachers and therefore her gifted students as well. The CCSS give her a framework that allows her a place to start with the general education teacher when helping them challenge her gifted students when they are with the general education teachers.

05.IMP.01

Re: To make sure that the gifted kids that are in those regular classrooms are still being challenged.

3: Right, right.

Re: Not only challenged when they're with you, but also during their regular math time.

3: Right.

Re: And this, that's important because my study is about gifted teachers who pull out from the

regular classroom. You know, how do we, how do we get that to work? So, that is a really big part of what I'm doing. So, I thank you. The only other question I have for you is how would you compare the Common Core Standards now that we are working with to the old standards that you were, you were around and used those too? You saw those as well. How would you compare the two? Are you . . .

3: These seem, well it seems to me that the, the other, the ones previous to this were so much more about the skills that they needed to have as opposed to, the Common Core seems to guide a little bit more about how you're supposed to present it. You know, it gives more of an understanding of, yes they need to know how to do these things, but in this context or this context. And they need to know how to do it deep enough to explain it.

AZCCRS are more about how you present skills and deep enough to be able to explain it whereas the previous Arizona standards were much more skill specific. She wishes we could actually do both because she still likes to know that checklist of specific skills that say a third grader should know and the NWEA scores are still tied to the previous Arizona standards and that is what is used in the district to show growth. We are still in transition.

01.PERC.01

Re: Do you like them better? You don't like them as well?

3: I think that, the, I don't see, I wish they weren't mutually exclusive. You know, I still go back to the old standards to make sure that the skills, you know, if I'm having a hard time

figuring out what area, what grade level a skill should be accomplished by (interruption). Ok, so what was I saying?

Re: Still goes back to the old skills sometimes.

3: Yeah, yeah. To make sure, just to make sure that, you know, this is something that a, that a third grader is expected to know. So, you know, just for, just for more, more of a reference, more of a list of things that I need to make sure my kids are ready for. And because our kids are still held to the NWEA's right now, still, and that's very much tied to those old skill bones. You know that's where, how we're judging their growth and it's, they don't mesh completely with the Common Core yet.

Re: Anything else that you want to add?

3: No, I, I just, what I said in my notebook too is that it's been a good experience because it has, I was forced to look at the standards with you, and really look at them and tease them apart and it made me realize this is a valuable use of your time, and that's why I'm going to do the kindergarten standards this summer.

Re: Excellent.

3: But, mostly though that way I can, because I

Participant #3 feels that being a part of this study has impacted her because it has forced her to look at the CCSS and tease meaning out of them which is a valuable experience. It has also made her aware that she can do the same thing with the kindergarten teachers this summer because so many kindergarten students come in with good basic knowledge and stagnate because they are not appropriately challenged.

05.IMP.01

do feel like that grade level in particular, so many kids come in with a basic understanding and just kind of go stagnant for a little while. And I want to make sure I help so that won't happen.

Re: And pass that along for the rest of us as well.

3: Yeah, yeah.

Re: Well (indicates participant number 3), I can't thank you enough. I've said that twenty million times, but I still can't thank you enough.

3: Yeah. And I know.

Re: And it's exciting to be coming to the end here. I'm going to be spending the summer, you know, transcribing and writing all this up and analyzing, so I'll let you know how it all goes, but we're pretty much done.

3: Well thank you. Yeah. Good for you.

Re: Thanks again.

APPENDIX T

STAGE 3: SUMMARIES OF CODES FOR POST INTERVIEW TRANSCRIPTS

Stage #3 Summaries of Codes for Post Interviews

01.PERC.01.....perceptions of CCSS by teachers

CCSS are broad guidelines that drive curriculum and instruction, according to participant #1. Curriculum and instruction should be aligned to CCSS. A single standard should be able to be applied across the disciplines because it is broad. CCSS should aid teachers in reaching goals for students' learning. Participant #1's perception of the previous Arizona standards is that they were restrictive and constrictive when compared to the CCSS being used today. Participant #2 stated that the CCSS are intended to be common ground nationwide. They are intended to go more in depth each year instead of covering a wide span of information superficially. The 8 mathematical practice standards are the same for every grade level, K-12. Concepts included in the CCSS are intended to be built upon year after year. They were designed purposefully as a continuum. Participant #2 really likes the CCSS 8 mathematical practice standards because it was a relief to see them repeated throughout the grade levels which will make going in depth with them much easier throughout the years. Participant #2 sees the CCSS, and particularly the 8 mathematical practice standards, as broader than specific performance objectives, so they are easier to implement with a variety of disciplines and topics. Further, participant #2 feels that the previous Arizona standards had the same strands repeated for every grade level, such as number sense, and the idea was to build each year on those same strands. AZCCRS don't have strands, but they do have those 8 mathematical practice standards that are really better because they are life skills that can be built on each year. That's the main difference. Participant #3 feels she knows more about the CCSS then she used to but still not enough. She feels the CCSS focus on two different areas, things students need to be able to do or performance standards as well as specific skills students are expected to know. She thought the CCSS were very broad at first, but also saw that they included more targeted skills so she would know what she was supposed to teach when, but in general they are broader than the previous Arizona standards. Further, participant #3 states that AZCCRS are more about how you present skills and deep enough to be able to explain the skill whereas the previous Arizona standards were much more skill specific. She wishes we could actually do both because she still likes to know that checklist of specific skills that a third grader should know and the NWEA scores are still tied to the previous Arizona standards and that is what is used in the district to show growth. We are still in transition.

02.APR.01.....approaches to CCSS by teachers

Unlike the general education teacher who chooses standards to teach first, participant #1 chooses topics that are relevant to her students because of exposure to a career, or because of interest, and then finds standards from a variety of disciplines and grade levels that would be covered by that topic. Participant #1 covers multiple standards across disciplines simultaneously when teaching an integrated theme or topic. She teaches what

students need to know "as they need to know it" while they are applying knowledge. Further, she uses standards in a more global and in depth way without duplicating general education activities, and uses standards from multiple grade levels. She is able to address curricular needs of gifted students better because she can take a standard from a higher grade level as needed. Participant #1 explains that in gifted education, we apply the concepts we are trying to teach in a different way than the general education teacher. She may read about an experiment in a book with the students whereas we would actually do the experiment with the students. We implement curriculum in a more investigative way. Participant #1 uses a number of commercially prepared approaches with her gifted learners including Algebra Mystery Maze, MathQuest, Into the Unknown, and Tick Tock which are all from InterAct. Additionally, she uses curriculum from Marilyn Burns and Ed Zocarro. Other approaches she uses include acceleration, compacting the curriculum, taking certain concepts deeper, using authentic learning situations, metacognition, teaching a peer, putting the concept into a different context, or physically demonstrating the concept. Participant #2 decides on a theme and then figures out at what grade level her students are with that topic. Next she looks at the CCSS at that grade level on that topic. However, the 8 mathematical practice standards are the same for all grade levels, so if she focuses on those it means she will automatically differentiate for the various ability levels within her class. This process means that she is typically covering multiple standards simultaneously. Further, participant #2 writes the standard(s) that the curriculum she has chosen or written addresses on the board as a focus for students, and a way for them to see the end goal to keep striving for. Participant #2 thinks that one strategy that works well with gifted students is for the teacher to deeply reflect on the types of questions she asks the students. Being sure the work they are asked to do is appropriately challenging is another strategy. Giving them one or two well designed problems instead of a hundred repetitions of something they already know is another good strategy. Asking the student to explain his or her thinking (metacognition), or matching the challenge with specific needs of individual students which requires having a variety of materials, strategies, models, and programs available, is also a good strategy to use with gifted students. Participant #3 uses some commercially prepared curriculum for her quantitatively gifted students such as Into the Unknown and M^2 and M^3, but she also uses any good problem-based learning, or project-based learning, or introducing algebra much sooner with Hands on Equations, another commercially prepared mathematics curriculum. Also she uses logic-based math problems, feeding both sides of their quantitatively gifted brains, the number side and the logic side. She even used some created math curriculum such as the building of 3-D mazes simulation.

03.RELA.01 .....relationship between gifted education curriculum and CCSS

Participant #1 thinks the CCSS are great, but too slow, too restrictive for gifted students. They go through them so much faster than general education students. She chooses a topic and then looks for the standards, not the other way around which is how the general education teacher is told to do it. Gifted education teachers need to know all the CCSS from kindergarten through 8^{th} grade, unlike general education teachers who know their

grade level. The CCSS support gifted education curriculum because many standards spiral through the grade levels, going deeper as the standard moves through the grades which allows gifted education teachers to use higher grade level standards that are still addressing the same content, such as graphing, but more in depth. Because the CCSS spiral concepts through the grade levels, and because of the way they are worded, there is an ability to stretch concepts and deepen understanding of concepts to better meet the curricular needs of gifted students. The relationship between the CCSS and gifted education curriculum is that the CCSS allow gifted education teachers to carry the concepts from the "everyman" standard or "every-child" standard deeper, further, at a more complex level to better match the curricular needs of gifted students. Also, the CCSS allow gifted education teachers to go deep enough with concepts that gifted students can apply it now and for the rest of their lives through authentic learning or what participant #1 calls career learning, and because of authentic learning or career learning, the concepts are forever memorable. Participant #1 feels the AZCCRS allow gifted education teachers to teach as far as the gifted students can take concepts. Participant #2 thinks the 8 mathematical practice standards encompass more than just math. They're good life skills, and therefore they're great for gifted students. They allow for extensions and they cross the disciplines making it easier to do multidisciplinary studies, something gifted students thrive on. Participant #2 feels a teacher creates or looks for the correlation between CCSS and curriculum she wants to implement. She thinks this is the key to the relationship. She should not limit herself, however, to curriculum that mentions CCSS on the cover or in the description. Participant #3 uses the CCSS backwards from the way the classroom teacher uses them because first she chooses or writes curriculum that she knows is good for her gifted students and then she finds standards that align with that curriculum. Also, though, how she presents the information, such as with games or real life situations or simulations, and her instruction, her expectations, her focus, and the products she demands are more thoughtful now with the CCSS. Participant #3 feels that CCSS support problem-based learning, something gifted education teachers often do in gifted education, project-based learning, reality-based exercises, as well as metacognition, verbalizing their thinking, becoming the "experts in the room" for other students to go to for support, and continuing at their own pace. All of these are well supported by CCSS and are gifted education practices, according to participant #3.

04.NEED.01.....curricular needs of gifted students

Participant #1 implements standards in a more in depth way than general education teachers, a way that fits more with gifted students' curricular needs. Gifted students need to know, according to participant #1, that there is a foundation for what they are learning, the "why" they are learning this, certain background, curriculum that they will enjoy, and that the teacher understands how each student learns math. Further, gifted students need curriculum that allows them to think deeper about the concepts, that will be fun and enjoyable for them. Gifted curriculum needs to allow the teacher to pull out a component and go deeper with it to fit the students' needs, not be scripted or presented from a textbook in one stilted way. It needs to be curriculum that can be built on. Gifted teachers

should teach gifted students because they both think differently than general education teachers and students, and because gifted students need teachers who have examined their own thinking (metacognition). The curriculum needs to be flexible enough to allow gifted students to go on tangents with the concepts and jettison unnecessary information. Gifted students need teachers who are willing and capable of researching how gifted students learn in areas they are not necessarily gifted in. Sometimes there are concepts gifted students need to know that are not in the CCSS, so participant #1 will teach the concepts anyway even without a standard to align to it. Gifted students need a rich integrated curriculum that allows them to make cross disciplinary connections. Participant #2 thinks gifted students need an open, flexible curriculum with performance assessments that allow the teacher to see the depth of the students' knowledge rather than just a yes or no answer and to better match the curriculum to their needs. They also need a curriculum that interests them. They also need a teacher that allows students to show what they know in different ways using their strength areas. These are a few of the many, many curricular needs of gifted students. Participant #2 knows that the gifted pedagogy she employs benefits her gifted students because she sees the scores going up, the data, the growth, but also her students' testimonials thanking her for challenging them appropriately. Also, she feels her classroom environment reflects that their needs are being met because of the sense of wonder, curiosity, motivation, and happiness that they exude because they are being challenged appropriately. They're needs are being met. Participant #3 feels gifted students need to be allowed to move quicker, they need an opportunity to have their curiosity satisfied with new learning, to go deeper with concepts, and to relate the concepts learned to possible careers. Participant #3 feels that certain curricular models, programs, strategies, and techniques that are supported by the CCSS meet the needs of her quantitatively gifted students because they are challenging, have advanced concepts, allow students to learn new concepts, it takes the students time to complete the tasks—they are not just whipping through them, and they are explaining their thinking which is a big part of how she knows their needs are being met.

05.IMP.01 .....impact of CCSS on gifted education

Participant #1 feels that CCSS support gifted education curriculum because the standards are broader than the previous standards which were very specific. The CCSS are more applicable to gifted education curriculum than the previous standards, and she appreciates that. Further, participant #1 thinks that many important life concepts are in the standards, but not all important life concepts are in the standards. So the ones she feels are important allow her to align her curriculum to them, but if important ones are missing, she will still teach them, just without a standard listed next to them. So the CCSS do impact her choices, but her knowledge of the way the world works and the things students are going to need to know impact her curricular choices even more. The CCSS impact the gifted curriculum that participant #1 chooses because she measures the value of what she is teaching to the CCSS. She does not, however, look at every standard and try to figure out a way to teach it. Some standards, according to her, are concepts she just would never bother to teach to her gifted students. Participant #1 is hoping the classroom teachers can

embrace the CCSS and implement them more like gifted education teachers do so that the gifted students in their classrooms will get more of what they need. Participant #1 feels that studies on CCSS such as this one will impact gifted education by bringing it from the fringes or margins to a more central area of educational discourse. Even when not teaching math specifically, and even if there are more specific performance objectives that she's teaching, participant #2 would write one of the 8 mathematical practice standards on the board as a focus because they are more overarching than for just math. She thinks that gifted students and their curricular needs actually impact the curriculum she chooses or creates more than the CCSS, but CCSS do give some direction. Gifted education teachers haven't really changed the way they implement curriculum because of the CCSS. CCSS are closer to the way gifted specialist teach, so CCSS validates that way of teaching more than it impacts it. However, participant #2 does feel that CCSS impact her curriculum, but mostly she will do what is best for her gifted students first, regardless of the CCSS. If, for example, someone says she needs to be doing CCSS at the 2nd grade level only with her 2nd grade gifted students, she would feel like the CCSS didn't support their needs and she would want to negotiate and have conversations with whomever insists she stay at the 2nd grade level only. Further, allowing the teacher, any teacher, access to the various grade levels allows teachers to monitor with various formative assessments and other data where an individual student is and provide appropriate curriculum for each student. The CCSS allow for this, but the individual teachers still need to be trained in how to use the document to provide appropriately differentiated instruction for all students. That works for gifted education teachers as well. The 8 mathematical practice standards impact curriculum as well because of the ease of differentiation allowed by that continuum. Participant #2 is glad to have had the opportunity to be part of this study because it allowed her reflection time, validation for what she is doing, and she gathered great ideas during the brainstorming processes. Because of the way CCSS are set up and because of the standardized testing that will go along with CCSS, participant #3 has her students doing a lot more metacognition and verbalizing their thinking and processing independently. Knowing the specific mathematical content standards, participant #3 was able to insert them into her curriculum, which uses simulations because that strategy works well for gifted students. For her, knowing the specific skills that she wants them to apply during the simulations and games helped her include them which reinforced those skills they were learning in the general education math class. Also, if they didn't know a specific skill such as how to figure out a percentage, and they needed it for what they were doing in the simulation or game, she would teach that skill to them at the moment they needed it to complete the simulation. Further, she taught it to only those that actually needed it (just in time learning), not those who already knew it. Becoming more aware of the CCSS, participant #3 has been better at being sure to include the math content standards in her teaching. She has also decided to join the kindergarten teachers this summer to unwrap kindergarten math standards and develop kindergarten math curriculum that she can push into the kindergarten general education classrooms because too many kindergarten gifted students are not identified and don't receive gifted services. This may be a way for them to receive some services and support the general education teachers in the process, a big part of what participant #3 sees as her job. Participant #3 feels that being more aware of CCSS

through this study is allowing her to do the part of her job of supporting the general education teacher in providing appropriate curriculum for the gifted students when they are still in their general education classes much better. She is better equipped to support the general education teachers and therefore her gifted students as well. The CCSS give her a framework that allows her a place to start with the general education teachers when helping them challenge her gifted students when they are with the general education teachers. Participant #3 feels that being a part of this study has impacted her because it has forced her to look at the CCSS and tease meaning out of them which is a valuable experience. It has also made her aware that she can do the same thing with the kindergarten teachers this summer because so many kindergarten students come in with good basic knowledge and then stagnate because they are not appropriately challenged.

APPENDIX U

APPROVAL FOR HUMAN RESEARCH

EXEMPTION GRANTED

David Carlson
Division of Teacher Preparation - West
-
David.L.Carlson@asu.edu

Dear David Carlson:

On 12/11/2013 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	Gifted Students and the Common Core State Standards
Investigator:	David Carlson
IRB ID:	STUDY00000405
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	• Carlson - Consent-minimalrisk CCSS+Gifted.pdf, Category: Consent Form; • DOHM-IRB-Social_BehavioralApp.docx, Category: IRB Protocol; • Research Dianna Dohm 093013.pdf, Category: Off-site authorizations (school permission, other IRB approvals, Tribal permission etc); • Dohm-Recruitment-e-mail to participants-2.pdf, Category: Recruitment Materials;

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (2) Tests, surveys, interviews, or observation on 12/11/2013.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc: Dianna Dohm
Dianna Dohm

APPENDIX V

APPROVAL TO CONDUCT RESEARCH IN TEMPE ELEMENTARY SCHOOL DISTRICT

ddohm@tempeschools.org

REQUEST TO CONDUCT RESEARCH IN TEMPE SCHOOL DISTRICT NO. 3

Send research request to:

Chris Busch
Superintendent
Tempe School District #3
3205 South Rural Road
Tempe, Arizona 85282

I wish to conduct a research project in Tempe School District #3 and request approval of the Research Committee to contact the appropriate personnel.

Dianna Dohm — *Name*
August 19, 2013 — *Date*
Gifted Education Specialist Teacher (PACE) — *Position*
480-899-2566 (home) — *Phone*

Return Address: 3320 W. Drake St., Chandler, AZ 85226

Research Project is for:

____ ASU Class ____ MA Thesis X Doctoral Dissertation
____ Faculty Research ____ University Research ____ Other

Title and Purpose: Gifted Students and the Common Core State Standards. This study is qualitative research in the ethnographic tradition.

Approximate number and grade levels of pupils to be involved. Ø students. Research only involves 11 Gifted Education Specialist Teachers (PACE) in the district.

Approximate class time required per pupil: Ø student classtime. Research requires two ½ hr. classroom observations per teacher

Name of school(s) and what facilities will be needed: Any or possibly all of the elementary (K-5 and K-8) schools where gifted ed. teachers work in order to make observations.

Deadline for completion: Main research gathering by Feb. 1, 2014, report completed by May 2014.

Comments: I am also seeking permission from ASU's IRB. Please see attached documents: Informed Consent Form to be given to volunteer participants, Human Research Curriculum Completion Report, Explanation of Research Questions, Timeline of Research Study, Semi-structured Interview Questions, Classroom Observation, Collaborative Group Discussion Sessions, Personal Journal, and Analysis of CCSS.

Date 9/30/13 **Approved** ✓ **Disapproved**_____

Signature: Chris Busch **Comments:**_____

Chris Busch
Superintendent

Approval indicated on this form is intended to grant to the researcher the opportunity to contact the appropriate personnel to gain their approval and support of this project.

Great research Dianna. My suggestion is to change "Common Core State Standard" to the new official AZ title in your literature

BIOGRAPHICAL SKETCH

Dianna Jane Dohm was born in Tempe, Arizona on December 5, 1954. She attended a private kindergarten at Emerson Elementary School and part of first grade at Madison Elementary School, both in Phoenix, Arizona. She received the rest of her elementary education at Ritter Elementary, Laird Elementary, and Gililland Junior High schools in the Tempe Elementary School District in Tempe, Arizona. Upon graduation from Tempe High School in 1971, she began her higher education studies, majoring in Elementary Education, at Arizona State University in Tempe, Arizona. She later transferred to the University of Arizona in Tucson, Arizona, double majoring in Elementary Education and Secondary Education with an emphasis in English. Upon graduation in 1977 and earning a dual teaching certificate in elementary and secondary education, she taught high school reading classes at Hayden High School in Hayden, Arizona. The following year she returned to Gililland Junior High School, this time as a teacher, teaching English, history, and government. The next year she entered graduate school at Arizona State University to pursue a Master's degree in English, specifically Teaching English as a Second Language. While pursuing her degree, she also taught Freshman English 101, 102, 111, and 112 classes at ASU. After graduating from ASU in 1982, she again returned to teach honors language arts classes at Gililland Junior High School. Two years later she moved to the Chicago, Illinois area to teach honors language arts classes at Lake Bluff Junior High School and adult evening English language classes to refugees at Highland Park High School. She returned to Tempe, Arizona in 1986 and taught honors language arts classes at Gililland Junior High School for two more years before becoming a member of the PACE (Promoting Actualization through Creativity and Excellence) department, the gifted program in the Tempe Elementary School District. She received her gifted teaching endorsement and taught kindergarten through sixth grade gifted students in the PACE program, which utilizes a weekly pullout enrichment model, for the next 27 years. Along the way, she received her early childhood teaching endorsement and her supervisory administrative certificate. Additionally, she taught adult evening classes through Ottawa University in gifted education for teachers who were pursuing their gifted teaching endorsement. During the last few years of her career as a gifted education specialist, she again entered graduate school at Arizona State University to pursue her doctoral studies in Curriculum and Instruction, Special Education with an emphasis in Gifted Education. She retired from Tempe Elementary School District in 2014.