

A Study on Brazilian Secondary Teachers
in a Community of Practice Focused on Critical Thinking

by

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ABSTRACT

The purpose of this action research was to work with Brazilian trained educators in a Community of Practice (CoP) to explore how teachers collectively define and talk about critical thinking (CT). The research also examined how past teaching experiences shaped their attitudes toward emphasizing CT in teaching. In addition, the research studied how participation in a CoP focused on CT changed classroom planning. The study is grounded in Community of Practice and Social Constructivism. As an international school, this study examined related research conducted in Jordan, Hong Kong, Taiwan, and Pakistan. This qualitative action research was 12 weeks in length with six participants who were all from Brazil and worked at a private bilingual international secondary school. Participants completed an initial interview and final interview. They also completed online journals, which were assembled weekly for 45 minutes, and maximized their efforts constructing a unit plan utilizing the Understanding by Design method. The results of the study describe the teachers' definition of critical thinking, and also present an understanding of how the CoP shaped their attitudes. This, in turn, resulted in members' updated classroom planning, which was due to participation in the cohort. Further issues and credibility, contextualization, and transferability as well as researcher positionality were discussed.

DEDICATION

This dissertation is dedicated to my entire family. I am the first to achieve a doctoral degree on either side of my family and could not have achieved this monumental undertaking without their support. To the Jaramillos and Oteros, may we continue to break the cycle and place education as a priority. May we also never second-guess ourselves and always strive to give our best.

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Chapter 1

LARGER AND LOCAL CONTEXT OF THE PROBLEM OF PRACTICE

Critical thinking is essential if we are to get to the root of our problems and develop reasonable solutions. After all, the quality of everything we do is determined by the quality of our thinking.

— (*Foundation for Critical Thinking*, 2013, “Our Mission,” para. 2)

Standardized testing in education is at an all-time high in the world. Increasing attention is placed on data and how we strategically move students to pass exams and improve overall scores (Sahlberg, 2016). This approach often creates a statistical marker of “value” for the school and focuses attention on the school’s scores. Standardized testing emphasizes a teacher-centered approach. The teacher is often challenged by the schools to raise scores and attention is placed on “teaching to the test.”

In international schools, the dominant paradigm may be shifting from standardized testing to a student-centered approach, where learning is the focus. In this model, students should be encouraged to work independently and to also collaborate, practice, investigate, explore, inquire, create, and problem-solve. These critical skills are equally important for teachers to learn to be effective and efficient in the classroom. Students should no longer be expected to stay stationary in their seats or to memorize facts, as technology increasingly lends itself to be a conduit of information.

Is Brazil embracing such changes? Before the election of Jair Bolsonaro, there were discussions about changing education in Brazil. Politicians, government officials, educators, and students began to discuss a need for school improvement. Politicians

decided to move forward through a Provisional Measure, MP746/2016 (Serrão, 2016). The publishing of the MP would have allowed secondary students to study under one of two tracks: students would have had the choice of a professional career track, which would focus on preparation for college, or they could choose to have technical training to improve their skills for the job market. Other areas in secondary education that might also have changed were the required courses, the amount of hours a student would attend school, adding English to the curriculum starting in grade six, and changes to other key structures (Serrão, 2016).

Since the election of Jair Bolsonaro in October 2018, changes to Brazil's educational future were uncertain. The appointment of Catholic theologian Ricardo Vélez-Rodríguez as the Minister of Education may result in returning the country to strict and traditional educational governance. Will the new regime encourage students to foster their own ideas, analyze information, make inferences, and become critical thinkers in the 21st century? Or will the Bolsonaro regime's schools face hardship due to political choices?

High-Stakes Testing and Critical Thinking in the Brazilian Context

Brazil is not immune to the complexities of a government-led educational system. With all educational reforms, learning to think is one of the most important goals of formal schooling (Bernard et al., 2008). Stakeholders need to consider how they will collect data to support and enrich student learning by making appropriate changes within the system. Currently in education, more and more school departments use assessments to gather data to drive instruction. This trend can be useful to schools or can cause negative

consequences. Aydeniz (2007) reports that assessments are critical in the advancement of student learning. However, the negative effects weigh just as heavily, and evidence suggests this negative impact could be greater. One area that seems to be in question is student learning. Minarechová (2012) states that in the classrooms that are tested, most teaching time is devoted to preparing for the testing or doing the testing. This “teaching to tests” steals time from critical thinking (CT) and deeper learning. Minarechová’s research found that if the teacher spends a lot of school time preparing students for tests, the quality of teaching decreases. This is seen often in countries where testing and using results are the main objectives.

Brazil is similar in many ways to other countries when it comes to high-stakes testing. In 1990, the National Basic Education Evaluation System (Sistema de Avaliação da Educação Básica, or SAEB) was initially created as a set of guidelines to look at the inadequacies and problems of the educational system in Brazil (Becker, 2014). The SAEB evaluated a sample of students in 4th, 8th, and 12th grades. In 1996, the SAEB exam fell under the National Educational Bases and Guidelines Law, and this change allowed the National Institute of Educational Studies and Research, Anísio Teixeira (INEP), to use quantitative indicators to move forward in developing concrete teaching and learning outcomes (Becker, 2014).

This use of testing for policy and practice purposes expanded in 2005, when the Provo Brasil examination was created to test all students. “Provo Brasil evaluates all students in Portuguese and Mathematics whereas, up to 2005, SAEB was administered only in a sample of schools” (Becker, 2014, p. 69). The test has allowed INEP to judge each school individually, placing the ownership of the learning process on each school.

This process shapes not only public schools subject to Provo Brasil, but private schools where part-time teachers are socialized into high-stakes testing through simultaneous employment in public schools. Thus, this high-stakes environment invades schools such as the Academia do Lago, where I worked from 2014 to 2018, even without the same testing mandates as in public secondary schools.

The National Secondary Education Examination (Exame Nacional do Ensino Médio, or ENEM) is an exam that was developed to give each student a clear understanding as to his or her overall secondary school education results. “The goal is to gauge whether a student is prepared to face the challenges of modern life as a citizen and be able to make autonomous decisions during university or in the labour market” (Becker, 2014, p. 72). Beginning in 2009, the exam became valid for university entrance.

Today, students in secondary school are not required to take the ENEM; however, to apply to federal university programs, students must take a university exam. In 2017, 67% of the graduating class where I was secondary principal continued their higher education in Brazil of which 33% of the students attended a Federal University, with approximately 33% of the students studying abroad.

The Situated Context

The school mentioned above is the Academia do Lago, a pre-kindergarten through Grade 12 international school in Brasilia, Brazil (I am using pseudonyms in this dissertation for both individual participants and the school). Academia do Lago was established several decades ago as a place where children from different countries and of diverse backgrounds could come together in a global learning community. The goal of

Academia do Lago was to construct a school where children could learn to live peacefully together as “world citizens” in a safe, healthy, and happy environment. They were simultaneously challenged to excel academically through a rigorous, college-preparatory curriculum enriched by values and ethics.

Academia do Lago serves as a private, not-for-profit, coeducational, dual-language (English and Portuguese) day school. AdvancED internationally accredited the school, and it was also nationally accredited by the Brazilian Ministry of Education. Academia do Lago has offered a rigorous bilingual academic curriculum complemented by moral principles and service, sports, and arts. In addition, Academia do Lago offers college preparation and university-level classes. The school provides an opportunity for students to earn up to three different diplomas: Brazilian, American, and AP Capstone®.

The curriculum at Academia do Lago is a blended curriculum using Standards and Benchmarks from United States Standards and Brazilian Competencies. U.S. standards come from Common Core Standards for English; math and science standards utilize Next Generation Science Standards. Academia do Lago has worked hard to blend the Brazilian competencies mandated by the Ministry of Education. This approach is an ongoing process that the school continues to assess using Standards and Benchmark grading.

Professional development (PD) trainings are offered yearly onsite to all teachers and select teacher assistants (in this dissertation, the terms “teacher” and “professor” may be used interchangeably. In Brazil, students and teachers use the honorific “profe” or “professor” for teachers.). The PD at Academia do Lago is typically a week-long series, which includes various educational topics before students begin school. The topics vary as needed, and input is collected by teachers in the form of a survey. This survey is sent

to all staff from pre-k to 12th grade, months before the actual professional development. In the past several years, PD has focused on standards-based grading, best practice in assessment, school improvement plan setting, aligning assessment and instruction, and Understanding by Design unit planning.

Once the expert leaves the school after the full week of training, it then becomes the responsibility of the school and the administration to carry through with the expectations set by the professional. On the surface, this process seems relatively easy to keep in place, but initiatives from the school can become overwhelming for the teachers and administration to actually complete. An initiative may also be forgotten if it is not closely monitored by the principal and administration. A clear plan of action in the beginning of each school year, with clear expectations, is needed as a guide.

As secondary principal at Academia do Lago, I was responsible for leading instruction in grades six through 12. One of the main topics continuously trained is Understanding by Design (UbD) unit planning. This backwards planning, which was developed by Wiggins and McTighe (1998, 2005), focuses on curriculum, assessment, and instruction. As educators at Academia do Lago, it is important to build a good plan to successfully carry out the objective of the lessons. In 2015, the PD expert who focused on UbD planning was able to explain the process to all teachers from nursery to grade 12. This one-time approach did help some teachers, but left other teachers with questions and the remainder confused—especially about how this planning would assist them in class.

Wiggins and McTighe (2005) define the three stages of backward design. In stage one, teachers develop a plan focusing on the desired results that students will need to achieve. In stage two, the teacher will determine the evidence collected to show that the

student has an understanding of the content and has achieved mastery of that content. In stage three, teachers create instructional activities and lessons that support students as they produce evidence for the required standards. For purposes of this research, the attention that was drawn to the UbD concerned stages one and three. In addition, I also adapted the Goal, Role, Audience, Situation, Performance, Standards (GRASPS) performance assessment from Wiggins and McTighe (2005) and placed it into Academia do Lago's stage three in the UbD template. This learning plan allows teachers to create effective lesson plans that will guide student learning.

In this learning plan, teachers create a performance task scenario using the GRASPS acronym. Each letter in the acronym plays an equally important role in the success of the students' learning. Situation—the fourth letter in GRASPS—plays a critical function for students. This is where students are given the context to their challenge. Students begin to examine what they need to do in order to fulfill the expectations of the assignment. Through this concentration, they begin to think critically and reflect on their own abilities and those of their fellow students.

Academia do Lago chose to move to this format to provide students with a more authentic learning experience. This was a different method for both local and international teachers to teach students at the school. The school's administration wanted to push the learning experience forward and create an environment that promoted real-world situations. Administration wanted the teachers to start focusing on educating students to think for themselves and how to apply their knowledge in their everyday lives. Before this shift on pedagogy at Academia do Lago began, the focus was solely on preparing students for exams; therefore, there was an emphasis on memorization.

Teachers resisted change, and many of the lessons were geared toward the goals of the teacher and not the school. As teachers left the school, they would take their lessons with them and would leave little for the school to use the following year. This practice made it difficult to retain consistent lesson plans and build on the students' existing knowledge from the previous year.

As teachers work with UbDs, they are required to place them in the school's shared drive for each unit to be reviewed by the principal and the curriculum coordinator. This practice allows the school to build institutional memory. Building UbDs and housing them in the school's drive allowed teachers to collaborate with their colleagues, reflect on the student's learning, and to make adjustments to the UbD as necessary. Keeping the focus on preparing students to continue to the next level in life is a priority at the secondary level.

In stage one, the focus was centered around two areas in this research. The first area was establishing goals, which added learning Standards and Benchmarks to the given subject area. At Academia do Lago, teachers used three formats of an UbD and may have placed their Standards and Benchmarks in stage one or stage three (sometimes in both places). The other area of focus on stage one was the essential questions. This part of the UbD allows the teacher to have an overarching question for the entire unit. Wiggins and McTighe (2005) wrote, "their aim is to stimulate thought, to provoke inquiry, and to spark more questions—including thoughtful student questions—not just pat answers" (p. 106). The teachers are asked to post these essential questions in their classrooms and to refer to the questions throughout the course of the unit.

After completing the 12th grade, students' have the opportunity to attend universities or colleges in Brazil, or may have the option to attend institutions outside the country. Approximately 20% of students each year choose to attend schools outside of Brazil. Within the past five years, the top university majors sought by Academia do Lago graduates have been engineering, law, and business administration.

During their junior and senior years, students take admissions examinations for college. Students in the international track have taken examinations that have allowed them to attend college and universities in the United States, including the Scholastic Assessment Test (SAT) or the American College Test (ACT). Similarly, students enrolled in the national program at Academia do Lago, and who want to attend Brazilian institutions, have taken either the Exame Nacional do Ensino Medio (ENEM) or the Vestibular.

All students at Academia do Lago are required to take mock exams each quarter starting in high school. The mock exams are specifically tailored for Academia do Lago students and are designed by teachers from the secondary school. This test prep does not prepare students to analyze, infer, evaluate, explain and to make sound judgements the way that critical thinking does for the students of Academia do Lago. The mock exams are created only to assess students recall of delivered content. Each grade level has its own set of content specific questions and is administered over the course of two days resembling the official exam.

With an overall high university acceptance rate from our school, students who take the entrance exams usually have higher content knowledge than critical thinking skills. Those critical thinking (CT) skills are imperative to become successful in college

and in their careers. While the action research described in this dissertation avoids a top-down definition, it is useful to know that Facione (1990) defined critical thinking (CT) as “purposeful, self-regulatory judgment, which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based” (p. 2). This definition stems from the *Delphi Report* (Facione, 1990), which was completed by 46 researchers who were interested in the field of CT. The report also discusses cognitive skills and affective dispositions.

The use of CT inside the classrooms by national and international teachers at Academia do Lago was minimal at the start of this research. With the recent adoption of AP Capstone® Seminar, which has been set as an 11th-grade class, to the best of my knowledge, this is the first attempt to incorporate CT into the formal curriculum at Academia do Lago. This program continued with the class of 2017 cohort, as the students enrolled in the AP Capstone® Research class in their program of study. At the start of this action research, there were three teachers trained in these CT techniques, and four teachers had the skill set to teach the two classes—11th and 12th grade—under the umbrella of AP Capstone®. This was only one-eighth of secondary teachers in the school. Therefore, the goal for this action research was to incorporate innovative methods to educate teachers in the secondary level at Academia do Lago by using deeper learning and critical thinking strategies.

Innovation

Developing a community of practice (CoP) in a bilingual international school centered on critical thinking to enhance teachers’ deeper understanding of critical

thinking strategies. The study's teachers were Brazilian secondary teachers who have been educated and trained through many of the university systems in Brazil. Teachers who have been educated in the Brazilian educational system generally have less education in pedagogical practices and more in content knowledge. For the purpose of this research, the cohort read multiple resources written by Brazilian authors and related to Brazilian education. Additionally, the cohort used the *Delphi Report* (Facione, 1990) to employ a common vocabulary related to critical thinking skills.

Using a social constructivist approach, the cohort formed a community of practice to expand on learning as a collective group and to remove the social stigmas among teachers that are often seen in schools internationally regarding working independently. Beck and Kosnik (2001) wrote, "much is said about the isolation of teachers, and the problems this creates; or, more positively, emphasis is placed on the power of collegiality and collaboration to transform teachers' professional lives" (p. 926). In addition, developing this community led to deeper relationships and solidarity amongst the teachers.

Research Questions

This study answered the following research questions:

1. For Brazilian secondary teachers (in an internationally accredited school) in a community of practice focused on critical thinking, how do they collectively define and talk about critical thinking?
2. For Brazilian secondary teachers (in an internationally accredited school) in a community of practice focused on critical thinking, how do past

experiences of teaching independently and the shared experience in the professional learning community shape attitudes toward emphasizing critical thinking in teaching?

3. For Brazilian secondary teachers (in an internationally accredited school) in a community of practice focused on critical thinking, how and to what extent does participation change concrete classroom planning?

Chapter 2

THEORETICAL PERSPECTIVE AND RESEARCH GUIDING THE PROJECT

The teacher cannot think for her students, nor can she impose her thought on them.

—Freire, P. (2018, p. 66)

In general, modern schools are not very dissimilar from one another. For example, if one takes a close look at schools in India, the United States, Singapore, China, Hong Kong, Taiwan, and even Brazil, each of these countries place a heavy emphasis on testing and preparing students for college entrance exams. These types of educational systems have been criticized for adding additional pressure and encouraging rote memorization with little emphasis on critical thinking or creativity (Yang, 2012).

The critical questions to consider become as follows: where is education in international schools headed if the current trend is to focus on preparing students for university exams? Will teachers in Brazil start to introduce critical thinking (CT) skills into their lesson plans and classrooms to prepare students for a changing world? With content at the students' fingertips, are Brazilian educators ready to emphasize critical thinking in their teaching practices?

It is time to change the way educators look at educating our youth. With technology use at its highest in schools and content easily accessible, we must prepare our students to think critically. University exams are only one step in our quest to develop lifelong learning practices.

The process begins with educating and empowering teachers to be reflective in their teaching practices. Though this simple idea seems reasonable, these strategies are

not always encouraged or applied. Although some reasons may be valid, such as schools that are unable to grant time for collaboration, or smaller schools, or financial difficulties and master scheduling, it is vital for this type of partnership to occur with teachers and administration. Providing teachers with specific time to work together each week within school hours to discuss ideas, use journals to capture their thoughts, participate in a book study, and share and develop resources centered around critical thinking, may result in a productive and creative community of practice.

Theoretical Perspectives

The two main theoretical perspectives are as follows: community of practice and social constructivism. These two perspectives were instrumental to this research as both of the theories proved useful in learning critical thinking. Community of practice is when a cohort or group of teachers come together to collectively work to improve their profession (Wenger, 1998). CoP plays an important role in the development and expectation of a group to enhance learning. Social constructivism provides support to understand the importance for a cohort of educators to learn together while investigating critical thinking. Using a social constructivism definition, learning is developed when it is done within a group of people (Schreiber & Valle, 2013). This practice was evident throughout this study, as educators were working concurrently with one another.

Community of Practice

The first theoretical framework for this study is the argument that communities of practice is an effective vehicle for change. In 1998, Etienne Wenger published his book, *Communities of practice: Learning, meaning, and identity*. In the first chapter, Wenger

introduced a social theory of learning that depended on interaction with others. He suggested there were many kinds of learning theories. Each emphasized different aspects of learning, and each was therefore useful for different purposes. Further, Wenger explained, the primary focus of this theory was on learning as social participation.

Communities of practice have been defined as “groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis” (Wenger, McDermott, & Snyder, 2002, p.17). Communities of practice (CoPs) have existed much longer than the term. It was not the communities of practice themselves that were new, but the need for organizations to become more intentional and systematic about “managing” knowledge, and therefore to give these age-old structures a new, central role in the business (Wenger et al., p.19).

Additionally, CoPs have been characterized by three important features: domain, community, and practice. Domain refers to knowledge that defines an issue that creates a common ground, around which individuals come together to solve problems. Community is viewed as the social fabric. It allows for participants to come together to ask difficult questions, discuss, and to listen to each other. Finally, practice is considered to be a tool that brings together everyone’s individual expertise (Wenger, et al., 2002).

Applying a CoP framework for teachers was advantageous for Academia do Lago. The mindset around CoP allowed teachers to have a voice and empowered them to be a member of the educational community. Teachers were no longer directed with tasks, but were now asked to participate in creating the best learning environment for themselves and their students. CoP have been viewed as a natural part of organizational

life (Wenger, et al., 2002). According to Beck and Kosnik (2001), “in the field of education, the need for genuine community in schools and classrooms is now widely stressed” (p. 926).

Gallagher, Griffin, Ciuffetelli-Parker, Kitchen, and Figg (2011) participated in a self-study community of practice. They examined pre-tenure educators who were engaged in professional development using the community of practice model. Teacher education is complex work involving curriculum, pedagogy, and research, yet most teacher educators are provided with little professional development support or mentoring in their teacher education programs.

Based on the results of the study, Gallagher et al. (2011) concluded that communities of practice assisted educators in multiple ways. First, the authors asserted that CoP were important to promote authentic conversation among teacher educators. Second, through authentic conversations, there are greater opportunities to find resonance in each other’s stories. Finally, the self-study group provided members with a sense of belonging to a community of scholars in which they were valued and supported as educators and scholars.

Similarly, the research at Academia do Lago used Wenger’s theory to create a CoP. Creating space and time for teachers was paramount to building a community of practice. Once the members were determined, a CoP structure allowed the teachers to begin focusing on building an effective domain of interest. Critical thinking was the focus of the CoP. Applying this theory brought the researcher and members together each week to collectively understand how to implement CT in the classroom. During the course of 12 weeks, a community was formed, and each member was responsible for participating

and learning from one another. The development of these relationships strengthened the community, which allowed for thoughtful discussions. Each member supported the community by contributing vocally and by sharing resources. This shared practice evolved from the first day—when the teachers were asked to describe their understanding of CT—to the end of the study when teachers were bringing in resources, speaking freely, and developing a group definition for critical thinking.

Social Constructivism

If the CoP framework justifies the structure of the innovation, a professional learning community focused on critical thinking and social constructivism provides a framework for understanding the dynamics within it. Using social constructivism (SC) in this study allowed me to analyze how a group of teachers learned together. In describing the influence of Soviet psychologist Lev Vygotsky, Schrieber and Valle (2013) state that Vygotsky knew that learning did not happen within the individual, but that meaning took place as a group to enhance learning through the interactions of each other. Keaton and Bodie (2011) write that “objects exist only after they enter communicative space” (p. 192). For purposes of this study, the interaction took place with the teachers in the community of practice. Each educator learned new things and full participation encouraged maximum growth.

There are three areas that social constructivism addresses: reality, knowledge, and learning (Kim, 2001, p. 1). Reality is only constructed through the interaction of human activity. Reality cannot be achieved as a stand-alone product, as the process of discussion transforms the meaning into reality. Knowledge can be gained without interaction with another person; however, for social constructivism to be defined, the gathering of two or

more humans is necessary to create knowledge. Individuals create meaning with connectedness and dialogue. Jackson and Klobas (2008) write, “the social constructivist paradigm characterizes knowledge as the sets of beliefs or mental models people use to interpret actions and events in the world” (p. 330). A diverse experience in a community of practice may allow for deeper learning to occur within multiple sets of beliefs.

The third aspect of social constructivism is learning. Kim (2001) writes, “meaningful learning occurs when individuals are engaged in social activities,” (p. 3). Professional development for teachers is pertinent for learning and intellectual growth. However, surprisingly, the best learning usually occurs after the conference or during breaks. According to Postholm (2012), “learning can occur in planned reflection meetings between teachers, or teachers can learn from unplanned conversations with other colleagues before or after teaching, or in the parent-teacher meetings. Thus, learning may occur in various ways, both formally and informally” (p. 406). Allowing time for self-reflection and social activity is crucial for social constructivist learning.

Another method of learning through social constructivism is working within small groups. Schreiber and Valle (2013) discuss how participants bring their own worldviews to the group, which allows for variations of perspectives regarding content, social interactions, and representations. Building an environment that allows participants to foster this communication encourages and promotes social learning. A small group encourages participants to share their past and present experiences, which fosters deeper learning.

Related Research

To gain a holistic understanding of CT, this section identifies multiple definitions

for critical thinking. Leading researchers such as Paul and Elder, Ennis, and Facione each have their own ideas on the definition of critical thinking. These definitions are useful in the construction of a personal definition for CT. Research on studies of classroom implementation discuss how other schools around the world implemented CT in their lessons. There were similarities with regard to university exams that are required for students in both foreign countries and Brazil that are discussed in this section. This requirement is perceived as an obstacle when implementing CT into the curriculum.

One clarification: in the context of this study, critical thinking is distinct and separate from the Freirean tradition of critical pedagogy. While this study occurred in Brazil, in Academia do Lago, the teachers did not work with the oppressed. Most of the students and families of the school were financially stable, a fact evident in the payment of the school's tuition, one of the highest in the city. Teachers did not have to face poverty at school each day amongst the students, nor were they asked to impart their knowledge onto the students in the way that Freire (2018) describes was common for education of the poor in Brazil in the mid-20th century. Nor did teachers have significant background in Freirean pedagogy. In the initial interview with one teacher, I asked one teacher about her experiences with Paulo Freire in her pedagogical classes in university. She stated, "It was so hard to understand something that I wasn't a part of yet. And at the same time there was no obligation, so I was like; I don't actually get it. That was a challenge. It seemed so out of reach and once I started teaching I didn't see the connection (Valentina, Initial interview [see chapter 3 for the detailed description of methods and participants]). When I asked Valentina if she had gone back and read Freire

since college she quickly replied, “no.” In the course of the innovation, teachers did not refer to Freire. For these reasons, this study does not touch upon critical pedagogy.

Definitions and Components of Critical Thinking

Today, our students need critical thinking skills. The information age has made us rich with knowledge; a few clicks on the computer will open any avenue of knowledge. It is our responsibility as educators to ensure that students learn to foster a deeper understanding of content by synthesizing, evaluating, and creating answers using complex thinking. Yang (2012) discusses how most educators and researchers agree that nurturing critical thinking in students is one of the most needed learning objectives for modern education.

Critical thinking has been defined in a variety of ways (e.g., Ennis, 1985; Facione, 2011; Paul & Elder, 2008). Ennis (1985) argued that CT included a reflective component and fostered reasonable thinking focused on deciding what to believe or do. On the other hand, the definition of CT by Paul, R. & Elder, L. (2008) differed substantially, as can be seen in the following definition of CT:

Critical thinking is that mode of thinking—about any subject, content, or problem in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them. (p. 2)

The authors of the *Delphi Report* (1990) define critical thinking “to be purposeful, self-regulatory judgment, which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgement is based” (p. 2).

In *Think Critically*, Facione (2011) simplifies the definition of critical thinking as “purposeful, reflective judgment that is focused on deciding what to believe or what to do” (p. 12). This definition closely resembles Ennis’s (1985) definition that also focuses on belief and what to do. The origins of this definition is found in an older project, where Facione (1990) and other professionals came together to work on a common language and framework for CT in a project sponsored by the American Philosophical Association. The process started in 1988 and concluded with the *Delphi Report* (Facione, 1990).

Through this report, the committee of 46 professionals devised a consensus list of six cognitive skills that were the focus skills in CT (Facione). The experts suggested CT included cognitive skills in a) interpretation, b) analysis, c) evaluation, d) inference, e) explanation, and f) self-regulation. The committee also clarified sub-skills for each of the six cognitive skills found in Table 1.

During the course of the 12-week innovation, the CoP explored the definition from the *Delphi Report* and became familiar with the six skills that are clearly defined in the report. The use of the *Delphi Report* was not to study the paper, but as described later in this dissertation, to give each member a common vocabulary for critical thinking.

Table 1

Consensus List of CT Cognitive Skills and Sub-Skills

Skill	Sub-skill
Interpretation	Categorization
	Decoding Significance
	Clarifying Meaning
Analysis	Examining ideas
	Identifying Arguments
	Analyzing Arguments
Evaluation	Assessing Claims
	Assessing Arguments
Inference	Querying Evidence
	Conjecturing Alternatives
	Drawing Conclusions
Explanation	Stating Results
	Justifying Procedures
	Presenting Arguments
Self-Regulation	Self-Examination
	Self-Correction

Source: (Facione, 1991. p.6)

Studies of Critical Thinking Classroom Implementation

The discussion of CT is not just abstract. In an international-school context, it is important to know of prior implementations, and not just in the United States. Critical thinking has been studied and used around the world. In fact, some traditional countries around the world are starting to implement required classes centered around CT.

In spring 2009, a study was published regarding critical thinking in Jordanian secondary schools (Bataneh & Alazzi, 2009). “Perceptions of Jordanian Secondary Schools Teachers towards Critical Thinking” discusses how teachers and students perceive critical thinking in social studies classrooms. With respect to students entering university, Jordan holds similar educational beliefs to those of Brazil’s Department of Education. Students are expected to pass a national exam that requires knowledge of content. Mastery of CT skills is not required.

The study was conducted to understand if there was a need for critical thinking in Jordan. “Researchers previously observed that students in Jordanian schools lacked such skills as logical reasoning, value judgment, and real-life application” (Bataneh & Alazzi, 2009, p. 60). The research investigated how well teachers knew CT strategies and if they could implement the skills into their classrooms. In addition, the study analyzed the Ministry of Education’s guidelines to understand if CT was a requirement by the government.

Interviews and class observations were integrated into the study. “The purpose of collecting classroom observation data was to identify teachers’ instructional methods and to discover to what extent the methods promoted students’ critical thinking” (p. 62).

The materials that were collected and analyzed to determine if CT was in the curriculum was the Ministry of Education's guidelines and the teachers' manuals. These manuals give direction as to how the class is to be conducted within the given time and format. At Academia do Lago, a document known as Understanding by Design (UbD), has been used by the teachers to organize how a unit is to be conducted. The UbD allows teachers to plan with a goal in mind; what is the expected outcome from the unit? This planning assists teachers to follow the pacing of the proposed topic, understand which Standards and Benchmarks the teacher will work with for the unit, and how the benchmarks will be assessed. During the making of the UbD, teachers can identify critical thinking opportunities within the unit, allowing their focus to be on CT strategies that will be delivered to students in the classroom.

The findings in the Jordanian study were that the definition of critical thinking was often confused. This obviously impacted the use of CT strategies in the classroom. There was little to no evidence that the teachers used CT in the classroom. In fact, "nearly eighty percent of the students surveyed indicated that they were not taught critical thinking in Jordanian schools" (p. 64).

Jordanian exams must be passed to get into universities. This is critical for students, parents, and schools. "Passing the state exams with a high score is viewed as extremely important by most Jordanian students in secondary schools, because it is the basis on which students are admitted to colleges and universities" (p. 65). Many countries continue to face the challenge of leaving the podium and whiteboard to effectively transform education by creating a critical thinking environment. Teachers and schools feel pressure from parents and students to teach the content so the student can post a high

grade and be accepted by their choice of college. “Therefore, it is not difficult to understand why the students do not view critical thinking as important, because it is not on these exams” (p. 65).

A commonality between Jordan and Brazil is that the two countries do not prepare future teachers to educate their youth using CT strategies and skills in higher education. The absence of this training makes it difficult for teachers to understand how to educate students using CT strategies. “When asked about teacher education programs and whether they received instruction in teaching critical thinking skills, all teachers agreed that no preparation in the area of critical thinking was provided” (p. 66). Teachers in Brazil explained the same reason for not understanding how to teach CT in the classroom.

Yang and Chung (2009) explored CT used by students in a Junior High School civics class in Taiwan. The authors noted the Taiwanese Ministry of Education had stressed that the focus of schooling must shift from teaching to learning—from passively acquiring facts and routines to actively applying ideas to problems. Just as in Brazil, teachers in Taiwan also teach to the test. This practice has allowed students to learn content knowledge to increase their chances of attaining passing scores on the national examination for university admissions. Students have been forced to memorize large volumes of textbook knowledge to obtain good grades, because the Taiwanese educational system has long emphasized “diplomaism” in schooling. Many teachers focused their teaching on content consistent with the national examinations (Yang & Chung, 2009). To effectively respond to the need for greater CT in the classroom, this

study examines the effects of cultivating CT skills within civic education to achieve its highest potential (p. 31).

Using an experimental group and a control group, the students in the experimental group were given instruction using critical thinking strategies. This research was conducted over the length of 10 weeks. The control group was not given any differentiated instruction using CT in the civic class. According to Yang and Chung, the purpose of the study was to:

- 1) Examine the effect of the CT course design and teaching strategies with civic education used for promoting students' CT ability and disposition, and 2) understand the learning experience and perception of experimental group students as part of the course assessment plan. (p. 31)

The teaching strategies that were used throughout the course of the 10 weeks were developed to allow students to bring in past knowledge, gain a deeper sense of the subject through discussion, and explore their own learning with self-reflection. The strategies outlined in this research were: critical thinking modeling activity, constructive overview activity, group debate, group presentation, reflection and feedback, and teacher summary and wrap up (pp. 36, 37).

Yang and Chung used three tools for their data collection. All three tools use a pre-and post-test approach to measure growth within the 10-week period. The first instrument that was administered was the Test of Critical Thinking Skills for Primary and Secondary school students (TCTS-PS) , developed by Yeh, Yeh, and Hsieh. The second tool that was used within the study was the Critical Thinking Disposition Inventory

(CTDI) designed by Chen in 2000. Finally, the researchers developed a survey that was comprised of thirteen questions.

The results of the study show an increase in the usage of critical thinking skills by the experimental group compared to the control group. “This was proven by the significant growth of learners’ deployment of various components of CT skills and disposition between earlier and later stages” (p. 51). Most students reported that they enjoyed this type of learning and were interested in doing it again. There were some students who were reluctant to use this type of learning because they feared that it would not prepare them for the format of the National exam that is expected in coming years.

Students in Brazil—especially in the high school years—also worry about the College Entrance Exam. The exams that are offered for admission do not have this critical thinking component, and therefore, allow students to focus on rote memorization. The study by Yang and Chung revealed similar concerns. “First, in the past, schools mostly emphasized memorization and rote-learning-based education. Additionally, facing pressure from the joint entrance exam led to students having faith that conventional lecture-teaching can help them score well in exams” (p. 50).

A series of studies conducted by Fung and Howe (2014) examined group work and the critical thinking method in the Hong Kong secondary liberal studies curriculum. Today’s current views of education have started to impact students worldwide, and Hong Kong is looking to move forward with a critical thinking approach for their newly adopted liberal studies curriculum.

In Hong Kong, Fung and Howe (2014) created a teaching intervention to successfully carry out the plan of educating teachers to teach using critical thinking.

Three workshops (each one hour in length) were conducted in the beginning of the year. This intervention is similar to Academia do Lago's format for their teachers. However, the intervention will be longer because it allows the community of practice to meet once a week for the course of a semester.

The study separated the students into three groups. The first cohort was the conventional class, which did not work in group setting. The second cohort was placed in groups, but was self-directed. The third cohort was placed in a group and had the guidance and interaction of the teacher. Upon testing all three groups in the beginning with a pre-test, all groups had low scores and had similar results. After the innovation of the research, it was evident that students in the third cohort had the highest scores, "revealing that group work has constructive effects on students' academic achievement and, on the other hand, generalise those findings to the context of students' development of critical-thinking skills" (p. 260).

In a recent study, Rashid and Qaisar (2017) examined the effectiveness of two teaching strategies to promote critical thinking in the classroom in Pakistan. There are multiple strategies to deliver critical thinking inside and out of the classroom. The two strategies that Rashid and Qaisar focused on were role playing and questioning. Similar to the studies previously mentioned, education in Pakistan emphasizes the memorization of facts. In addition, Rashid and Qaisar state that students are not encouraged to question the content delivered by their teachers. Furthermore, the researchers inform the readers that learning comes directly from the textbooks and that classroom teachers do not encourage outside sources.

The study examined the use of critical thinking strategies to compare which strategy was more effective: questioning or role play. The other research question the authors studied was to determine if CT changes the attitudes of students. The study was conducted for five months with two different classrooms. One classroom used the questioning strategy and the other employed role play.

The overall findings in the study “revealed that students showed more involvement and engagement in playing a role rather than being involved in questioning. Students seemed more confident and enthusiastic in role playing” (p. 47). The findings support the argument that CT skills will change the attitude of the learner through the pre- and post-test. This research suggests that it is feasible to integrate CT strategies into the Academia do Lago curriculum to help boost confidence in the school’s community, shape the overall experience, and change the instructional culture of the school.

Pilot Community of Practice Focused on Critical Thinking

The innovation conducted using action research at Academia do Lago formed a community of practice to strengthen teachers’ understanding and use of critical thinking strategies in the classroom. A prior cohort served as a pilot study, to gain a better understanding as to how a structure may be put into action. The cohort was developed by interested teachers to gain an understanding of critical thinking. Four teachers volunteered to be part of the community of practice. The cohort met one time a week for the length of the school year. Some weeks were interrupted by midterm and final exam weeks, vacation, and/or weeks when I was out of the office for conferences or job fairs.

The focus of the study was to clearly understand the definition of critical thinking and how to fully integrate CT into the curriculum. In the first few weeks, it became clear

that vocabulary was a vital concern. For example, the CoP struggled with the word “inference” defined in the *Delphi Report* (1990):

To identify and secure elements needed to draw reasonable conclusions; to form conjectures and hypotheses; to consider relevant information and to educe the consequences flowing from data, statements, principles, evidence, judgments, beliefs, opinions, concepts, descriptions, questions or other forms of representation. (Facione, 1990, p. 9)

The teachers in this cohort understood “inference” as deduction. A national teacher whose primary language was Portuguese, did not glean the same meaning from the text. After great length, it was apparent the word “inference” was not translating within the cohort in the same way as it does in English.

Once the vocabulary was clearly defined for all participants, I contributed journal articles regarding CT that was employed in other international/bilingual schools. The community of practice (CoP) reviewed the articles and discussed strategies that could be done in classrooms. Each member in the CoP was asked to study a specific skill and bring back what they learned to the team. This learning took place for approximately one month. During this month, the teachers discussed recent findings about CT during weekly meetings. This practice allowed each member to reflect on their knowledge and to share some aspects to the rest of the CoP. At the end of the month, each member was asked to give a lesson to their classes using the CT skill. I used my iPad to record the presentation for use in the weekly meeting. Each member was asked to highlight their class lesson and to show various pieces of the video to correlate to their newly learned teaching strategies.

I conducted interviews as another tool to collect data. After working with the cohort for a couple of weeks, I administered individual interviews that lasted approximately 20 minutes (results from the interview were recorded by the researcher). Once the interviews were completed, the audio files were logged for thematic content. This allowed the researcher to place the data into three themes: a) the initial limited understanding of CT by members of the CoP, b) initial minimal strategies in teaching CT, and c) interest in learning how to teach CT through the modeling process.

Initial Limited Understanding of CT

The following describe these themes in more detail: the first theme was developed as all four selected teachers had some limited prior knowledge of CT, but none were fully able to expand on the full definition. Participant 1 stated, “using one word, it is judging, I always ask why? Why is this like this? Always asking why?” When asked about describing a strategy that is used in class to teach CT, Participant 2 answered, “whenever I present some new concepts, I always try to bring the concept into their lives so they can think in their lives, how they gather the information, how they deal with that situation and how can math help them.” Participant 3 defined CT as “having someone think outside of the box, rather than giving the answer you expect, it is the answer you would not expect.” Participant 4 responded: “I try to use a lot of image, cartoons, humor views, dramatic views, to take them by their emotion and the passion for the subjects being taught in class.” These answers resulted in a theme of “limited understanding;” although they were not able to discuss CT in depth, each participant attempted to explain their understanding of CT.

Initial Minimal Strategies in Teaching CT

The second theme—minimal strategies in teaching CT—developed as only one participant, Participant 1, had formal training through her university. The other three selected teachers did not have formal training. Participant 3 had been trained on systems thinking and sustainability at his previous position in an international school in Singapore. In addition, Participant 3 had also been trained through AP Capstone, where the focus is on higher order and critical thinking. Participant 3’s response to strategies in the classroom involved using problem-finding: “rather than giving them a problem and say solve this, it is already a pre-hashed problem, you already know the answer as a teacher, this way you can be an advisor, and say, let’s figure this answer together.” Participant 2 also asked, “what is critical thinking, really? What is a difference between having a different opinion or critical thinking?” These statements support the assertion that the teachers did not have a clear understanding of CT.

Participant 1 stated, “how can I collect this type of data on my students or my life? Am I really having critical thinking or am I just disagreeing?” Even though Participant 1 has been trained in a university setting, she stated that she was “taught theory of CT and not the application of CT.”

Interest from Modeling

The third theme was the interest of participants in learning how to teach CT through the modeling process. Participant 4 mentioned that he likes to write information down on paper, but also appreciates the idea of modeling. He explains, “when you have an example to follow it makes it easier and you can approach it the right way to do it and it is faster to do it.” When discussing transferring to the student, Participant 4 explained, “when you have to start from scratch you have a big problem there cause sometimes it is

not working, but you don't know what's working.” Participant 1 spoke about her experience in university: “I didn't have the real experience in university. If I am the student in this situation [during PD], I will know how the student will feel, and how I will be able to improve that in the classroom.”

Participant 3 wanted to have continuous training. He said, “I don't find it useful to have a workshop whereby you're told here is four or five, or even 10 strategies.” He further explained that he would like to go through the process himself, “I think what would be useful would be hands-on training, where you are given a problem and we have to go through the process ourselves.” The last comment made by Participant 2 provides a good summary, as I asked her if she has any questions or comments and her reply was, “let's start working!”

Discussion of Pilot

The problem of practice that created this action research project was the absence or limited use of critical thinking (CT) in the classroom by teachers and students. An intervention has been designed to assist teachers in the delivery of CT strategies and to develop CT skills for students at Academia do Lago. This movement allowed students to not only be prepared for the national exams in Brazil, but would allow students to excel at a higher level in college.

One limitation of this pilot study is the small group of teachers selected to participate in the interview process. The researcher chose four teachers to participate out of the total population of teachers in the secondary school. As only some teachers on staff spoke English, I chose to invite and interview bilingual teachers. In addition, the sampling followed the demographic makeup of the entire staff. Approximately 75% of

the staff were Brazilian and 25% were international hires. The last limitation I encountered was that I served as both the researcher and observer/data collector for this study. One of my duties was to observe practices in the classrooms and work with the teachers during PD. In addition, I collected data from the students and asked questions about their learning. These limitations in the methodology had potential to threaten the validity of the study. Finally, the results suggested that a further study needed to be done on CT in the secondary school at the Academia do Lago with teachers and students. The study examined whether using a small CoP increased teachers' knowledge of CT. The innovation defined strategies for teachers to implement in their everyday practice in the classroom and unit plans. The students gained confidence with CT skills, which encouraged them to be productive citizens within and outside the classroom environment.

With the completion of this pilot, I decided to investigate the use of CT within a CoP. This was done to explore how teachers are integrating critical thinking into their unit planning using the Understanding by Design (UbD) approach. I also looked at how past experiences as a student or teacher affected their attitudes and competencies in professional development and CT. In addition, the next cycle examined how teachers discussed and studied CT in a community of practice setting.

The conversations and experiences from the first cohort's community of practice developed a base to move forward with the research. The four teachers from the first cohort continued to meet weekly and explored options to integrate critical thinking into their lesson designs. Their enthusiasm and experience within the community of practice was promising, and the participants themselves recommended moving forward with the next cohort to expand the overall knowledge of critical thinking throughout the school.

The use of the *Delphi Report* in the pilot study did not occur until the third or fourth week of the CoP. What became evident was that the cohort did not have a common language or understanding of critical thinking. Each teacher's depth of knowledge about critical thinking was different, and those differences made it difficult to have a common vocabulary to understand one another. Explaining critical thinking in generic terms to the teachers in the CoP was a vital way to ensure each of the participants were at a basic level of understanding. However, once the teachers read the *Delphi Report*, they could study, define, and have common language to discuss skills necessary to CT.

Similar to the pilot, the teachers in the dissertation study were able to use the *Delphi Report* to gain an understanding of the six skill words: interpretation, analysis, evaluation, inference, explanation, and self-regulation. Even though the report gives a definition of each of the six words, the teachers in the dissertation CoP took time to clarify the meaning of each word and made sure that each educator understood the words in both English and Portuguese. This report was not delivered to the teachers until the third and fourth week of the CoP.

Conclusion

There is a lot of value in building community within schools and breaking down barriers between teachers. "Much is said about the isolation of teachers, and the problems this creates; or, more positively, emphasis is placed on the power of collegiality and collaboration to transform teachers' professional lives" (Beck & Kosnik, p. 926). The two main areas that were investigated and discussed were critical thinking and CoP.

Based on the literature reviewed, it is clear that critical thinking is needed to educate our youth in today's world. "In the field of education, it is generally accepted that

critical thinking is essential for an individual's success in meeting with new challenges in an ever-changing world where rational and evaluative thinking is considered crucial for sound judgment" (Rashid & Qaisar, p. 36). It appears these skills and sub-skills would be appropriate skills that Academia do Lago could teach to educators.

As educators, we need to move forward in preparing our students for the future and move away from rote memorization and test preparation. Technology and information is becoming easier to access for everyone. With this wealth of knowledge, it is our mission as professional teachers to guide learning and to allow students to use all resources to interpret, analyze, evaluate, infer, explain, and self-regulate their own learning. These skills are necessary for college and the workforce. In 2010, Marin & Halpern, reported, "in the world beyond the classroom, high school students are exposed to powerful messages that confound efforts to think critically (p. 3). This exposure has already grown and will continue to grow for all young adults. The need for CT will continue to be an important skill.

Educators also need assistance in teaching students to think critically. Incorporating a CoP in the school for teachers will give educators support to discuss, debate, learn, and share best practices. This organizational approach has great potential to be an appropriate and effective means by which to support teachers as they implement CT in their classrooms. As questions arise, teachers will be able to check with each other about processes, procedures, and effective ways to implement CT in their classes. Thus, they will receive support in the community of practice, and will be able to share their experiences, resources, and challenges.

Chapter 3

METHOD

This section of the dissertation focuses on research questions, setting, participants, the role of the researcher, innovation, instruments, procedure and timetable, data analysis, credibility, and limitations. Following guidelines that were created in the pilot-study, this action research moved forward in the innovation while using a community of practice to expand the focus of Academia do Lago teachers' knowledge in critical thinking.

Research Questions

The research questions for this project included the following:

1. For Brazilian secondary teachers (in an internationally accredited school) in a community of practice focused on critical thinking, how do they collectively define and talk about critical thinking through their experience in a professional learning community?
2. For Brazilian secondary teachers (in an internationally accredited school) in a community of practice focused on critical thinking, how do past experiences of teaching independently and the shared experience in the professional learning community shape attitudes toward emphasizing critical thinking in teaching?
3. For Brazilian secondary teachers (in an internationally accredited school) in a community of practice focused on critical thinking, how does participation change concrete classroom planning?

Setting

The Academia do Lago secondary school was the location of this action research study. Academia do Lago enrollment in the secondary section, consisting of classes from 6th to 12th grade, total approximately 330 students. Many of these students have attended Academia do Lago since pre-kindergarten. The school is a non-profit private institution that offers three types of diplomas. The diploma types include: a Brazilian diploma, an American diploma, and an AP diploma offered by the college board.

Starting in grade six, students are immersed in a third language. Most of the school's graduating class speaks fluent Portuguese, English, and Spanish. Academia do Lago offers 10 AP courses ranging from languages to calculus. Some of the AP classes are offered after school, as many students on the Brazilian track like to take these courses as well. The Brazilian track has a tight course offering, which limits the electives in which they can participate in the regular school day, so after-school classes are common for both the Brazilian diploma and the American diploma students.

Academia do Lago has a school sports program, soccer being the most popular, for all students. In addition, students can also take part in after-school clubs. Some of the clubs charge students to participate, and others are free to attend. Clubs vary each semester; however, some of the most popular clubs that are offered each semester are: photography, astronomy, cooking club, journalism, jujitsu, and Model United Nations (MUN). Our most popular club, MUN, has an attendance of more than 50 students each week. MUN competes every year in the Brazilian MUN, called BraMUN.

The secondary school staff includes 42 teachers. Teachers provide instruction in content areas including mathematics, English, science, historia, geographia, social

studies, art, music, Portuguese, Spanish, and physical education. On average, teachers have eight years of teaching experience. Three-quarters of the teachers are considered to be part-time, working less than 32 hours a week. Many of these part-time teachers work at other institutions around Brasilia, Brazil. The part-time nature of instructors' work does sometimes make it difficult to work collaboratively within all departments.

Participants

The participants of this action research study were taken from the pool of teachers at Academia do Lago. The pool consisted of teachers who could be either part-time or full-time employees. The class schedule and teacher availability for the year had already been developed at the time of the study's commencement. As previously mentioned, many teachers worked at different schools around the city and finding the opportune time to meet as a CoP was sometimes problematic for teachers. At Academia do Lago, it is already difficult to teach AP classes during the course of the school day, and because many AP courses and clubs have after-school hours until 15h30m, the school's schedule also makes it difficult to have meetings after school.

For the purpose of this research, international hires were not allowed to participate in the study. We currently have five full-time international teachers at the secondary level. The remainder of the teachers are local hires, and they were all invited to participate in the study. I used opportunity sampling as a means to select the participants, appropriate to a context where there are limited numbers of qualified participants (McLeod, 2014).

Table 2

Dissertation Cohort: Participant Information

Participant	Grade(s) Taught	Subject	Teaching Experience in Years	Years at Academia do Lago
Maria	6–8	Portuguese	15+	15+
Laura	6	Advisory	15+	2
Valentina	10–12	Biology	5	4
Beatriz	9–12	Art	10	8
Isabella	6–8, 11, 12	Technology, Elective	3	2
Dahlia	6–8	History	15+	15+

Community of Practice Cohort

Role of the Researcher

In the role of the researcher, I was a participant-observer. These duties included serving as the leader/facilitator of the Community of Practice (CoP) during times where the group collectively defines and talks about CT through their shared experience in a CoP. I worked with the selected teachers in this study to make sure we followed the conditions of the innovation. Along with the other teachers selected, I brought my past experiences to the CoP, including my involvement with the pilot study. During the time of this research I also taught a grade six advisory class, which allowed me to use this class to change curriculum design focused on critical thinking. Furthermore, I continued to focus on my primary responsibilities as the principal of the secondary section at Academia do Lago.

The data that was collected during the interviews from the teachers in the pilot study guided the beginning of this study. As the researcher, I took the responsibility to lead the professional development that occurred throughout the school year. For active

participants of the CoP, the expectation to share and learn from each other was the responsibility of all teachers within the CoP. The participating teachers in the CoP met once a week for 45–60 minutes to discuss, define, and share CT strategies and skills. At the time of this study, I had been at Academia do Lago for three years and my language skills in Portuguese were at a basic level. My plan relied on others within the group to help translate as needed. Even though all the teachers are bilingual, I encouraged the teachers to use the language they prefer. Most of the teachers preferred to speak in English throughout the course of the 12 weeks, but also occasionally found it easier to use Portuguese to explain their positions.

Innovation

The goal of the innovation was to increase critical thinking skills throughout the school by educating our teachers about CT strategies. This allowed the teachers to learn specific strategies and to apply these skills as they worked with the students in their classrooms. I created a research-based CT professional development (PD) program for teachers and administrators. This innovation took place on the campus of Academia do Lago. With the assistance of several colleagues, the PD was a 12-week Community of Practice (CoP).

The innovation was designed to empower participating teachers by gaining a deeper understanding of critical thinking and to learn the skills related to CT together as a CoP. The cohort collectively defined and talked about critical thinking, viewed videos that supported critical thinking, read articles directly related to critical thinking (with the emphasis on authors from Brazil), and reflected on their personal experiences by keeping an electronic journal. The CoP guided teachers as they reviewed and/or created their own

lessons and unit plans, which included CT as part of their lessons. The CoP adhered to the requirements set forth by Academia do Lago to use an Understanding by Design unit plan format, which was flexible enough for teachers in this innovation to adapt (Wiggins & McTighe, 1998).

During the course of the CoP, I met with the participant teachers regularly in our weekly meetings, and observations were conducted by me and by the other teachers who participated in the project. See “Procedures” section below for week-by-week details, as well as the common pattern in the meetings. Finally, to create time for open reflection and discussions, participation in the CoP required contributions to a personal journal to expand on what was experienced in the classroom, allowing the team members to build the community of practice.

Data Collection

I used a qualitative approach to collect and analyze data to answer the three research questions that I proposed. The study used three qualitative types of data as shown in Table 2, which aligns the data sources with the research questions listed at the beginning of this chapter. Details about the instruments are provided below.

According to Rossman and Rallis (2017), “qualitative researchers seek answers to their questions in the real world” (p. 57). The action research conducted at Academia do Lago attempted to search for answers to “real world” questions to increase a new understanding of CT amongst Brazilian secondary teachers. The major themes developed in the pilot study that generated interest: growing understanding of CT, growing strategies in teaching CT, and modeling.

Table 3

Instruments Used to Collect Qualitative Data		
Related Research Question	Data Tool	Detail
RQ1, RQ2, RQ3	Interviews	Initial Interview Final Interview
RQ1, RQ2, RQ3	Understanding by Design	Collect and Discuss
RQ1, RQ3	Teacher Journal Responses	Open-Ended Responses Study Reflections Ongoing
RQ1, RQ3	Researcher Journal	Field Observations Reflections Ongoing
Instruments and Detail Provided		

Interviews

I interviewed participants at the beginning and end of the CoP using a protocol that helped me answer all of the research questions. This protocol appears as Appendix A, Part 1. The questions in these interviews explored each teacher's current knowledge of CT and investigated past knowledge that may have been discussed in university training. Collecting this data in the initial interview allowed the researcher to structure the innovation and determine the level of CT understanding brought to the study by the individual teachers. An overlapping set of questions after the end of the CoP enabled participants to reflect on their experiences.

At the end of the project, I interviewed teachers again. The purpose of the final interview was to understand the growth in knowledge regarding the proposed research questions. With regards to the first research question, I wanted to identify how teachers collectively defined and talked about critical thinking through a CoP. The interview generated data to answer the second research question by allowing participants to describe how the shared experience in the CoP shaped their attitudes toward emphasizing critical thinking in teaching. Finally, the third research question asked researchers to explain how a community of practice—focused on critical thinking—changed their classroom planning method. The complete set of questions for the final interview is provided in Appendix A, Part 2.

All teachers in this study were bilingual in Portuguese and English. The teachers' level of comfort dictated whether they spoke in Portuguese or English. Encouraging the teachers to use their first language as they see fit may help them clarify their meaning

and/or understanding. When this occurs, the researcher will ask for translation from a member in the group or will seek outside translation as necessary.

Understanding by Design (UbD) Unit Plans

The common expectations for teachers at the school is to complete all three stages of the Understanding by Design (UbD) model set forth by Academia do Lago for each unit that teachers create and use in the classroom. Members of the CoP were able to illustrate, create, and expand upon existing UbDs, while incorporating critical thinking strategies. The teachers also discussed and wrote journal entries explaining how past experiences of creating UbDs compare to designing UbDs in an engaging shared practice. Final interviews asked participants to explain how participation in a CoP changed their concrete classroom planning.

Teacher Journals

Teacher journals included teachers' responses to open-ended questions provided at weekly meetings, as well as teachers' field notes, and reflections that occurred from the meetings, classroom, and personal thoughts. The teachers were expected to use this journal throughout the course of the study to document their efforts and thoughts about CT and their use of CT during instruction, building lesson or unit plans, and any other time as needed. In addition, participants were asked to share experiences, thoughts, and insights in relation to their growth of CT, with the journal assisting members to recall the information.

Researcher Journal

I used a researcher journal to document all progress, field observations, meetings, and conversation, and also to collect notes as needed for the duration of the study. This

journal (with dated entries) allowed me to scribe during meeting times to capture critical conversations centered around research questions. I also used the journal to sketch ideas when working with teachers during the discussion and planning of the Understanding by Design.

Procedure

The group of participants featured in this dissertation was the second cohort that came together as a CoP to learn about critical thinking. After consents were gathered, I invited teachers to take part in the initial interview process. The interviews allowed me to identify levels of understanding with respect to CT, past experiences, and why teachers would like to be included in the study; this provided me with a better understanding of how the innovation needed to be developed.

After identifying how participating teachers currently understood CT in the context of their teaching practices and experiences from initial interviews, I started a series of Professional Learning Community meetings to explore ideas of CT. See Table 4 for the timeline. The 12 weeks of the community of practice (CoP) involved a cyclical process where members learned critical thinking together. After the introduction of the videos during the first three weeks, the rest of the 12 weeks (Weeks 4–12), were open to allow the group to develop the agenda. I filled the agenda with critical thinking skills, derived from the *Delphi Report*, in case there was a need to stimulate any discussion. The community of practice during the course of the 12 weeks placed their focus on collectively defining CT, Standards and Benchmarks, UbDs, and incorporating a skill into the classroom.

The processes used by participating teachers in the weekly sessions were presented in a way that teachers could take what they learned from the presentation directly to the classrooms. This included modeling—an effective tool for learning—which allows teachers to understand what the students experience when being presented with new information (Cardinal, 2001). Once the educators became comfortable with the beginning stages of teaching CT skills, the CoP moved forward through the rest of the series of meetings by having teachers implement CT strategies in their lesson plans and classrooms, as well as discussing CT in the CoP meetings.

When the second cohort formed, I used the members of the first cohort to help build questions and to clarify the direction of the group. Having the first cohort's support and understanding gave me confidence to discuss ideas with the second cohort. The first cohort eventually stopped meeting once the second cohort was fully underway, as it was not as necessary to use their time to prepare the lessons each week. I also found that since the members of the first cohort were not in the CoP with the second cohort, the first cohort could not fully understand the direction or climate of the CoP and thus, if the CoP moved in a different direction, it would be hard for the members to give input. Another reason that I stopped meeting with the first cohort was that I did not feel at the time that I could successfully run two CoPs parallel to one another.

Common Elements

Each week had a theme, which may have been specific to the meeting or stretch across multiple meetings and weeks. With the exception of the first meeting, the meeting each week started with a recapitulation of the prior week's meeting and proceed with a discussion of readings, where appropriate, and then to a more general discussion of the

week's topic. At the end of our meeting time, all members were asked to write in their Google document to create a series of journal entries. I directed the participants to write for at least 10–15 minutes at the end of the meeting, with the focus on the theme of each week.

Week 1

The CoP's first week started with a focus on the mission and vision of the CoP, with the emphasis on ground rules of the group. The mission and vision of the CoP aligned to the mission of Academia do Lago. The rules were developed by the members to ensure a safe environment that fostered growth in learning. During the first meeting, members openly defined what their initial thoughts were about critical thinking. I brought video clips illustrating potential examples of critical thinking in a few selections from *El Chavo* and *Escolinho do Professor Raimundo*; those clips were the starting point for discussion.

Individually, each member was asked to openly describe what they believed CT was and if they had used it in their classes recently. After the short responses and the uncertainty of actually using critical thinking in the classroom, the community tried to define CT using a round table discussion. After a general discussion about critical thinking, the researcher explained how the journal writing would take place at the end of each weekly meeting. The community members were given autonomy to write what they learned, sketch their ideas, or record notes from the meeting as needed to begin their separate journals as individual member Google documents. At the end of the meeting, I explained that participants would be given selections of writings from Brazilian educators on critical thinking and pedagogy in the upcoming weeks.

Week 2

The community continued to define critical thinking and discuss Brazilian sources that examined critical thinking. No additional readings were delivered in week two. Analysis of both comments during the session and journals were used to identify the topics to be discussed in weeks 3 and 4, unless there was a consensus at the end of the week-two meeting on the next topic.

Weeks 3–9

The community of practice focused on the issues defined at the end of week two.

- If you were born in a public school in Brazil, how hard is it to get out?
- Could Steve Jobs have been born in Brazil and still been as successful?
- How does our education at Academia do Lago feed our students' ideas?

These topics were thoroughly explained and discussed at the meeting, so that all members had a better understanding of the skills to transfer to their students. In addition, during each week, additional supportive strategies and readings were provided to help the members grow professionally. These strategies and readings were selected as per the topic of the week as found in Table 4.

Weeks 10–11 (Week 11 Optional)

All members of the CoP discussed their experiences incorporating a CT skill into their own classroom. Each member also contributed to the group about a small gain they may have experienced during this process, as well as any difficulties. Finally, each member was asked to describe what they saw in another person's classroom through an informal observation. The focus of this group was to look at best practice and to concentrate on how each person could improve.

Week 12

The final week was reserved for final interviews. These interviews were conducted in the principal's office. They were recorded and transcribed to help recall all information that was discussed in the interview.

Table 4

Timeline and Procedures of the Study

Date:	Agenda:
February 2018	Consent and initial interviews
Week 1 (March 2018)	Discuss the mission and vision of the critical thinking CoP. What is critical thinking (CT)? Introduce journal writing on Google Doc. Show two videos: <i>Chavez:</i> ChespiritoBRpontocom (2011) <i>Escolinha do Professor Raimundo</i> Leo Kaplan (2013)
Week 2	Continue discussing—What is CT and talk about collectively. Two questions were delivered to the electronic journal to stimulate their writing (optional). A video was shown: VBSchools (2011)
Week 3	Continue discussing and defining what is CT? Introduce and talk about CT Cognitive Skills and share the Delphi Report. Discussion: Interpretation. Give strategies for the classroom. Follow up on definition of CT What are some teaching strategies? Defining CT vs. Critical Thinking Strategies

Date:	Agenda:
	<p>Time given to journal writing Deliver writings of CT in Brazil in cohorts' personal file (see references below). Santee SchDist (2014) Additional readings: Universia Brasil (2013)</p>
Week 4	<p>Discussion: Analysis. Give strategies for the classroom. Follow up on definition of CT Watch the remaining videos in relation to CT Time given to journal writing Additional readings: Marques, M. & Moreno, A. C. (2018)</p>
Week 5	<p>Discussion: Evaluation. Give strategies for the classroom. Follow up on definition of CT Watch the remaining videos in relation to CT Discuss the <i>Delphi Report</i> (Facione, 1990). Next week, bring in your Standards and Benchmarks from one class and an UbD from that same class. Time given to journal writing Additional readings: Zandonadi, V. (2015)</p> <p>Almeida, P. (n.d.)</p>
Week 6	<p>Discussion: Inference. Give strategies for the classroom. Students will present their video Look at Standards and Benchmarks from one class and an UbD from that same class. Time given to journal writing Additional readings: Santos, E.F. (n.d.)</p>

Date:	Agenda:
Week 7	<p>Discussion: Explanation. Give strategies for the classroom.</p> <p>Continue looking at Standards and Benchmarks from one class and an UbD from that same class.</p> <p>Read and discuss the two articles</p> <p>Time given to journal writing</p> <p>Need to create our own definition</p> <p>Additional readings: Schwartz, K. (2018)</p> <p>Sheningan, E. (2018)</p>
Week 8	<p>Discussion: Self-Regulation. Give strategies for the classroom.</p> <p>Continue to discuss and construct our own definition</p>
Week 9	<p>Discuss one CT skill in the classroom and how to present it in the classroom</p> <p>Finish collectively creating definition for critical thinking</p>
Weeks 10–11 (April 2018)	<p>Group activity: discuss and self-reflect what was difficult about incorporating a skill into the classroom. Each member will also discuss some accomplishments and small wins they experienced during this time. What was a best practice from the your colleague.</p>
Week 12 (April to May 2018)	<p>Concluding interviews</p>

Data Analysis

Qualitative data were used to determine major themes; the sources included the transcription of the audio recording taken from the interviews, participant journals, researcher field notes, Understanding by Design (UbD) unit plans, and photos. All

sources were analyzed and coded separately using open coding. The use of open coding gave each data source an opportunity to contribute new codes to the analysis. Once all the data was analyzed and coded separately, I created categories from each data source and developed major themes. The researcher coded all the data by hand and recorded codes and themes that emerged from the data.

In this qualitative research, themes emerged from the data through open-coding, categorizing, and using an iterative coding process. Responses from the interviews were recorded and transcribed to allow for the hand-coding process to begin. Recording each individual member of the CoP in my office allowed me to recall the information at a later point and to interpret the data. The initial and final interviews varied in length, with the interviews lasting approximately 28 minutes on average. I was able to transcribe each recording to construct a hard copy of the data. According to Rossman and Rallis (2017), “despite the age of software alternatives, many researchers use hard copy and code the data by hand” (p. 479). I used open-coding to develop a set of codes that allowed me to label the initial concepts.

According to Glaser (2016), open coding allows the researcher to see the overall initial categories and have a better understanding of which direction to take the research. This practice of open coding took several attempts, as the entire process of coding is cyclical. For example, I would define a code with a given label and later I would go back to change the label as the first label may not have fully expressed what I intended. For example, when interviewing Isabella, the first question I asked was for her to tell me about her experience with regards to the CoP. The following is an excerpt of what she

said: “so that was a good question because it got me thinking for at least a week. I started thinking what can I do then?” (Final Interview, Isabella).

During the initial coding, I coded the second sentence with *changing up education*. During my second round of coding, and once I had read through everyone’s interviews, I found that coding it under the raw code of *different way of thinking* was a better code for this sentence. Another example of replacing the code was when I interviewed Dahlia and asked her to clarify her statement about learning in groups. Dahlia responded, “I wasn’t sure the differences, but now I realize working in groups may be better because as teachers we may not be able to reach each student” (Final Interview, Dahlia). The initial code for this sentence was *current understanding*. After the second round of coding I was able to adjust the label and use the code, *different way of thinking*. This code became a constant code, using it more than once, when I became aware that many of the teachers were developing a different way of thinking throughout their time in the CoP. After several rounds of open coding and compiling a list of raw codes, I developed categories to begin developing themes. Categorizing allowed me to group and organize my raw codes to analyze the data. I continued to search for themes and to find supporting evidence to answer the research questions. Each of the themes took time to create using an iterative coding process.

My intention when using iterative coding was to continuously examine the data after each category and theme was developed. Once I set the themes, re-read the categories, and reviewed all of the data sources, I would find myself getting closer to the desired theme. I used the last results as a starting point for the next theme until I found the final themes that described the research question. These themes included the

following: “Shaping the Definition,” “Critical Thinking Is Social Constructivism,” “Shifting the Role of Teachers from within a CoP,” and “Improving Unit and Classroom Planning.”

Below is an example of developing the theme, “Improving Unit and Classroom Planning,” using an iterative process. The process started from the beginning of the open coding, as previously mentioned, and moved to categorizing the codes. I read through the data sources several times, grouping together common codes such as *changing structure*, *different teaching strategy*, *essential questions*, and *standards and benchmarks*. Early in the coding process, I continued to identify new meaning from the transcripts, journals, and meeting minutes. Each time I reviewed it, the data provided better insight regarding the true meaning of each member’s statements. New codes were formed in both the open coding and while categorizing the codes. For example, as I continued to see common open codes, I decided to group them and create the following categories: *reducing memorization and increasing CT*, and *teaching how instead of what*. This process was not linear, as it cycled around multiple times. It was not until I reached a saturation level that I begin to clearly form the final categories. I found it useful to frequently refer back to the research question to remember what evidence was needed to gain an understanding of the themes beginning to emerge.

The theme also took time to form as an iterative process was used to create a supporting theme. When the first theme came to fruition, it did not clearly support the research question. I labeled the first theme, *changing teaching*, and after discussing and analyzing the theme, it became evident that the theme was not clear enough to stand alone as a major theme. Eventually, the theme was moved to a category and a new theme

was developed by following the process of studying the current open codes, categories, and the research question to support the theme, *improving unit and classroom planning*. The iterative process continued to be employed throughout the time of the research.

Rossmann and Rallis (2017) argue that analysis relies on this iterative process of going between the parts and the whole. Organizing the data and studying the results may lead the researcher to find certain codes and themes, but when the researcher changes the grouping of data, this allows him or her to see different aspects of the data. Rossmann and Rallis (2017) write, “as we have mentioned previously, the process, while systematic and documented, is not necessarily linear. You are likely to move iteratively back and forth between and across phases” (p. 465).

Credibility and Limitations

This action research study used member checking to reduce researcher bias. Birt et al. (2016) describes member checking as the “method of returning an interview or analyzed data to a participant” (p. 1802). This process allowed me to work closely with the participants to validate what they said and to clarify all meanings as needed. Birt, et al. (2016) discusses several activities that involve member checking. To model the constructivist approach applied throughout the study, I used Synthesized Member Checking (Harvey, 2014). This model allowed me to share the themes that were discovered and to allow the participants to evaluate those themes and to ask questions as needed. The following is the process I adhered to in implementing synthesized member-checking: I emailed each member the CoP and asked them to evaluate the themes. All of the teachers in the cohort responded except for one. After several attempts, I accepted the

themes, as there were no written objections. Many explicitly agreed with the themes and wanted to share what they were working on. Isabella replied, “WOW! Very good themes and I am embedding many of those practices in my planning’s to enhance learning and digital interaction into my classes” (Isabella, Email Reply). Beatriz wrote, “Thanks KJ, send more news!” (Email Reply), and proceeded to send me an article on critical pedagogy. There were no suggestions from the CoP that affected the overall findings.

The first limitation that stemmed from this research was the innovation was limited to a maximum of twelve weeks. Given the content and experience of the pilot study, which has continued for one year, the depth of data was restricted due to the timing of the study. It was the responsibility of the researcher to stay on pace and to keep focused on the pacing guide detailed in Table 4. The limited time of the study prevented the structured CoP from extending to a complete implementation of CT in classrooms, including reflective discussions within the CoP about CT in practice. This may in part account for the gap between the collective definition of CT that excluded a teacher role, on the one hand, from the participant generation of teacher-decided UbD details, on the other.

Another limitation that was foreseeable was the researcher’s limited Portuguese fluency. Even though a requirement of the participants is to be fluent in English, it made it easier for some discussions to be conversed in the teachers’ native language of Portuguese to clarify any misunderstandings in English. After serving for the past four years as secondary principal, these obstacles have been managed within the building and in the pilot study.

Finally, I may have brought a bias to the action research as I had been embedded in the educational process with colleagues for four years. Working with the participants on a personal and professional level meant that I would bring in my knowledge of past history for each member, which may influence the study. It was my responsibility to not only acknowledge the bias, but to effectively use member checking when the data is compiled with the participants. Having this relationship with the teachers made it difficult for the researcher to be an outside observer. This distinction may have limited or reduced the chances of being able to see the teachers work together in a CoP without my assistance.

Conclusion

The purpose of this study was to determine the effect that a community of practice has on Brazilian secondary teachers in an internationally accredited school with regards to building a collective practice focused on critical thinking. Participants collaborated on the definition of critical thinking, shared experiences, classroom planning, and discussing personal attitudes in relation to using CT strategies in the classroom.

Chapter 4

RESULTS

This chapter provides a detailed analysis of the results from this qualitative study, which was designed to examine how teachers in a community of practice at an international school in Brazil could enhance their understanding of critical thinking. Data were collected and analyzed to answer the following research questions:

1. For Brazilian secondary teachers (in an internationally accredited school) in a community of practice focused on critical thinking, how do they collectively define and talk about critical thinking?
2. For these teachers, how do past experiences of teaching independently and the shared experiences on the professional learning community (CoP) shape attitudes toward emphasizing critical thinking in teaching?
3. For these teachers, how does participation change concrete classroom planning?

Data were collected using an initial interview, journal writing, final interview, and researcher notes to provide me with participants' definition about critical thinking, discussion of how the CoP shaped their attitudes around teaching critical thinking, and how participation in this cohort changed their classroom planning.

Each research question in this study directly asks how Brazilian secondary teachers were active participants in a community of practice. Wenger et al. (2002) discuss the structural model of the community of practice (CoP). Using the same structure of domain, community, and practice, I identified the strengths of this triad with the CoP at Academia do Lago. The primary knowledge (domain) that the cohort focused on was the idea of critical thinking. The community was the cohort itself, which placed the attention

on the domain. The cohort shared the practice of being effective and efficient in their domain and this is demonstrated in the unit plans of the UbDs and the analysis of the Standards and Benchmarks.

The Academia do Lago community of teachers within the study is diverse (see Participants in Chapter 3). This teaching subject diversity allowed members to share their perspective on critical thinking from their own professional experiences. This mix of teachers gave strength to the community of practice because teachers were able to see different perspectives during creation of subject-specific CT lesson development. The CT strategies reviewed in the CoP were the same for each member of the cohort, but the Standards and Benchmarks from each subject were different. Through the community of practice, the group built a bond, which allowed the teachers to work together on building their Understanding by Design Unit and lesson plans. The researcher witnessed the way in which teachers collectively shared these experiences. The diversity of each subject allowed for rich conversations to happen naturally.

Discussions of Popular Television Segments as a CoP Foundation

Establishing this community with a critical thinking focus piqued the interest of teachers because it provided a way to explore teaching and learning practices happening in their colleagues' classrooms. This began with discussion of popular videos to stimulate discussion of critical thinking, first with video segments chosen by the researcher, and then with segments chosen by CoP participants. After showing *Chaves* and *Escolinha do Professor Raimundo* the first week, I asked for each member of the cohort to bring in their own videos.

Initial Videos

I started the discussions in the CoP by showing short video clips from fictional shows that were school-related. I chose these examples to spark a discussion of critical thinking. The first video was from a television series called *Escolinha do Professor Raimundo*. Each episode is produced in a classroom full of students and dialogue occurs between students and the teacher. The television series is a comedy made in Brazil and delivered in Portuguese. This segment contains an exaggerated argument between a student and teacher about what a textbook claims about Portuguese colonization of Brazil. At the beginning, a student tells the professor that he does not believe that Brazil was discovered on April 23. The professor says that Brazil has celebrated this day for 493 years and that this centuries-long celebration could not be wrong. The student replies that he wants proof, such as a black and white photo or perhaps a testimonial from someone who was there. The professor breaks out in a nursery rhyme that is taught to students in elementary school about the discovery of Brazil. The class jeers and laughs at the professor's irreverence.

The student points out that there were several thousand Indians when the Portuguese military commander Pedro Álvares Cabral arrived in Brazil, yet there is no document from this time. The professor retrieves a book on Brazil's history and asserts that the publication of the book is evidence of the exploration. The student still is not convinced by the modern book and says Cabral exploited Indians when he arrived in Brazil. The professor then says if the student wants to prove that the date is not factual then he may do so, but for now the conversation is over. The student tells the teacher that the responsibility lies on the professor to prove that the date of Brazil's discovery is factual.

After this small clip from *Escolinha do Professor Raimundo*, I asked whether or not there was evidence to support critical thinking in the video. Laura asked how long it took me to find this clip as she does not recall any critical thinking in this television series. Dahlia was surprised how little education had changed, as many schools in Brazil still allow the textbook to drive instruction (Meeting Notes, Week 1, Jaramillo). Maria pointed out that Brazilian teachers do not listen to students. She said that we need to stop giving two options to students. In her view, we often give one obviously right option and the wrong option and have students pick from that limited choice. Maria explained that we do not allow students to think in class and we often do not value their opinions (Meeting Notes, Week 2, Jaramillo). Many agreed by nodding their heads and softly agreeing.

The second video clip was from *El Chavo*, a Mexican television show dubbed in Portuguese and retitled *Chaves*. It was broadcast and viewed widely in Brazil in the early 1980s. The show depicts an orphan boy who attends a local school in his city. The clip that I showed was about a student of the class where Chavo studied —Sr. Madruga—who was put in charge of the class when his teacher left the room. Sr. Madruga began the lesson teaching in front of the class to his peers. He began by explaining the symbol for danger and drew the symbol of the skull and crossbones on the board. During the beginning of the discussion, the certified teacher returns to class to find all the students listening intently to the Sr. Madruga. The teacher remains in the room without interrupting, watching Sr. Madruga as he teaches his peers. Sr. Madruga asks the class if they know what the symbol on the board means. He asks if they thought the symbol meant that they were at a cemetery. They answer: “no!” Wagging his finger profusely, he

explains that this is not the answer. In a very animated way, Sr. Madruga invades the personal space of the students and says, “perigoso,” but says it stressing the word in three parts: “pe-ri-goso.” Sr. Madruga shows that drinking something with this symbol could kill you, and he flails around and pretends to have convulsions in the class as his classmates look on amazed. This demonstration ends when Sr. Madruga pretends to fall to his death on the floor. Sr. Madruga then stands up and connects the danger he just explained to dangers associated with electricity (the live studio audience can be heard laughing in the background). Sr. Madruga grabs the coat rack in the corner of the room and pretends to be electrocuted. He once again flails around as he hangs onto the coat rack until he “dies” on the desk.

It is at this point that the teacher interrupts with excitement yelling “bravo, fantastico!” and lifts Sr. Madruga from the desk to congratulate him. The teacher praises Sr. Madruga for the way in which he describes this lesson and states that he (the teacher) was quite impressed. Sr. Madruga returns to his seat, and his fellow students cheer him on, emulating some of his actions.

This clip displays physical humor, and everyone in the CoP laughed and shook their heads because they were surprised that I brought this clip to the meeting. After both clips played, the members of the group spent the remaining time and the following meeting discussing the videos and whether they believed they could identify critical thinking in them.

Between those first meetings, Isabella captured her thoughts in her journal as follows:

On the second video, using a drawing, Sr. Madruga was able to act out a range of danger symbols and what they could mean and places that they could encounter it. It was important for him that whenever kids see that symbol, in different circumstances, they would know what it means based on one simple concept that is danger. You could actually relate that to acquiring CT skills, because once you've understood the concept, you can apply it to anything. (Week 1, Journal, Isabella)

Isabella's journal entry focused on the key theme of broader student understanding. Isabella wanted to deepen her understanding in the CoP by asking her peers questions, conducting additional research about critical thinking, and researching as much as she could about the topic. She understood that once she learned the skills she could apply it to anything. The other members of the CoP did not express their thoughts with regards to the video clips in their journals, but did contribute in the class discussion. The members of the cohort were curious about each of the other members' viewpoints and where every individual saw critical thinking in the videos. As we discussed the videos and replayed parts of them, the members expressed similar views to Isabella. Each attempted to identify critical thinking in the classroom. What the participants did not do was explore the racial and gender stereotypes in these video segments.

Participant-Chosen Videos

For the next three weeks, the teachers brought videos they thought displayed critical thinking. Most of the video clips were in English and produced in the United States. When I asked the members of the cohort why they chose videos that were from

the U.S., they replied that there were more to choose from, unlike videos available in Brazil.

Of the six videos, three of them were not in a school setting. Of those three videos, one was animated, one was a documentary, and one was clip from a drama film, *1492: Conquest of Paradise* (1992). The scene from the film *1492* opens with a father and son sitting on the edge of a rocky cliff looking toward the horizon. On the horizon, there is a large boat that is sailing out to sea. The father asks the son several times what he can see and the son replies each time that he can see less than before. Finally the father asks what does he see now, but the boat is out of sight. The father asks why. While the father peels his fruit, he explains how the world is round. The young boy nods his head and listens intently to his father.

In a clip from the animated film, *Bridge*, a moose and a bear were crossing a wooden bridge. When they met halfway, they were too large to pass by each other and each insisted that the other return to their starting bank first. While they argue, more animals lined up on the banks of the river waiting to cross the bridge. Both animals were very upset and transferred their anger to the smaller creatures by grabbing the animals by their throats, hitting them, and throwing them to the closest end of the bridge. In retaliation, the two smaller creatures untied one side of the bridge and the two large animals dropped from the bridge to the river below. With the bridge connected by only one rope, and the rest of the bridge dangling below, the smaller creatures went forward to attempt a crossing. When the smaller creatures made it to the middle of the bridge, they were also faced with the question of how to get around one another. The two animals quickly discovered that they needed to help one another in order to successfully get to the

other side. One squatted down, while the other small creature leaped over; they each were then safely on their way.

The third film that was not set in a school was a documentary about a yoga instructor finding internal happiness. The instructor explains that we cannot expect to find happiness from the outside—that it must come from within. Isabella wrote:

The Tree roots analogy makes us think critically towards what it means to be happy, something we don't usually analyze, we are always bombarded with images of happiness, success and Wolf of Wall Street on TV and Social media, an endless show of extremely white teeth as Theodor W. Adorno would say, but we never question ourselves, is this truly happiness? (Journal, Week 3).

Each of these segments are examples of critical thinking, as they introduce a CT skill and give the audience time to reflect about their understanding of critical thinking. While they were not set in schools, these videos are instrumental in stimulating conversation about critical thinking skills, and the cohort was able to discuss how they could use these videos in class to allow students to use their critical thinking skills to elaborate on what they see in the videos. This planning for instructional purposes was unexpected. The CoP started to conglomerate by employing the process of collective inquiry. Beatriz, Laura, and Isabella discussed how they wanted to replicate the modeling of critical thinking taking place within the cohort and see how they could transfer this process to the classroom. Since this video portrayed one of the first critical thinking strategies seen in the CoP, the teachers were eager to try it for themselves.

In the first video, *1492*, the father used a Socratic questioning technique to explain why the boat had disappeared. Dahlia, who brought the video to the CoP, told the

members that she had shown parts of this movie before to her class, but that she did not take time to analyze this part of the movie with her students. She stated that in the future, she would take time to focus the attention of the class on this part of the movie and give students an opportunity to explain what they believed was occurring during this father-son discussion.

The second video (animation) submitted by Laura depicts how the smaller animals had to use critical thinking when they evaluated and analyzed the problematic bridge. Laura was excited to share the video with her colleagues. She discussed how she was going to use this video in her grade six advisory class to facilitate discussions about what students could do to help each other promote global citizenship—a major theme in her advisory class. The cohort reaffirmed her idea; Valentina told her that she should create an essential question to focus on this unit.

The third video allowed the audience to evaluate where their happiness comes from and how they value it. A documentary that interviews a yoga instructor, the clip allows students to interpret the meaning of happiness and to decide if they have personally reached happiness. Beatriz, who is responsible for technology and entrepreneurship classes, brought the documentary to the cohort to determine if she could show it to her high school students in the entrepreneurship class. After members of the CoP viewed the video, they made suggestions that she use the video to clarify students' future career plans and why they want to choose a specific occupation. None of these videos helped teachers identify critical thinking in a classroom, but they did allow members to think about what kind of video might be useful to students when developing discussions using critical thinking strategies.

The other three videos discussed in the cohort were set in schools with students as key characters. The first was from the drama *Mona Lisa Smile* (2003). Valentina presented the following clip to the cohort: the university professor asks her female students: what is art? In this segment, one of the students inquires about a work of art that is projected on the screen. The teacher responds, “you tell me.” The educator then proceeds to tell the students that the painting, *Carcass of Beef*, was created by Soutine in 1925. As the students start to quickly review the syllabus, a student speaks out and complains that the painting is not on their syllabus. The professor goes on to ask the students if the painting is any good. The students continue to search their notes and do not respond to the question.

The teacher finally explains that the point of the exercise is that there is no right or wrong answer; there is no textbook telling the students what to think in this case. One student then offers her opinion and states that the artwork is not good and she finds it to be grotesque. Another student challenges her peer and asks if there is a rule that art cannot be grotesque. Other students start to discuss the piece by Soutine, which leads the teacher to say that the class will learn, “what is art?” and who determines whether the art is good or bad. As an example, the educator then shows a piece she personally created when she was young and asks if the piece is art. The teacher proceeds to show a picture of her mother when she was young and asks again if the picture is art. When a student states that it is not art, another disagrees, and the professor quickly responds, “it is art!”

The students in the movie were using critical thinking skills, such as interpretation, analysis, evaluation, inference, and explanation. This presentation of critical thinking once again evoked ideas that the members could use in their classrooms.

In fact, Beatriz said that she was going to use this video clip in her class the following day. Maria said that she was going to look for a video related to Portuguese that she could use in her classroom, or even show the same clip using Portuguese subtitles. The teachers in the CoP did look at how the teacher in the video challenged her students to think more deeply using a Socratic seminar approach. The teachers were planning on showing the video and not actually trying to duplicate the scene, as they were not trained using the Socratic seminar.

The video presented by Maria was a video sent to her via Facebook. The video depicted a research study that placed two students (a boy and a girl) in a room to collect pink and blue balls throughout the room and place them in two different glass containers. This experiment happened with several students in a similar way, with one boy and one girl. Once the balls were all collected the students were paid for their work in colorful and unique rocks. They were asked to close their eyes and open their hands. The researchers presented their payments in glasses whereas the girls received less colorful rocks than the boys. The researchers then asked the students if this was fair. All the students in each of the experiments did not find this to be fair and the boys even chose to share their rocks with their female counterparts.

Maria discussed why she found this video of students to represent critical thinking. She stated that the video shows how students made inferences and that they evaluated the situation when they were given their rewards. Maria explained that she is going to use this video in class because she was teaching her class about prejudice. She wanted to start a discussion about why society allows boys certain behaviors, but does

not allow the same behaviors in girls. Dahlia said that since she has the same students as Maria, she could discuss the role of women in history to create a cross-curricular lesson.

Finally, a member of the cohort brought in a clip from the drama, *Dead Poets Society* (1989). In this setting, the teacher asks one of the disciplined students to read the beginning of the preface aloud to the rest of the class. As the student starts to read the paragraph, some students begin to look away from their books, while others begin taking notes. The teacher begins to assist the student who is reading by dictating the graph described on the board at the same time the young man reads it aloud to the class.

When the student finishes reading the paragraph, the teacher also finishes drawing his graph. He admonishes the students that they are talking about poetry and that what the author wrote in this preface is not realistic. The teacher then tells the students to rip out this page. The students are hesitant, but the teacher encourages them again to rip out the entire introduction. This action is symbolically meant to allow the students to begin to think for themselves about poetry. The members of the cohort found this movie clip to be a powerful message to them. Dahlia stated, “when you leave your comfort zone as a teacher or a student, it is scary. You are not use to it” (Meeting Notes, Week 4, Jaramillo). Beatriz compares the clip to a previous clip and our students at Academia do Lago, “same idea in the movie, *Mona Lisa Smile*. Just as our students, they are used to taking notes and getting specific directions to complete their assignment (Meeting Notes, Week 4, Jaramillo). The passion and energy demonstrated by the teachers in the video examples brought their students closer to the topic and allowed each teacher the freedom to challenge his or her students to think critically within the subject. Passion from only

the teacher would not create an atmosphere of critical thinking; an education in CT and the willingness to deliver the strategies with fidelity is critical.

Teachers in some cases discussed the potential use of the video clips in classes, as if they chose the clips primarily for use in their own classes and less as a starting point for discussion with colleagues. Nonetheless, these video examples helped the teachers begin to understand the relevancy of CT to our students. These students will also need an adjustment period. Maria stated, “that students have followed their teachers’ suggestions for a large part of their younger years” (Meeting Notes, Week 5, Jaramillo). The cohort agreed that many students would find it difficult to take a proactive learning approach when the teachers added CT to their lesson plans.

The videos led to discussions about what was expected from an Academia do Lago teacher. The teachers in the CoP wanted to move away from a traditional final exam at the end of each semester and start to look at creating individual projects to measure students’ learning. The members of the cohort mentioned that it was more difficult to create project ideas with rubrics instead of an exam for semester finals, but would be willing to create the project to allow students to use CT. The teachers discussed the challenge of aligning their own benchmarks taught throughout the semester and also construct guidelines for students to follow in order to complete a project using the Standards and Benchmarks.

To add to the challenge of integrating CT, Maria and Dahlia were also beginning their journey in integrating learning within the subjects of Portuguese and history in middle school. A strategy used by administration at the secondary school was to have all the teachers gather in the same room and write their unit topic on the whiteboard for the

quarter. The board would be divided up by grade level, starting with grade six and working to grade 12. This activity encouraged more integration before the start of each quarter and allowed each teacher to understand what their colleague was going to teach. I would ask them to find similarities and to see where each teacher could integrate learning from each subject.

The videos produced many ideas in the CoP, and allowed for rich discussions to take place. Some of these discussions centered around the way in which to use critical thinking in the classroom; other conversations revolved around how each educator would use the videos inside the classroom to foster deeper conversations with students. The videos created a sense of unity within the cohort by giving each member a familiar subject: cinema. Teachers felt comfortable presenting and watching the videos with each other and this support enabled the CoP to build confidence with one another.

The Collective Definition of Critical Thinking

I now turn to the specifics of each research question. To answer the first research question, I examined the data taken from initial and final interviews, field notes, journal entries from the members of the cohort, and additional notes from my journal. Although each data source contributed in supporting evidence to answer the research questions, it was the final interview questions that had the greatest depth of data in the research questions. The interview questions that were most helpful were the following: 3) Please tell me about your experience with regards to the professional learning community that was focused on critical thinking, 2) Please state your current definition and/or understanding of critical thinking, 3A) Explain how participating in the CoP gave you an advantage in teaching critical thinking, and 5) Tell me about a time that you worked with

your co-workers to collectively share ideas on an instructional strategy related to critical thinking. See Appendix A for the complete protocol for initial and final interviews.

This study's innovation was the first time that these specific teachers from the second cohort were part of a CoP—a fact that allowed me to gather data from the teachers as they studied and learned together. As I worked with the data and re-read my own research questions, I understood that the first research question could be interpreted in two different ways: *how do they collectively define and talk* both in the sense of the process of collective discourse and also in the substantive definition.

The theme that emerged from the data in relationship to this research question focused on the first meaning of the question: *shaping the definition* as a CoP. But there needs to be an answer to the second meaning of the question, and below I argue that to these teachers, *critical thinking is social constructivism*. Below is the sequence of coding on the collective process of defining critical thinking:

Raw codes

- Definition of CT for Academia do Lago, in-depth thinking
- Constructing
- Interpretation
- Going beyond CoP conversations
- Working together
- Improving
- Building strategies
- Rich meaningful conversations
- Different way of thinking

- Different subject discipline of teachers
- Problem solving
- Comfortable with the CoP
- Seeing different points of view
- Analyzing
- Group-fostered new ways to teach
- Real-world applications
- Student-driven and teacher-guided
- Active participation
- Respectful of each other

Categories

- The teachers had an overall positive learning experience that shaped their ideas on critical thinking and working in a community of practice.
- Seeing each other as strong resources.
- Focusing on the Academia do Lago and the needs of the students, teachers focused on different teaching strategies.

Themes

- Shaping the definition

Process: Shaping the Definition within the CoP

Starting from the first week of the CoP, I asked the members to define—in their own words—the meaning of critical thinking. This question was asked throughout the duration of the CoP, and the members were able to continue shaping their own meaning of critical thinking (CT). After several weeks of membership in the cohort, a common

definition was created by the CoP; however, I wanted to make sure that the teachers were internalizing their own meaning, so if they could define critical thinking in their own words was a question I continued to ask.

In this section, I will discuss how video discussions helped shape the teachers' definition of critical thinking. Furthermore, in this section I will explain how a common vocabulary helped strengthen the dynamics of the cohort and how the cohort created enough confidence to move outside the CoP to other colleagues within the school.

Within-cohort Dynamics

In the 12 weeks of working together in the CoP, the cohort was able to collectively define and talk about critical thinking. As described in the first section of this chapter, the video-centered conversations established a common ground for discussions. The conversations were full of ideas, and although the cohort was uncertain of their answers, each participant took turns discussing and defining critical thinking. This initial discussion and journal entry allowed the members to make reference to the ideas that they had from the beginning of the cohort to the end of the 12 weeks.

Many of the teachers agreed with Maria during the first meeting when she described her thoughts about CT. She mentioned that teachers need to go deeper with the student when discussing a topic. Laura agreed, saying that teachers should not just give the answers to the questions that teachers ask. They should allow students to struggle with the concept and have time to think about it. "Oftentimes teachers cannot wait. We need to teach ourselves not to give the answers. We need to revisit the way we teach" (Notes, Week1, Jaramillo).

Valentina supported Maria in her first journal: “to me, critical thinking is the ability to think further, going beyond the surface into a deeper questioning. It is questioning common sense knowledge, wanting to know the ‘why’ and the ‘what if’ of things, phenomenons, events etc.” (Journal, Week 1, Valentina).

Maria also explained how she had preconceived notions about critical thinking prior to starting the cohort. She discussed how she thought it was for older students, but was troubled with that idea because she has watched her daughter (since grade three) use skills to solve her own problems. She continued to explain that she cannot fully explain critical thinking, but that she hopes to learn more. Maria realized that the 12 weeks would be a process and that together they could rely on each other to build a common understanding of CT. “It is about working together as a group” (Notes, Week 1, Jaramillo). Dahlia also thought that the collective effort was important:

When we are working together we had different views from different teachers so that helped me open my mind and helped me open my views on how to work with critical thinking. I like the idea of working together with other teachers because in Brazil, in the past, we were not use to that practice. We are not use to seeing the other teacher as a friend. . . but now we have a collaboration, a network, that we can trust each other. (Final Interview, Dahlia)

Wenger, et al. (2002) argues that working together regularly helps build respect and trust. The intention of the CoP was to build a community to allow for this interaction while focusing on the domain.

Dahlia is a history teacher who thought that teachers need to link their content to current events and real-world situations. She further explained that students are often far

removed from the past and that it is important to connect students to modern-day situations. Isabella agreed with Dahlia and stated, “we need to look at topics with many lenses and not allow ourselves to think so narrow” (Notes, Week 1, Jaramillo).

Dahlia referred to *Escolinha do Professor Raimundo*, stating that the way the video clip depicts education in Brazil is as true today as it has ever been. She said that many teachers still have their desks in rows, and that she was pleased to see the video where the student was factually correct when he challenged his teacher. Dahlia said, “this is what Isabella and I are saying; we need to quit being so narrow in our focus in class” (Notes, Week 1, Jaramillo).

Each week, the cohort met to discuss critical thinking, which gave the members of the CoP time to discuss critical thinking as it pertained to Academia do Lago. Laura said that the CoP was “the most important moment that I’ve had with the teachers working on the same page” (Final Interview, Laura). She continued to write in her journal:

With such a rush of life, this has been the only time of the week when I can stop to talk, reflect, and exchange experiences. The meetings are always very rich and well used. Being in this group is something that I and all of us want to do. It is great because we are not forced to be here we are here cause we want to be, to learn for ourselves. (Journal, Week 6, Laura)

Valentina said, “being able to discuss critical thinking and to see it from different points of view was the most interesting outcome that I would take with me after participating” (Final Interview, Valentina). In her final interview, Valentina stated, “I think these are strategies we need to address in school and everyone in our group could lead these discussions as we all come from different subject areas.”

Isabella admitted often in group meetings (as well as in her journal and in interviews) that she “learned so much from the teachers especially because I knew I was the youngest teacher in the cohort, so I wanted to profit a lot, so I went with an open heart and an open mind to learn and also to profit from discussions from the veteran teachers” (Final Interview, Isabella).

The members of the cohort discussed their understandings of critical thinking with one another outside the CoP. “After talking it through with the others in the cohort, I have a much deeper understanding of how much more it [critical thinking] is, when I thought it was much more on the surface. I have Isabella, Beatriz, and the other teachers to thank for that clarity as we have met a couple of times this week” (Meeting Notes, Week 10, Valentina).

Beatriz described her experience in the professional learning community as an opportunity to have open discussions with colleagues about topics close to her heart. She said, “I thought it was amazing to talk to other teachers that teach other subject matters in relation to something that I have been thinking about in the past, which is critical thinking” (Final Interview, Beatriz). She also confirmed that “making the definition made it a lot easier for me to try to understand how to use critical thinking more and how to use it efficiently, not just that I am using it, but actually knowing how” (Final Interview, Beatriz).

Maria described how working with her colleagues from the cohort helped shape her ideas to engage students by teaching them how to analyze, make inferences, and create a different ending to a book. Maria said to the other members, “I have this book and I do not know how to integrate critical thinking skills for this assignment.” Maria

says that a cohort member sat with her during her planning hour to help find solutions on how to utilize the strategies of analysis and interpretation in her unit plan. When I asked the member about giving up her time, she responded by saying that working in a team allows for a much richer experience, as there are more ideas and views when individuals are allowed to work together.

Common Vocabulary

The researcher introduced the *Delphi Report* (Facione, 1990) during the same time that the cohort presented their videos in week four. The focus of incorporating the report was using the vocabulary associated with CT, rather than the entire paper's definition or justification for CT. After watching the video clip from the *Dead Poets Society* in week three, Beatriz responded, "the students [in the movie] are used to taking notes and getting direction. When Robin Williams told them to rip the first part off, this is critical thinking." Beatriz could not have explained this incident with critical thinking skill words in week three. However, after introducing and studying the six words from the *Delphi Report*, teachers in the study had a common vocabulary. Maria discussed another movie shown to all secondary students: "we spoke about this movie we shown in school. There were many inferences that could be made from the movie" (Meeting Notes, Week 6, Jaramillo).

In addition, teachers were responsive to studying the six vocabulary words from the *Delphi Report*, and utilizing them in their classrooms. Beatriz spoke about an art assignment given in class. "If I would have told everyone to do the same project I would have had the same products and that was not the objective, I wanted them to use self-regulation during the course of the project" (Final Interview, Beatriz). Dahlia wrote in her

week-five journal entry about how she has started to have students analyze small passages, so they could talk about the subject as a class. Isabella stated, “In my entrepreneurship class teaching critical thinking skills gave my students an opportunity to compete in the 21st century” (Final Interview, Isabella).

I continued to give additional readings about CT, but also written in Portuguese and concerning Brazil. The members continued to reflect on the definition of CT on their own by writing in their journals. The teachers also brought in a Standards and Benchmarks test case for one of their classes in order to discuss how many (if any) CT skills were utilized. The members of the cohort were also asked collectively to bring in their Understanding by Designs to discuss how to improve the focus on critical thinking. By week nine of the CoP, the members shared their personal definitions of CT and collectively developed a clear and usable definition.

Each of the members wanted to create a common definition for the CoP to help guide their discussions and learning. As the definition started to take shape, the cohort agreed that this definition was for the CoP at Academia do Lago. It was not their original intention to share outside the group, but the cohort eventually did discuss their definition and learning (to others who were not in the CoP) at department meetings, department head meetings, and weekly meetings with all teachers.

Beyond the Cohort

Members of the cohort also had the opportunity to work with other teachers at Academia do Lago. During these interactions, the participants gained a clearer understanding of critical thinking by teaching others. Laura stated, “it is much more

challenging to work together to accept new ideas and to teach these ideas, we begin to change our own minds and this makes us more humble” (Final Interview, Laura).

Valentina described the scenario when she was working next to her coworker in the teacher’s workroom. The topic of discussion was body systems, and they wanted to expand the students’ view while incorporating critical thinking into the assignment. “For example, explaining, analyzing, and using self-reflection in the question of changing the guts to take on the characteristics of a brain” (Final Interview, Valentina).

As an art teacher, Beatriz explained that she has spent more time working with her department with regard to creating Understanding by Design unit plans (UbDs). She was adamant that the teachers needed assistance modeling how to properly create an UbD when the assessment was in project form. “The art teachers and I talked about critical thinking a lot when it came to planning our units. I do think we have been creating many moments as a team” (Final Interview, Beatriz).

Working together and continuously defining critical thinking was important to the members of the CoP. Sharing these ideas with other teachers outside the CoP played an important part in fully understanding how CT works. A common adage is that one does not fully understand a topic unless one is able to teach it to others. This process allowed the CoP to move forward as a cohort to collectively define critical thinking.

Substance: Critical Thinking Is Social Constructivism

The members of the CoP defined critical thinking in the ninth week, toward the end of the sequence of activities: “critical thinking happens when students make their own meaning by actively gathering information, problem solving, analyzing, interpreting, evaluating, and reflecting on their process, free from preconceived ideas, and culminating

in the effective communication of their understanding to others.” By this definition, the CoP encourages students to take ownership of their learning by articulating with others their thoughts and to demonstrating their new understandings. In order to achieve this, students must be active and accept the responsibility to work with others.

This definition was created by the CoP to explain what is expected of the student who is learning or becoming a critical thinker. This definition does not place any focus on the teacher’s role and responsibility in preparing the student or actively participating with the student in an educational setting. As the answers to the other two research questions indicate, the members of the CoP behaved as if their roles mattered, and this definition was not consistent with all of the CoP members’ actions.

Throughout the allotted time of the CoP, the members constantly discussed what it looks like to teach critical thinking. The conversation regarding student engagement was a continuous topic, even after the definition of CT was developed. The teachers adapted to releasing rigid control of the classroom. The study’s teachers expressed an understanding of social constructivism by allowing students to gain some space to learn as a group. As Prawat (1992) points out, “while there are several interpretations what this theory means, most agree that it involves a dramatic change in the *focus* of teaching, putting the students’ own efforts to understand at the center of the educational enterprise” (p. 357).

When discussing critical thinking with an eye toward social constructivism, Laura still found it difficult to define critical thinking. “It is so deep and something so hard to define in just a few words, but looking at our definition it really makes a lot of sense for our school” (Final Interview, Laura). She explained in the final interview that she agrees

with the definition that the cohort developed especially regarding the phrase: “students make their own meaning by actively responding...” Laura stated that she was glad that she was challenging the students to think beyond the question: “no longer are the students waiting for us to give them content, we are now waiting for the students to construct their own ideas” (Journal, Week 9, Laura). After reading the entire definition, Beatriz added, “for me, the idea of critical thinking is really letting students guide their studies and guide their course with the teacher. And guiding them as well and letting them create and letting them bring their ideas” (Final Interview, Beatriz).

The final definition evolved through many weeks of gaining a clear understanding of critical thinking strategies. These strategies led the teachers to understand key words that each member of the cohort learned throughout the CoP. Watching videos that demonstrated critical thinking, sharing in conversations, writing personal reflections in their journals, and being able to have a shared meeting time assisted in creating this definition.

During week one of the cohort, the teachers were asked to define critical thinking by themselves. Laura wrote, “working in the classroom using critical thinking is challenging students to think ‘outside the box,’ is to teach them that there are no right or wrong arguments, there are weak or strong arguments” (Journal, Week 1, Laura).

Early on in her journal, Dahlia wrote about critical thinking: “critical thinking in the classroom leads the student to be more independent in the search for answers. The most important is the path traveled and not the answer itself” (Journal, Week 2, Dahlia).

Isabella continued to search for meaning around how to improve her classes. As the youngest of the cohort, Isabella took advantage of learning from the other teachers

and spent many hours utilizing her journal for personal learning. In week four, Isabella wrote how maximizing students' learning consisted of teaching multiple critical thinking strategies:

Critical thinking skills are levels of understanding, it demands time, effort and willingness by the teacher and the students to develop them. These skills require different strategies at different ages to develop them fully and embed them into our daily practices. Using only one strategy will not foster the development of critical thinking skills, it requires a few actions using different CT skills to enhance and educate students on how to have a critical point of view. (Journal, Week 4, Isabella)

The support from the CoP allowed the teachers to work through their collective definition and their understanding about how to teach critical thinking. This learning experience was a powerful practice for each educator in the cohort. A community of learners that reinforced their beliefs regarding these new educational methods allowed the cohort to grow together.

How Past and Shared Experiences Shaped Participant Attitudes

To answer the second research question, I examined the data taken from initial and final interviews, field notes, journal entries from the members of the cohort, and additional notes from the researcher in his personal journal. Although each data source contributed in supporting evidence to answer the research questions, it was the following initial interview question that had the greatest depth of data in the research question: *Tell me about your pedagogical classes that you took in university*. The other final interview questions that were most helpful were the following: 4) How has the professional

learning community shaped your attitudes toward emphasizing critical thinking in teaching?, 5) Tell me about a time that you worked with your co-workers to collectively share ideas on an instructional strategy related to critical thinking?, and 8) If given a second chance to participate in the professional learning community with regards to critical thinking, would you volunteer again?

Using the same process, with open-coding and categorizing, the researcher identified the theme for the second research question. The theme that emerged from the data was *shifting the role of teachers from within a CoP*.

Raw codes

- Improving as educators
- Life changing
- Self-awareness
- Questioning the norm
- New way of teaching vs. traditional content driven
- Working together
- Out of comfort level
- Cultural shift
- Banking system
- Developing strategies
- Reassurance
- Reflecting
- Sharing ideas

Categories

- CoP group helped class instruction
- Improving own knowledge to gain better results in the classroom
- Developing teacher confidence

Themes

Shifting the role of teachers from within a CoP

Teachers from the cohort attended the weekly meetings, which allowed for deeper discussions each week. The teachers continued to speak about their experiences and what their interpretation of the takeaways that week meant to them. Teachers developed confidence from their new knowledge and this allowed each of them to move forward to learn more in the process.

Members of the cohort were determined to educate the youth of today to think for themselves. Teachers did not want to dump knowledge into the students with the hope that they would regurgitate some of it. The educators in the study wanted students to make their own meaning by being active learners in their classrooms and society. Developing this pedagogy shaped teachers attitudes toward emphasizing critical thinking in teaching.

For example, Maria gained confidence as a teacher throughout the course of 12 weeks by working and learning with her colleagues in the CoP. These new skill sets allowed the teachers to develop a new mindset toward teaching:

It changed my mind. I've never really liked the traditional way of teaching I have always tried to make a change but sometimes we don't know the ways that we should change. Because now we had the light. I gained ideas of how to work with critical thinking through the cohort. (Final Interview, Maria)

Valentina also felt empowered. Her confidence gave meaning to her understanding of critical thinking. She knew working with students using critical thinking allowed them to develop more skills than the traditional rote memorization for test preparations. Critical thinking supplies them with tools that allow for gathering information, problem solving, analyzing, interpreting, evaluating, and reflecting.

Laura's understanding of CT grew from the initial interview. Laura originally believed critical thinking was to give a problem to the students and to allow them to solve it with minimal interaction. During her final interview, Laura now has a desire to go deeper and has taken ownership of interactions with her students. "Now, I feel responsible to do something. The thought process has shifted from the *what* the students will learn to the *how* they will learn it" (Final Interview, Laura). Having a clear understanding of the content allows her more time to focus on how she will teach it. "The first thing I think about is how I will teach and how will I guide the students to think about using critical thinking. How can I make them really believe that it's important for their lives" (Final Interview, Laura). Developing this sense of understanding centered on teaching and learning liberates the teacher to apply more CT strategies.

Prior to 2014, it was uncommon for teachers at Academia do Lago to form CoPs to work and plan together. However, now Dahlia likes "the idea of allowing me to bring my ideas in and discuss it with other people and having them bring their ideas in also. I also like that I could learn by listening to other people, especially listening to others ideas while working with our group in critical thinking" (Final Interview, Dahlia).

Each teacher in the cohort continued to give examples of how they wanted to enrich the lives of their students by teaching them skills for critical thinking. The theory of the empty vessel that was brought to fruition in the late 1960s has now gained momentum under a new label referred to as critical thinking in the CoP. Although the concept of critical thinking is not new to education, Academia do Lago in Brazil will now take advantage of this increase in momentum and move forward to implement some strategies.

How Classroom Planning Changed

To answer the last research question, I examined the data taken from initial and final interviews, field notes, journal entries from the members of the cohort, and additional notes from the researcher in his personal journal. Although each data source contributed in supporting evidence to answer the research questions, it was the final interview questions that had the greatest depth of data. The final interview questions that were most helpful were the following: 1) How has your views changed with regards to teaching critical thinking since the start of the CoP?, 3A) Explain how participating in the CoP gave you an advantage in teaching critical thinking, 5) Tell me about a time that you worked with your co-workers to collectively share ideas on an instructional strategy related to critical thinking?, 6) Can you please explain to me how participating in a group, focused on critical thinking strategies, with your co-workers changed your classroom planning?, and 7) I asked you to bring in documentation showing how the CoP experience help change your classroom planning with regards to creating an Understanding by Design (UbD) unit plan; can you please describe how it changed since the beginning of the CoP? Using the same process of open-coding and categorizing, I

identified the theme for the final research question. The theme that emerged from the data was *improving unit and classroom planning*.

Raw Code

- Improving as educators
- Sharing
- Going beyond the CoP
- Reflection
- Members as resources
- Changing instructional delivery
- Focus is on Brazilian exams
- Changing structure
- Student-centered
- Different teaching strategy
- Multiple assessments
- Essential questions
- Stage 3: activities
- Traditional education
- Today's educational system
- Memorizing and answering questions
- Responsible
- Working together
- Deeper understanding
- Standards and benchmarks

Categories

- Teaching how instead of what
- Reducing memorization and increasing CT
- Attention on Stage 1 & 3 of UbD
- Changing teaching

Themes

- Improving unit and classroom planning

The members of the cohort were asked to bring in their standards and benchmarks and previous UbDs to the meeting after the definition was created. Revisiting these two items allowed for the teachers to break down each standard and benchmark and to describe how they understood each stage of the UbD. The members were able to unpack their own standards as this had been done by each of them during the previous year. However, this was their first time looking at them with an eye toward critical thinking strategies. Working with a smaller cohort allowed me to fully examine and discuss each stage of the UbD and to talk to each educator about what questions should be asked and how they should be developed. The biggest problem in creating the UbDs for different subjects was that multiple departments chose to use their own version of the UbD format that had been created in previous years. The process was still useful for the teachers, as this setting was the first time they were able to have these discussions with their colleagues.

Using a deeper questioning strategy in their lesson and improving their activity design were skills that are evident in teacher planning by the end of the cohort. Many of the teachers made references to improving their classrooms simply by creating better

critical thinking questions in the Understanding by Design unit plan and creating better GRASPS in the stage three of the UbD. As explained in chapter one, Wiggins and McTighe's (2005) *Understanding by Design* (UbD) is a method to assist educators in creating unit plans using a backward design approach. In UbD, teachers create their units by reflecting on which standards and benchmarks to use and which learning goals will be assessed. One key element of an UbD unit plan is the *essential question* of stage 1, which allows the teacher to create their first critical thinking question and helps the class focus on the question throughout the course of the unit. In stage 3, GRASPS stands for: goals, roles, audience, situation, product, and standards and serves to guide teachers in building a performance task. These tasks make learning relevant to students and allowing them to incorporate a real-world goal.

For example, Isabella's classroom planning has evolved since the beginning of the study; she has changed her UbD essential questions and focused on stage three activity planning: "essential questions are the important part for me. Because now I'm asking deeper questions. Stage three, is where I have begun looking at scaffolding and adding one of the six strategies to the activity so students come out of the activity with a deeper understanding of the topic" (Final Interview, Isabella).

Stage 1: Essential Questions

As explained in chapter one, the first stage of an Understanding by Design unit plan (Ubd) requires the framing of *essential questions* to drive learning. The members of the cohort appreciated learning from their peers when they discussed starting their classes with an essential question. Teachers brought in their own essential questions to share with the group. The entire UbD was presented before the CoP was formed.

The essential question was always part of the UbD, but after week seven CoP members understood how important it was in fostering critical thinking as a strategy. Laura explained the type of connection that teachers began to make between the cohort's discussion of critical thinking and the lesson planning that the school had required for several years:

Opening the class with a question allows them to relate and understand their learning through a critical thinking question. Once they understand this then the class goes very well. So I think this should be in the beginning of each lesson, to do this I will put it in my lesson plan. (Final Interview, Laura)

As chapter one describes, the school's professional development in years prior had included substantial UbD training, and many teachers had been briefed about the importance of using the backwards planning of the UbD. The usage of this tool became clearer throughout the CoP. Laura remembers when she was hired at the school and saw how teachers in the secondary were using UbD:

It happened when I came here and you [principal] started talking about UbD. And I said, Oh my God, they are crazy, what is it? UbD? I planned 20 years and it is 20 years that I have been planning and my plan is wonderful... And when I started to understand I said, oh oh My God, my plannings were horrible. Yes. I understood things that I never saw before with this type of planning. (Final Interview, Laura)

By week eight, teachers began to understand the importance of having an effective lesson plan and integrating critical thinking skills into their essential question. Maria explained the difference she experienced after the collective definition of critical

thinking: “it’s much easier to write the UbD, even to write the essential question with critical thinking, it is so much easier. I now feel confident in preparing the UbD” (Final Interview, Maria).

It also became more clear for Beatriz when the group collectively defined critical thinking:

My UbD improved after we started talking in the CoP and we made a group definition. I begin looking for keywords in my unit design that could be related to critical thinking and that was when I could see that I could change especially in stage 1 the goals and the essential questions. This is where I can make them more guided and enter critical thinking skills. (Final Interview, Beatriz).

Figure 1 shows the new essential questions being used by Beatriz in an UbD for a unit on virtual reality.

Stage 1 - Desired Results / Estágio 1 - Resultados Desejados		
<p>ESTABLISHED GOALS OBJETIVOS ESTABELECIDOS</p> <ul style="list-style-type: none"> - Students understand and create a digital portfolio using art media, techniques, processes and a range of subject matters and symbols, with technological resources in the visual arts as support. - Students reflect upon and criticize their artworks, making connections between art history and other disciplines. 	<i>Transfer / Transferência</i>	
	<p><i>Students will be able to independently use their learning to...</i> <i>Os alunos irão ter a independência de usar o que aprenderam para...</i></p> <ul style="list-style-type: none"> - successfully analyze, criticize and compare works of art, historical and artistic manifestations produced in different cultures throughout times. - justify the importance of the arts in society and lives of individuals and relate works and techniques to contemporary global issues. - create works of art related to the technique, subject matter and theme proposed using diverse art media and contemporary technological resources, using the elements and principles of design as a part of the compositional process. 	
	<i>Meaning / Significado</i>	
	UNDERSTANDINGS / COMPREENSÕES	ESSENTIAL QUESTIONS PERGUNTAS ESSENCIAIS
	<p><i>Students will understand that...</i> <i>Os alunos irão compreender que...</i></p> <ul style="list-style-type: none"> - personal records can be analyzed as a form of systematization and assimilation of the experiences 	<ul style="list-style-type: none"> - Where can we find art? - What can artworks tell us about a culture or a society? How is art influenced by societies? - How do images influence our view in the world?
	<p>with studio art and art styles learned, using sources such as books and digital media as support.</p> <ul style="list-style-type: none"> - the expressive and constructive properties of materials, media, tools, procedures and techniques can be recognized in the production of visual artworks. 	<ul style="list-style-type: none"> - How do life experiences influence the way you relate to art? - Reflect upon different works and historical art periods.

Figure 1. “UbD design focused on essential questions” (Journal, Week 8, Beatriz)

In Figure 1, the teacher used the strategies outlined in the cohort’s definition to assist her in constructing the transfer section and essential questions. The CoP definition states that students will actively gather information, problem solve, analyze, interpret, evaluate, and reflect on their knowledge. In the transfer section in “Stage 1, Desired

Results;” the transfer box is prompting teachers to identify how will students be able to independently use their learning, and Beatriz plans for her students to “successfully analyze, criticize and compare works of art, historical and artistic manifestations produced in different cultures throughout times.” At this point, the teacher has already established that the student will need to analyze the work of art. This critical thinking strategy is part of the definition. However, the teacher goes beyond the definition by adding in the second bullet that the student needs to justify the importance of art in society.

That transferrable-learning box leads to the essential questions under the subheading. Beatriz has fabricated questions that cannot be answered by a yes or no answer. These essential questions require that the students reflect throughout the unit about what they will be learning in art and how it impacts them. Examples of other essential questions from the CoP members include the following:

- What is the importance of having digital etiquette? (Journal, Week 10, Isabella).
- How if all our cells are genetically identical, do we have cells, tissues, and organs that are different from each other? (Journal, Week 9, Valentina).
- When is online behavior considered cyberbullying? (Journal, Week 8, Maria).

The UbD Stage 1 planning document in use at Academia do Lago had prompted teachers in prior years to create essential questions; in the CoP, teachers actively wrote essential questions that required students to demonstrate skills far beyond the recitation of declarative facts.

Stage 3: Learning Experiences

In addition to looking at how CoP participants changed their use of essential questions, I also examined how participants' involvement in the CoP changed how they structured the unit, in the third stage of an UbD. The learning experience of Stage 3 is designed through the Goal-Role-Audience-Situation-Product-Standards (GRASPS) part of an UbD plan at Academia do Lago. The purpose of GRASPS is to help a teacher create effective performance assessments during the unit. GRASPS in the CoP incorporated key words related to critical thinking in order to guide unit planning and to create authentic experiences for students. Using common vocabulary words within the CoP allowed the teachers to share ideas when they created their GRASPS. Each teacher taught a different subject, but when the teachers worked together during the weekly meeting time, they were able to assist by understanding each other's perspective. This allowed them to construct improved GRASPS. In Stage 3 of the Understanding by Design, Isabella reported that she improved her GRASPS while participating in the CoP:

About my new activity using CT, I feel like it has improved a lot, I used the CT framework, GRASP and knowledge I've acquired in this cohort, and it helped me to improve its quality a lot. It's a much more solid lesson plan, still has space for improvement, but I am impressed with how deeper we can go with these new strategies and having CT skills in mind. (Journal, Week 11, Isabella)

Below is Isabella's GRASPS that she constructed in the CoP for a unit about ethics, productivity, and how to write a formal email. In this unit, Isabella wanted students to analyze and explain the importance of writing a formal email, and her essential questions included what is the importance of having digital etiquette?

Goal: Students will receive and interpret an email delivered by the teacher and determine the quality of the text. The students will also be able to understand and explain how to send a formal email taking into consideration target audience, rules for digital etiquette and analysis of two examples (good and bad).

Role: New 6th grader having questions about their homework, assignments or projects.

Audience: Ms. Isabella, Ms. Maria (Portuguese Teacher) and Ms. Wright (English Teacher).

Situation: Students will be asked to submit assignments via email to a designated teacher in the building. This school assignment will ask students to write an email with the guidance of the rubric.

Product: Good and bad emails evaluation, “Great formal email” checklist/rubric, forum answer, reflection with the guidance of the rubric, analyze a friend’s email using the rubric and give a detailed explanation to your answer how they could make improvements, final email sent to teachers. (Journal, Week 10, Isabella)

Isabella inserted CT skills from the definition written by the CoP. In this activity, Isabella is focusing on allowing students to make their own meaning. In the goal section, Isabella explains that the students would interpret an email from the teacher and then determine the quality of the text. The next goal for students was to understand and explain how to send a formal email while considering their target audience. In order for students to be able to develop this understanding of a quality email, students needed to analyze two different emails—one of high quality and the other, which is poorly written.

Once the students had written their email they were allowed to look over the rubric to see if students were able to meet the required benchmarks set forth by the teacher.

Another example of a GRASPS that was carefully created in the CoP by Dahlia was one that focused on heroes. This idea of heroes was incorporated in her mythology unit plan:

Imagine you are an up-and-coming writer/director/game designer and you have been given the task of developing a new hero story for young adult readers. Your goal will be to create your hero and his/her journey (monomyth), but in a new and innovative way that you think will be entertaining and meaningful for young adults today, and send a sample of your work to your producers for pre-approval.

What your producers will be looking for:

- 1) That you're sticking to the monomyth pattern of heroic stories that consistently lead to success, BUT in a way that the story is fresh and new.
- 2) That your hero shows the cultural values of your audience—someone they can connect to.
- 3) That your sample is professional, well-developed, and engaging.

In two weeks, you will be expected to showcase your work in the conference room to your parents, producers (administration), and the teacher.

Options for samples:

Develop a storyboard presentation of the main events in the hero's journey

Create a trailer that touches on the different parts of the hero's journey

Create an illustrated timeline plan of events that would happen during the hero's journey

Create a sample selection and plan of a video game following the hero's journey.

Dahlia's GRASPS allows students to make their own meaning by asking them to take on a role as a writer, director, or designer. With this freedom of choice, students can explore their strengths and choose a path in which they are most interested. This activity challenges students to understand the background and requirements to be considered a monomyth. In order for students to communicate their understanding at their final presentation, they will need to analyze, problem solve, and reflect on the entire process.

This assignment could be expanded to reach other subjects in a student's schedule. For example, even though this was assigned by a history teacher, students could be expected to complete the writing assignment by the English teacher. The technology teacher could be instrumental in assisting students with the development of the movie trailer or the game design.

Cross-curricular Discussions

This mention of cross-curricular studies happened periodically throughout the cohort. As mentioned in Stage 1 above, the teachers were in a position to work collaboratively within the CoP. By doing so, teachers made connections to maximize students' learning by sharing a concept that could be taught in subject-specific classrooms. The teachers taught in different subject areas, and they did not always have the same students (some taught in the middle school section and some taught in the high school section).

Discussion about the roles of women between Maria and Dahlia was the first occurrence of this type of connection. The other prominent time that this happened was when the English and Portuguese departments worked together to align their curriculum. They presented their book reports in a similar way by recreating the ending of a book.

Isabella was able to connect teachers to one another to strengthen cross-curricular activities. As the technology teacher and coordinator of the secondary section, teachers often asked for her assistance. She was able to listen to their ideas and technology needs and assist them in many different ways. Teachers knew she was also in the critical thinking cohort, and asked for help to improve their units. Isabella took her role as the technology teacher seriously. She collaborated with the researcher to begin developing teachers by integrating concept-based learning. This idea of concept-based learning was in the early stages of development when I left Academia do Lago.

Summary

In this chapter, I used the data to answer three research questions. The responses from the six teachers via their initial and final interviews, journals, and the use of my field notes provide rich descriptions of their definitions of critical thinking, which established and presented clear understandings of how the CoP shaped their attitudes. This participation within the cohort, in turn, changed the members' classroom planning. Chapter five presents a summary of the findings and makes recommendations regarding future studies using professional learning communities focused on critical thinking in international schools.

Chapter 5

DISCUSSION

The purpose of the action research conducted at Academia do Lago was to work with teachers to understand critical thinking and how to effectively integrate CT strategies in the classroom. I worked at Academia do Lago for a total of four years. It was evident through classroom observations, discussions with the director and other administrators, and conversations with students that critical thinking was deficient in the classrooms at the school. I examined why there was an emphasis on rote memorization and little attention to critical thinking. When I probed further, it became apparent that the national teachers had not been trained using this pedagogy.

Wenger's (1998) *Community of Practice* model served as a theoretical perspective during the 12-week period. This allowed me to participate with teachers in an environment in which teachers could collaborate while learning about and starting to apply critical thinking strategies. The other important theory that was used throughout this study was the focus on social constructivism. The theory that was developed by Vygotsky, focuses attention on learning within a group. In this study, the value of learning within a group was instrumental to the entire process of the problem of practice.

I chose a qualitative study for this particular action research because that was appropriate to answer questions about Brazilian secondary teachers in a community of practice focused on critical thinking. This action research required me to gather data in a school setting using interviews, journals, field notes, and conversations (both electronically and in person). This process at Academia do Lago was completed in the second semester of 2018, from approximately February to June. Working alongside the

participants – all teachers from Brazil – enabled us to construct a Community of Practice. This qualitative research was developed around six members from various subjects in the secondary school.

Main Findings

Within the 12 weeks allotted for this study, the cohort achieved many results. During the time of this study, the amount of work that had been done by each member of the community was not evident. Besides coming together as a community, the cohort accomplished creating a definition of CT, identified that critical thinking is social constructivism, developed confidence and independence, and improved their classroom planning and pedagogy.

Shaping the Definition

In the first weeks of the cohort, the members learned about each other, while discovering the meaning of critical thinking. This process, as described by Wenger (1998), did not happen right away. Though the teachers had worked on the same campus, they built relationships as members of the CoP. Another factor that allowed for this bond was the dedicated time for the CoP, which was honored by everyone. The time was originally set for approximately 45 minutes each week during the course of the school day, but the conversations often surpassed this allotted time. This extended time was not due to my keeping the members, but rather it was often due to the fact that the conversation engaged the educators enough to stay.

From the beginning of the cohort, the teachers were asked to define CT. This allowed teachers to think independently and as a group. The teachers were asked to journal their personal definition and to reflect on the meaning, while making adjustments

as necessary. As the discussions centered around CT, teachers begin to ask each other to recite their understanding and clarify their meaning. After watching the videos I brought in, I asked the teachers to bring their own videos to discuss critical thinking.

The videos that were brought to the CoP portrayed critical thinking in a school setting. Examples of these videos are: *Dead Poets Society* and *Mona Lisa Smile*. After viewing the short clips of the movie, the members of the CoP discussed the videos in class and were able to write in their journals to reflect on how these videos displayed critical thinking. It was collectively evident that the teachers were identifying the same parts of the video to report on critical thinking. This community of practice allowed the teachers to have rich meaningful discussions and to hear the opinions of others in the cohort.

Critical Thinking Is Social Constructivism

These discussions created a higher interest in what strategies could be used in the classroom. Taken from the first cohort, I shared the *Delphi Report* (Facione, 1990), and together the teachers examined the six CT cognitive skills. I assigned one skill to each of the members and asked them to discuss it in the upcoming weeks. This sharing out process was completed in two weeks, as three strategies were explained in each of the two weeks. Defining the words allowed the teachers to build a common vocabulary, thus, increasing the depth of the discussions for the remainder of the CoP.

The *Delphi Report* was not the center of the experience. Initially, I believed that the report was going to work as a model, or guide, to help the teachers work through their understanding, but what became evident was that the report was not read by all in the community. In fact, only two members read the entire report and the others did not look

past the vocabulary. What became the focus from the report was the structure that the CT skills allowed us to have as a CoP. These CT skills gave us a common vocabulary, which empowered us to have universal conversations regarding critical thinking. In general, teachers at Academia do Lago did not have many teaching strategies. Educators that were trained from local universities were content driven and were used to delivering information to students. The strategies from the *Delphi Report* allowed all teachers to have six common vocabulary words that were used for discussion throughout the 12-week study.

Interpretation, analysis, evaluation, inference, explanation, and self-regulation, gave the cohort a focus. These six words allowed the cohort to focus on the definition of critical thinking and how these words gave meaning to “critical thinking.” In the beginning of the cohort, some teachers believed they applied these strategies in class, but as time passed, they realized they did not use them with fidelity. Not only was their understanding of the meaning clouded, but their planning lacked the proper structure to implement critical thinking.

Having these six words also allowed the cohort to work initially with these skills. If the cohort had been provided too many words, it would have been hard to focus and to hone their strengths with particular skills. It was noticeable in the final drafts of the UbDs that some teachers used other words to enhance students’ critical thinking skills.

Shifting the Role of Teachers from Within a CoP

The extended range of the age and experience of the participants worked as an advantage for the community. The teachers who were younger seemed to bring new ideas—especially regarding technology—to the cohort. The fresh ideas were often

welcomed in each content area. Maria, the Portuguese teacher, started asking Isabella and Beatriz if they could plan with her to build critical thinking using different strategies.

The same respect and interest worked in the opposite direction, as the veteran teachers were also sources of knowledge for the less experienced teachers. The veteran teachers explained how they used to teach and how students used to learn. They spoke about how planning was prepared alone and how teachers were not asked to plan together. This cohort started to break down the barriers. The teachers started to design their lesson plans using CT while they were together as a cohort. Allowing each other to share ideas and to prepare lessons was a newer concept that was encouraged in the CoP.

As the energy around CT grew on campus, other teachers started to inquire about the lessons. Teachers in the cohort increasingly began to talk about what they were doing in the CT meetings to other teachers in the staff workroom and within their department meetings. This allowed the members to be resources for all teachers on campus and the teachers were eager to share.

Teachers of the CoP cohort started to take ownership of their own learning and when asked to define what critical thinking meant to them as a group, they developed their own definition. They would later give to the school to use school wide. This definition was molded out of a collection of personal definitions that were being used by each member. As the members edited the definition, they made sure that each participant had an equal voice in the design. When it was finished, there was a sense of pride and confidence from the cohort.

This newfound knowledge began to give the members of the cohort confidence, therefore, shaping their attitudes. The teachers started to work outside the cohort by

sharing what they were learning to their subject-specific department. This focus changed from what they were learning in the CoP to how they could help students, peers, and other educators. The emphasis started to shift from the principal to the teachers within the cohort. Teachers outside of the cohort were talking to members of the group (and not to the principal of the school) about strategies in the classroom and classroom planning. Even though the principal was in the cohort, they sought the knowledge from their peers. This confidence allowed the members to become less dependent on the researcher and to establish more independence. Now it is the teachers' turn to transfer these learning strategies to the classroom; it will allow students to be humanized in the learning process.

Improving Unit and Classroom Planning

The new sense of confidence through the understanding of critical thinking, allowed teachers to reexamine lesson plans to incorporate CT strategies. Teachers started to move from a teacher-centered approach to a social-constructivism approach. The shift became apparent after the collective definition was in place.

Critical thinking happens when students make their own meaning by actively gathering information, problem solving, analyzing, interpreting, evaluating, and reflecting on their process, free from preconceived ideas, and culminating in the effective communication of their understanding to others (Meeting Notes, Week 9, Jaramillo).

The planning started to move from, *what* am I going to teach, to *how* am I going to teach it. When interviewing Laura on her final interview, she explained that she was not familiar with critical thinking, UbD, or Standards and Benchmarks. She said, "I have always known what I was supposed to teach, but now the first thing I think about is how I

am going to teach it, how I will make the students think about critical thinking” (Final Interview, Laura).

Beatriz explained how she revamped the beginning of her classes. She started to incorporate art news and one-minute videos to open up discussions about art. “I started thinking more about how can I bring critical thinking into my classroom routine and how to have them critical think instead of me solving the issue for them” (Final Interview, Beatriz).

In Brazil, the focus in high school is passing the university exams to be accepted into a federal university. Beatriz explained how she could still maintain that expectation while incorporating CT.

I have always asked students to do re-creations of work that will be on the PAS, and I was always asked, what do I need to do Miss Beatriz? And I would explain to them. Now, I tell them to tell me. What do you think you could do for this work? And they look at me because they want the problem solved and I am trying to have them problem solve. (Final Interview, Beatriz)

Teachers who studied in Brazilian universities have a clear understanding of their subject content. It is apparent that they do not lack this knowledge when talking to them or observing their classes. What was witnessed within the 12 weeks was how the members of the cohort moved away from the white-board lectures to creating lessons centered around critical thinking. Teachers were asked to capture this new knowledge into their UbDs. Incorporating the UbDs was not only to fulfill the obligation of the school, but it gave teachers a time to self-reflect on the unit design and a standard template that could work in conjunction with their colleagues.

The use of Understanding by Design was put into place a couple of years before the start of this cohort. Teachers were familiar with UbDs and the expectation of backwards planning. However, the new knowledge of CT forced the members to re-evaluate their previous UbDs. If teachers were to have proper and up-to-date plans, then they would be forced to go back to their UbDs and inject critical thinking to various areas of the three stages.

In addition to the UbDs, the teachers examined their Standards and Benchmarks to see if they would assess any skills related to critical thinking. Some teachers were appalled by the absence of skills, while others had some that they could identify and work with in the UbD. Teachers worked closely with the principal and the coordinator of teaching and learning to properly place CT strategies into the Standards and Benchmarks.

As evidenced in Figures 4 and 5, teachers worked to restructure their previous designs in their UbDs. This work allowed for teachers to move away from questions that evoked responses using rote memorization to asking questions that were thought provoking. This allowed students to make their own meaning using critical thinking strategies. This overall goal is beneficial to students as they continue to be productive global citizens.

The members of the CoP made progress within the designated time of the study. Teachers enhanced their understanding of critical thinking by collaborating ideas centered around video clips, common definition of CT, building and improving UbDs, and participating in weekly discussions. This interaction of the CoP did not create experts with regards to critical thinking, but strengthened their overall knowledge in CT and participation in a community of practice.

What Is Critical Thinking?

Rooted in the school the vision and holistic student development at Academia do Lago continues to move the school forward in support of reinforcing the students' ability to think critically. The school will need to continue to implement a CoP focused on CT to support the school's mission. Connecting the teacher's knowledge of content with critical thinking strategies will allow teachers to gain a better understanding of UbDs, lesson planning, and ideas to execute CT strategies. With this support the teachers will gain knowledge to follow through with the school's vision of helping students to develop capacities to become critical and reflective learners. From this experience, I can speak to critical thinking in a way that I could not at the beginning of this research.

If one looks at critical thinking at the level of the school, in contrast with top-down definitions such as Facione (1990), a few features stand out. Critical thinking at the level of the school needs to foster the teacher's understanding of critical thinking. It is challenging to encourage teachers to explore critical thinking as they find comfort by reverting to their past teaching practices. It is important to foster the teachers' understanding of critical thinking because no longer should educators and administrators expect that students only need to pass the national university exams. It is the teachers' responsibility to educate the students of Academia do Lago with deeper thinking and learning. At an elite bilingual international school, the teachers need to develop students who can process and identify solutions to global issues. Teachers thus need to fully understand and build a learning environment that focuses on collaboration between students and teachers.

After seeing the process that resulted in and continued out of the definition that the community of practice developed, I would make some additional changes. First, I would add the role of teachers to eliminate the perception that students are alone on this learning path. At Academia do Lago, teachers are encouraged to teach the strategies to promote CT and to build relationships with their students to nurture learning. In addition, I would remove the phrase, ‘free from preconceived ideas’ to acknowledge the need of the learner to debate internally within oneself those ideas that have been developed through reflection, from inconsistencies between previously-held ideas and what the individual is learning. Of course, this holds for teachers as well.

As a result of several cycles of action research in an international school working with a binational teaching staff, based on my participants’ collective definition, here is my definition of critical thinking: Critical thinking develops when students and teachers construct meaning together by actively gathering information, problem solving, analyzing, interpreting, evaluating, and reflecting on the process while encouraging effective communication of their understanding to others.

Further Issues and Credibility

To strengthen the credibility of this research, I was able to use strategies, such as incorporating scaffolding, member checking, comparing the initial and final interviews, and identifying that the themes evolved over the two cohorts to ensure members of the cohort were achieving an understanding of critical thinking. These issues evolved throughout the study and supported the credibility of the research.

Scaffolding

What became evident later in the study was that scaffolding was an important concept throughout the study. In each of the themes: (a) shaping the definition, critical thinking is social constructivism, (b) shifting the role of teachers from within a CoP, and (c) improving unit and lesson planning, I found this process to be important for the members of the community.

From the initial interview until the final interview, I asked the members to develop their definition of critical thinking. The purpose of this question was to understand what they believed critical thinking was and if it might change throughout 12 weeks. I wanted to understand if their definition and understanding of CT would evolve. It also allowed the teachers to self-reflect and to decide if what they were learning was actually appearing in their lesson planning and pedagogy. When the teachers were asked to collectively create a CT definition, each member actively participated. Each member wanted to share their personal definition, and through this social constructivism, a definition for the CoP and the school was formed.

Isabella, who was the least experienced teacher, was the only teacher who appeared to connect her cohort experiences with Paulo Freire's critical pedagogy theory the most. Isabella wanted students to explore their learning through analysis, evaluating claims, drawing conclusions and having self-reflection. Isabella and her colleagues said that even though they were exposed to multiple theorists in their university classes, they did not truly have an understanding about how the theories applied in their classrooms. But during week six, Isabella wrote, "Paulo Freire's theory and application (critical analysis about existential situations) makes more sense now, since at university in our pedagogy classes, there was no analysis regarding this topic" (Journal, Week 6, Isabella).

Learning about critical thinking allowed teachers to understand that we can no longer accept the empty vessel approach, and that we needed to facilitate students' learning. Dahlia, who was skeptical in the beginning, began to create an environment in her classroom that allowed for debates and discussions amongst the students. This change was possible by getting away from the traditional rows and allowing students to move their desks to work in pairs or small groups. Breaking down perceived barriers and allowing teachers to try to create critical thinking classrooms was important to me as their principal.

As the teachers became familiar with the meaning of critical thinking, we needed to capture what the teachers were trying to do in the classroom. Redeveloping past UbDs and lesson plans was the next logical step to institutionalize CT at Academia do Lago. Each member was asked to carefully examine their Standards and Benchmarks, which is needed to complete an UbD. The members of the cohort needed to identify if what was being asked of the learner was already fulfilled with critical thinking, or if the Standards and Benchmarks were addressing a traditional approach to learning.

Standards and Benchmarks

Unpacking the standards is a relatively new concept for Academia do Lago. Within the past four years, the school started to grade using Standards and Benchmarks, and our teachers were responsible for using them while teaching. The coordinator of teaching and learning, the principals, the facilitators, and the teachers—under the direction of the director—put the Standards and Benchmarks into place. Some of the Portuguese subjects that were taught in Portuguese used a blended approach with

Standards and Benchmarks from the United States and the national curriculum from Brazil.

The cohort asked how they could teach to the Standards while integrating critical thinking into their lessons. During week seven, the teachers brought a set of their Standards and Benchmarks to the meeting. When looking at them together, there were a multitude of discussions around not having many critical-thinking strategies within the Standards or Benchmarks.

Isabella states, “when you asked me to look at my UbD to examine the Standards and Benchmarks and to check if there's anything related to critical thinking. I was surprised to see there was none. That blew my mind because I started thinking that our schools are in such an old mode which made me think what is wrong with our pedagogy. It [critical thinking] is not even embedded in our benchmarks how can we start looking at it? (Final Interview, Isabella).

Valentina observed that of the three areas of science standards in biology, which has a blended curriculum using *Next Generation Standards* and *Brazil Competencies*, only scientific and engineering practices have critical thinking skills. The other two areas do not: crosscutting concepts and core ideas. Out of the seven Standards and 10 Benchmarks used in scientific and engineering practices, only five of the benchmarks have critical thinking skills. This can be seen in Appendix E. (Journal, Week 7, Valentina).

As the school progresses in their understanding of Standards and Benchmarks, the teachers, with the help of administration, continue to search for the power-standards and benchmarks that work best for students learning. Those in the cohort strive to incorporate

critical thinking into their classrooms. The majority of the teachers found success in improving the first stage of the UbD. A couple of teachers however, found that participating in this CoP also assisted in improving stage three, which consists of lesson plans and activities.

Member-Checking

Synthesized member checking took place via email. I moved from Brazil to Venezuela to work at another international school, which restricted the direct access that I had with the teachers. I emailed the teachers the final themes, which they all accepted. One of the teachers did not respond to the email. Throughout the time that I worked with the teachers we had an open relationship and I would explain to the cohort what I was doing throughout my doctoral program. As I was learning the process of the doctoral program, writing the chapters, needing to collect evidence, coding, and continuing the cycle, I explained the steps along the way. We talked about why there was an initial interview and how the final interview would be conducted at the end of 12 weeks. I would encourage the members to write in their journals and develop the next meeting accordingly. The journals were only part of the development of the next class; I would read and re-read my personal notes that were taken throughout the course of the week and would add to the agenda to clarify or magnify what was stated. This process allowed clarity for all members, including myself. We would discuss what was learned and make certain that we all understood the topic.

Initial vs. Final Interview Definitions of CT

The CoP process led participants to more specific, meaningful definitions of critical thinking in the final interview than in the initial interview. In the initial interview,

Dahlia defined CT as follows: “I... I don’t know KJ, but when we stay with the kids they need to construct their understanding. I don’t know. (sigh) We have to stay with them in the room, but they need to construct” (Initial Interview, Dahlia). In her initial interview, Beatriz states, “for me critical thinking is when you have students thinking outside the box and having students think for themselves and not having us just passing the information. Dealing with issues and dealing with issues in class that can be related to their life.” (Initial Interview, Beatriz). Maria explains her definition as follows:

I think critical thinking is like you can go deeply in one subject. So I think its deeper and much more, sometimes the students don’t know that they are doing that. Because I don’t know the name critical thinking and cannot explain it to them. I don’t use those words. And, but I tell them, think. Think the other way. (Initial Interview, Maria)

The definitions were vague and did not use descriptive words related to critical thinking.

In the final interview, members of the cohort were able to refer or recite the collective definition created by the CoP. Dahlia’s response was:

The student when he looks for knowledge or when he looks for learning, he becomes more independent by learning independently as a person. And they feel more safe or secure about the content because they worked on building of the knowledge of the content through various ways like the strategies. (Final Interview, Dahlia)

Beatriz defined what she believes to be critical thinking after reading the entire definition that was created in the CoP:

For me, the idea of critical thinking is really letting students guide their studies and guide their course with the teacher and guiding them as well and letting them create, infer, and analyze, and letting them bring their ideas within the Arts. (Final Interview, Beatriz)

Maria answered in the final interview that she believed critical thinking was relevant. She stated:

I didn't know about the strategies. So in the beginning we had to think about one skill or strategy and think deeply about it but when we know about these strategies it's easier to think and talk about it. Sometimes we think we don't need for example interpretation, but every topic in class I now think we need interpretation. Even life is about interpretation. So for me it is much more, it is wonderful that we have our final definition (Final Interview, Maria).

Evolving Themes over Two Cohorts

The themes that emerged from the pilot CoP were not the same themes that were developed with the CoP described in detail in this study. I used an open-coding with the data from the first cohort and the themes that emerged were the limited understanding of CT, the minimal strategies in teaching CT, and an interest in learning how to teach CT through the modeling process.

The entire coding process is a cyclical process, which enabled me to reflect upon the previous themes and to move forward developing new codes and themes. I started with the first cycle of coding, and by the time I was grouping codes into categories, I was already looking back at the themes that were developed with the first cohort. This process took place throughout the creation of categories as well. By the time the categories were

developed with the data from the second cohort, those categories had more depth than they did with the first cohort. There was an understanding that the second cohort had a limited understanding of CT and minimal strategies; however, I found that there was more to be identified in themes than the basic themes that were first developed.

The last theme, interested in learning how to teach CT through the modeling process, did not actually take shape with the second cohort. The second cohort understood that the purpose of the community of practice was to primarily understand what CT is, which strategies could be used, and how we would witness it in our Standards and Benchmarks and UbDs. Therefore, the theme of wanting to learn how to teach CT through a modeling process did not transpire.

Contextualization and Transferability

Action research is highly dependent on situated context, and this is especially true for discussing critical thinking in Brazil. For those who find themselves in similar settings, where international school culture is geared towards standardized tests, this innovation may be transferable.

The current conflict over the purpose of education in Brazil may determine future possibilities for critical thinking in the curriculum. In the past 50 years, education with the recognition of Paulo Freire, has been represented around the globe. These representations have not always been welcomed with open arms, as recently demonstrated by the current administration of the Brazilian government. In fact, Brazil's strong military government sees critical pedagogy as moving away from citizenship, family, and church values. My time working in this country has opened my eyes to the endless possibilities of education in Brazil.

In addition, the context of an international school matters. International education in Brazil has existed for more than 100 years and Academia do Lago has taught Brazilian youth for 40 of those years. The school serves many Brazilian and international families, and provides them a bilingual educational experience. The international schools in Brazil work together through professional development conferences, emails, phone calls, and school visits to improve education. All international schools in Brazil are governed by MEC (Ministry of Education) and relationships with other schools also allows each school to discuss current trends.

The essential context to consider transferability is national testing for students who are applying to universities in Brazil. As we continue to see students applying to universities all over the world, many students at Academia do Lago are interested in attending the Federal Universities in Brazil. At Academia do Lago, the intention is to educate students by integrating a critical thinking approach to learning. It is imperative that the secondary school focuses on covering the requirements set forth by MEC. The importance of CT is to challenge students to convert their knowledge into building self-confidence and to make sound judgments. They must also value reasoning and incorporating world views.

School-specific Dynamics

Throughout the time that I was employed at Academia do Lago, I formed relationships with staff, parents, and students. During the 2017–2018 school year (my final year), I started the community of practice centered around critical thinking. Previously, the school brought various professional development speakers in from the

United States to train on Standards-based assessment and grading, UbD design and implementation, and data.

In the master schedule, it was important for me to structure times to meet with department heads, departments, and to meet with the entire staff on Mondays after school. Department heads met once a week for approximately 45 minutes. This time was protected by adjusting the master schedule to make sure all department heads were available during a given period.

During my tenure at Academia do Lago, the direction of the meetings transformed from information sessions about what is happening in the school, to more professional development for the department heads. The book that guided this practice was *How Teachers Can Change Data into Action* (Venables, 2013). The department heads went through each module in the book together to study how to integrate teaching strategies that would allow teachers to improve the overall learning in the classroom according the accrediting agency, AdvanED. Organizing this structure of meetings allowed for me and the department heads to build a trusting culture that fostered a healthy CoP. This bond was enforced each week in the department head meetings and was developed within each department. The focus was no longer was on the technical aspects of meeting deadlines; the shift was about creating meaningful, professional relationships that would maximize student learning. Teachers were now active participants and no longer empty vessels.

As the school looked at various teaching strategies, I started the CoP described in this study to examine critical thinking in a community of practice. What made this CoP unique to Academia do Lago was that it had one primary focus, which was examining critical thinking and learning how to integrate it into the classroom planning and

instruction. The difference between the entire school study and the CoP was the focus on one topic—critical thinking—in the CoP. Teachers wanted to learn more about critical thinking and how to utilize it in the classroom. The focus on one topic took away other distractions and allowed for the CoP to go in depth with the topic. The cohort also took ownership of their topic. The teachers and staff in the school knew that this cohort was specifically researching and learning about critical thinking. Teachers outside of the cohort often asked members of the CoP to explain what was going on in our meetings or to explain to them the definition of CT.

Can this model transfer to other International schools outside of the United States and be as effective when working with large percentages of local teachers discovering critical thinking? For those who find themselves in similar settings, where international school culture is geared towards standardized tests, this innovation may be transferable. If given the opportunity to work with national teachers who would like to learn critical thinking teaching strategies for their classroom environment, the type of approach described here would allow for this opportunity.

The first steps to achieve the desired results would be to self-reflect and decide if moving away from information meetings with teachers to a professional development setting is what is desired. Although a community of practice may be developed for infinite reasons, the research in this study examined introducing teaching strategies related to critical thinking for classroom use.

The detail of the study was to build a trusting culture with the teachers at Academia do Lago. Adjusting the schedule to meet with teachers during specific department times maximized my time with the teachers. Placing the meeting times during

the working hours demonstrated that the school was behind this initiative. Creating this time also allowed the teachers and me to develop trust with one another. Capitalizing and not wasting teachers' time was also important. The agenda was carefully planned out each week by the community and did not represent my personal schedule. Allowing all members to be heard was important for the success of the cohort.

The procedures presented in Table 4 can be adapted to other international schools to explore the relationship between teachers, the curriculum, and students to address critical thinking. In a bilingual setting, it is important to note that time will need to be given to clarify each new word that is introduced, and to make sure that all members in the group understands its meaning. Allow teachers to speak in their preferred language as they learn these new definitions. Giving the teachers freedom to discuss it in their first language allows for deeper conversations within the group. If you are not a native speaker or have a limited understanding, make sure you ask for translation from someone in the group. If it is difficult, you may need to have a translator present or invite another member who is bilingual to be part of the group.

Having a guide or book to follow does help if this is your first time running a CoP. I recommend, *Leading Professional Learning Communities: Voices from Research and Practice* (Hord & Sommers, 2008), as these authors examine how to have a successful journey throughout the CoP.

Researcher Positionality

In 2014, I became the principal at Academia do Lago. Little did I know that I was going to be the first international principal of the secondary section. The mere thought of taking on this responsibility at the time seemed unimportant, as I had previously worked

multiple years in the United States and in South Korea. Brazil was definitely different than any other country that I worked in before. It is full of life, color, and music; the people are warm and welcoming; and the students are outspoken and willing to express their opinions.

When I first arrived, I realized that there was a separation between the international hires and the national hires. It became my quest to try to unite these teachers and bring a school together for the betterment of education at the school. This journey did not happen right away, as building trust had to occur with many individuals: staff, students, and parents. No one knew who I was and what I wanted to do now that I was the principal of the section. After multiple meetings and discussions, I explained, with the help of many translators, that I was there to observe and to do my best when the time was right. The first six months consisted of practicing the language and learning from all stakeholders how the school operated. The students and staff were instrumental in teaching these systems.

The main barrier I had was the language, as it was difficult for me to pick up Portuguese. The school surrounded me with those that were bilingual and this did not always help me to learn the language, as I used this support as a crutch. After several months, I kept trying to use the limited Portuguese that I had learned and oftentimes it came with a smile. This allowed the relationships to grow and we began trusting one another. I was no longer seen as a principal who was not invested in the school, but as someone who was trying to learn and make improvements.

I incorporated my servant leadership philosophy into each and every day. I made sure that I was there for anyone who needed assistance. Once again, I was determined to

help anyone in the school's community. In fact, I believed in taking Walmart's philosophy and using it as my own, "how may I help you?" I did not wear a blue vest, but I wanted to be able to assist at any time.

As the researcher of this study and principal of the school, it may have been difficult to separate the two positions. However, with the day-to-day servant leadership attitude, I find that there was a mutual respect between me and those in the CoP. As a leader, my intent was to build a community throughout the school. My responsibility as a school leader was to help the school improve, and while participants saw clear benefits to participating in the CoP, the initiative was mine. I wanted everyone to feel valued and to be seen as an equal contributor to the students and the school.

From the beginning of the CoP, I explained to the group that I wanted to be a member of the community as much as they did, and that I was not bringing in my principal's position into the CoP. I emphasized that everyone was allowed to voice their opinions and concerns as needed, and that by no means would there be consequences for their beliefs. One member of the CoP told me that she did not see me as a principal at all while I was in the meetings.

During the final meetings and interviews, the members of the CoP did ask what was going to happen next year. This did refocus my attention on my role as a principal and researcher and made me feel like an outsider to the cohort. I was no longer an inside member; I was more of an outsider. This could have also been because I was leaving and would not be at the school the following year. More than likely, the members knew that I was in a position of power and were asking if administration was going to allow for the cohort to continue the following year.

Language as a Contextual Issue

Working in Brazil at the Academia do Lago was an incredible experience. Working with teachers who are national and international hires at a bilingual international school is an opportunity that does not happen every day. The language barrier made it difficult to completely communicate with all staff members. Building relations took time, but many great friendships were developed. The friendships that were made in the CoP will never be forgotten.

However, being able to communicate on a social level is one aspect, but working with colleagues to position an international school to become one of the best in Brazil is a different challenge. Even though the teachers in the CoP were bilingual, we would have been able to learn more from one another if we were able to speak in Portuguese exclusively. Due to the limited knowledge that I had in Portuguese, it was easier for the teachers to use English to discuss critical thinking with me. When a member of the cohort did not know how to explain their ideas in English, they were able to speak in Portuguese to communicate their ideas and others in the group would help with translation. Each person in the CoP knew they could speak in Portuguese if necessary.

Conclusion

After a few years of working with action research, I have come to the conclusion that action research is education. We can no longer sit around and allow education to just happen, nor can we allow theories that have never been tested become the standard. As educators, it is our duty to move forward and to study our everyday practices and analyze our strengths and weaknesses. We need to empower educators at the local level to explore the problems of practice and develop a plan to improve our profession.

Action research allows everyone involved in the school to become active learners. This involvement starts from the planning stages and continues until concluding with the results (Mertler, 2014). The process is cyclical and not linear, which allows for multiple cycles. The researcher and participants may gain better results from the process each time in this way. The researcher saw these improvements from the last cohort. The CoP was able to create a definition for the school and each participant was able to move forward in their understanding of critical thinking.

It is instrumental for schools, especially for Academia do Lago, to continuously improve teaching strategies in the classroom. As we continue with 21st-century learning in schools, we as educators need to be accepting of the improvement of current strategies in education. We can no longer stand in front of the board and deliver content.

I look forward to continuing working with my colleagues at Academia do Lago and following up with their progress for the next couple of years. As the school continues its journey, I know that Academia do Lago will continue to be an exemplar in education for Brazil. I am confident that as education changes in the great country of Brazil, the Ministry of Education, can and should count on the work that continues to be done at Academia do Lago to use as a model for other schools in the country.

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APPENDIX A

TEACHER INTERVIEW PROTOCOL

<p>Interviewer introduction, thank you and purpose (1 minute)</p>	<p>Hello. My name is Kevin Jaramillo. I would like to start off by thanking you for giving up your time and meeting with me today. This interview will take approximately 10 to 15 minutes.</p> <p>I will be interviewing you to gain an understanding of what you believe critical thinking is and if you are using it in your classroom.</p> <p>The conversation will be recorded so that I can recall the conversation.</p>
<p>Ground rules (1 minute)</p>	<p>I am going to ask you nine to fourteen questions related to critical thinking, the questions are just a starting point. Feel free to add anything as needed. Your input will inform a study that seeks to implement critical thinking at Academia do Lago.</p>
<p>Specific questions (10-15 minutes)</p>	<ol style="list-style-type: none"> 1. Please tell me a little about yourself and why you chose to work in education? 2. Tell me about your pedagogical classes that you took in University. 3. Can you tell me a bit more about your successes and challenges during your time in University? 4. How long have you been in education?

	<p>5. Please state your definition and/or understanding of Critical Thinking?</p> <p>5A: How do you believe that your classes would benefit from utilizing more critical thinking strategies?</p> <p>5B: What might be the challenges of implementing such strategies in the classroom?</p> <p>6. Why would you like to be part of this cohort?</p> <p>7. What is your main goal by the end of the cohort? Achievement?</p> <p>8. Have you used a CT strategy in your class? You may use an example.</p> <p>9. Tell me about a time that you worked with your co-workers to collectively share ideas on an instructional strategy? (RQ1)</p> <p>Or</p> <ul style="list-style-type: none">• How have you worked with your co-workers to collectively define a higher order thinking strategy in a CoP- Professional Learning Community (RQ1). <p>10. How has past experiences of teaching help shape your attitudes towards students learning? (RQ 2)</p> <p>As you may know, our cohort will be in a small group when we meet each week.</p>
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	<p>11. Can you please explain to me how participating in a group with your co-workers may change classroom planning?</p> <p>12. What comments and questions do you have of CT or of this interview?</p>
Closing (1 minute)	<p>Thank you for coming and talking about critical thinking with me. Your input will be valuable for what we need to do next.</p>

<p>Interviewer introduction, thank you and purpose (1 minute)</p>	<p>Hello. My name is Kevin Jaramillo. I would like to start off by thanking you for giving up your time and meeting with me today. This interview will take approximately 10 to 15 minutes.</p> <p>I will be interviewing you to gain an understanding of what you learned during the course of the Professional Learning Community with regards to critical thinking and how you are using critical thinking in your classroom and in your classroom planning.</p> <p>The conversation will be recorded so that I can recall the conversation.</p>
<p>Ground rules (1 minute)</p>	<p>I am going to ask you nine to thirteen questions related to critical thinking, the questions are just a starting point. Feel free to add anything as needed.</p> <p>Your input will inform a study that seeks to implement critical thinking at Academia do Lago.</p>

<p>Specific questions (10-15 minutes)</p>	<p>1. Please tell me about your experience with regards to the professional learning community that was focused on critical thinking. (RQ1)</p> <p>2. Please state your current definition and/or understanding of Critical Thinking. (RQ1)</p> <p>3. How has your views changed with regards to teaching critical thinking since the start of the CoP? (RQ3)</p> <p>3A: Explain how participating in a CoP gave you an advantage in teaching CT? (RQ2, RQ3)</p> <p>3B: What disadvantages did you have in the classroom with regards to participating in the CoP? (RQ2, RQ3)</p> <p>4. How has the professional learning community shaped your attitudes towards emphasizing critical thinking in teaching? (RQ2)</p> <p>5. Tell me about a time that you worked with your co-workers to collectively share ideas on an instructional strategy related to critical thinking? (RQ1, RQ2, RQ3)</p> <p>Or</p> <ul style="list-style-type: none"> • How have you worked with your co-workers to collectively define a critical thinking strategy in
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	<p>the CoP- Professional Learning Community (RQ1,RQ2, RQ3).</p> <p>6. Can you please explain to me how participating in a group, focused on critical thinking strategies, with your co-workers changed your classroom planning? (RQ3)</p> <p>7. I asked you to bring in documentation showing how the CoP experience help change your classroom planning with regards to creating an Understanding by Design (UbD) unit plan, can you please describe how it changed since the beginning of the CoP? (RQ3)</p> <p>7A: What went well you put the UbD plan into action? Can you give an example? (RQ3)</p> <p>7B: What did not go well when trying to implement the CT strategy in the classroom? Could you change anything in your approach to improve the lesson? (RQ3)</p> <p>8. If given a second chance to participate in the professional learning community with regards to critical thinking, would you volunteer again? Please explain your answer.(RQ 2)</p>
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	<p>9. What comments and questions do you have of CT or of this interview?</p>
<p>Closing (1 minute)</p>	<p>Thank you for coming and talking about critical thinking with me. Your input will be valuable for what we need to do next.</p>