Evaluating the Efficacy of Work-Based Learning Models for Adult Learners in Health Science Programs

by

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ABSTRACT

This action research study investigates the outcomes and barriers to persistence for adult learners in a medical assisting program at a private Catholic college in central Iowa. The research compares the impact of a work-based learning track and a traditional learning track to understand how the differences in the learning track support adult learners' andragogical preferences, reduce barriers, and helps students graduate, persist, and pass their licensure exam.

A review of the existing scholarly, theoretical, and empirical research suggests several optimal ways to deliver adult education and many alternative learning models designed to support adult learners' unique needs and life experiences. Andragogical principles help explain the differences between adult learners versus children and their preferences and priorities that shape their orientation toward learning. These principles, combined with the experiential learning theory, offer theoretical support for developing alternative learning paths such as work-based learning.

Utilizing a mixed-method action research design, 51 current students, graduates, and stop-outs provided feedback through a survey, and four individuals from the same respondent group engaged in a virtual interview. Students in the work-based learning track reported feeling better prepared for their licensure exam, had a more positive overall experience, and found the program less challenging compared to their counterparts in the traditional pathway. Additionally, institutional data was evaluated and adults in the work-based learning track had higher rates of persistence, graduation, and licensure pass rates.

The study illuminates that combining education with on-the-job training in the form of work-based learning has significant benefits for adult learners when compared to a traditional learning track that dominates much of modern academia. The research findings highlight the importance of embracing andragogical principles when designing adult education specifically, their intrinsic motivation and orientation to learning. This is a strength of a work-based learning model as students can reinforce classroom learning with hands-on training, facilitating the cycle of learning through concrete experiences and active experimentation. The medical assisting work-based learning track also alleviates common challenges to student persistence, such as tuition costs, by involving employers in financing students' education in exchange for a work commitment post-graduation.

DEDICATION

"You're just going be a teacher doctor, right? And if you don't like it, you're just going to be a dad? I hope you don't like it."
Owen Romkey, January 2023

It is with great pride that I dedicate this dissertation to the memory of my loving mother, Carol Cerny Romkey, and my father, Michael G. Romkey. Your love and constant encouragement instilled a drive and desire inside me to never give up and to chase anything I wanted. To my older brother, Ryan, and younger brother, Drew. Our frequent mental and physical sparing throughout the years has given us each the fortitude and boundless energy to accomplish anything we set our minds and hearts on. To all my family for your understanding, support, patience, and encouragement through this journey and always.

Especially, to my children, Charlie, Owen, and Max. I hope you dream big and never let anything hold you back. May the challenges you face be an inspiration to create something new and better. Your limitations in life are only bound by your own volition. I cannot wait to watch you grow up and I hope I serve as an inspiration of what you can accomplish when set your sight on something and let nothing stand in your way. Having the opportunity to watch you discover the world around you is the greatest joy of my life.

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Introduction

A cross-national analysis of health statistics by the Organization for Economic Co-operation and Development (OECD) found that the United States continues to be a world leader in adverse health outcomes (Tikkanen & Abrams, 2020). The United States ranks first in suicide rates (13.9 deaths per 100,000 people), chronic diseases (28% of the U.S. population has two or more chronic conditions), obesity (40% of the U.S. population has a body mass index of 30 or higher), and length of hospital stay (7.5 average days for acute care), all while leading global healthcare spending as a percentage of gross domestic product (16.9% of gross domestic product). Even with these poor global health rankings, the United States has the fewest physicians (2.6 physicians per 1,000 people), resulting in an average of just four patient visits per year, compared to the OECD average of 6.8 visits per year (2020).

A talented workforce ensures quality healthcare and reduces barriers to access by being qualified, diverse, and well distributed (American Hospital Association, 2021). From 2020 to 2030, healthcare occupations in the United States are expected to grow by 16%, adding nearly 2.6 million new jobs (U.S. Bureau of Labor Statistics, 2022a). However, this growing workforce demand is continuing to be under-met. By 2030, the United States is projected to need 1.1 million new registered nurses. Within the next five years, a shortage of 3.2 million lower-wage healthcare workers, such as medical assistants, is projected (U.S. Bureau of Labor Statistics, 2022b; U.S. Bureau of Labor Statistics, 2022c). In addition, by 2034, the United States could face an estimated

shortage of up to 124,000 physicians (Association of American Medical Colleges, 2021). An aging and longer-living population with increased chronic conditions require a more knowledgeable and skilled healthcare workforce (Schreiber, 2018). This research aims to demonstrate how higher education can respond to the healthcare workforce challenges facing our nation by providing educational opportunities for that are high quality and flexible, thus making them more accessible to broader and more diverse student population. By deploying and measuring the efficacy of a work-based learning pathway (compared to a traditional academic pathway) for adult learners seeking a career as a medical assistant, I hope to encourage the adoption of broader nonstandard educational pathways for healthcare occupations.

National Context

The United States healthcare and education facilities, technologies, and innovations are often the envy of the world. However, both industries face barriers to access, declining funding, and increasing public scrutiny. Much akin to the healthcare outcomes explored in the Introduction, the education sector in the United States lags behind its global competitors and ranks a "disappointing eleventh in global postsecondary attainment" (Lumina Foundation, 2017, p. 1). A generation ago, the United States led the world in postsecondary attainment for young adults (U.S. Department of Education, n.d.). Today, young adults fail to compete when compared against other countries in literacy, numeracy, and problem-solving (Kanter, 2015). President Obama, in his first speech to Congress, called for eight million more college graduates by 2020 (Graves, 2010). This ambitious goal would have increased the United States' college-degree attainment from

40% to 60% and was intended to position the country again as the world leader with the highest proportion of college graduates (Fry, 2017). Despite billions of dollars in funding, the United States failed to find and scale the right policies and practices to achieve this goal (Kelderman, 2020). According to the OECD, United States college completion has remained relatively stagnant, at around 40%, while completion in many European and Asian countries has rapidly increased (Advisory Committee on Student Financial Assistance, 2012; de Vise, 2011).

College-degree attainment is receiving heightened attention because the global economy is changing around us, transitioning from an industrial economy built on manufacturing and consumerism to a new global knowledge economy, where a premium is placed on learning and education (World Bank, 2013). In a global knowledge economy, "globalization now extends beyond markets for goods and finance into markets for technology, knowledge workers, and innovation finance" (Ernst & Hart, 2007, p. 1). To demonstrate this economic transition, estimates have shown that 70% of all new jobs are expected to require a college degree (Ordonez, 2014). The emergence of a global knowledge economy, coupled with stagnant college completion rates in the United States, has "threatened the nation's overall global competitiveness" (Advisory Committee on Student Financial Assistance, 2012, p. 1). Historically, the United States education model has served as an aspirational standard of education and has even been emulated by countries such as China, South Korea, and France. Meanwhile, other countries such as Germany, Austria, and Switzerland have adopted alternative education models such as apprenticeship, and more than 50% of their high school graduates enroll in an

apprenticeship program (Baldi et al., 2014). In these countries, after grade 9 or 10, between 40 and 70% of students will enter an educational program that combines classroom and work-based learning over their final years of secondary school (Symonds et al., 2011).

In the United States, there is a significant economic incentive for individuals to obtain formal postsecondary education. Even after all education costs are factored in, an individual who obtains a postsecondary degree can expect to earn $500,000 more throughout their lifetime than someone without (Autor, 2014). Workers with some college credit can earn 20% more than a high school graduate and 38% more than a high school dropout (Carnevale et al., 2015a). In 2013, 28% of 23- to 24-year-olds who were not attending postsecondary school were unemployed, up from about 20% in 2000-01 (Holzer & Lerman, 2014). The growing unemployment rate of young professionals further underscores the importance of postsecondary attainment and the transition to knowledge versus skilled workers.

Despite the potential for financial incentive, many individuals do not seek postsecondary education opportunities. In 2019, nearly half of all individuals ages 16 to 25 were not enrolled in any level of school (U.S. Bureau of Labor Statistics, 2020). The COVID-19 pandemic has underscored this shift of interest for young adults as they prioritize short-term needs over long-term gains. A survey conducted in the spring of 2021 found that nearly 20% of high school seniors were less likely to enroll in college because of the pandemic, citing uncertainty about the economy (job prospects), costs, and non-education-related expenses (Kelbs et al., 2021). For higher education to increase

degree attainment, it needs to meet the changing needs and student demographics of today's learners.

Changing Demographics

For many higher education institutions, their viability depends on the stability of their enrollment (Penn, 1999). COVID-19 highlighted the financial fragility of higher education. Rapid shifts in enrollment and delivery modalities spurred $76.2 billion in emergency federal relief funding to support higher education entities in crisis and to ensure a continuity of learning during the COVID-19 pandemic (U.S. Department of Education, 2022). More foreseeable than a global pandemic is an educational industry teetering on a demographic cliff.

The Great Recession of 2008–2009 dramatically reduced birth rates in the United States, which have not increased a decade later (Harvey, 2021); thus, the available pool of traditional-age students is beginning to shrink. This declining audience is anticipated to lead to steep declines in traditional first-year student enrollment, from 11% to 20% across different parts of the country, the latter being in the Midwest (Gawe, 2018). The demographic headwinds will cause deep contractions of traditional students eligible to attend institutions that are increasingly competing for the same students (Mause, 2009). In response to this inevitable demographic shift, one solution is to recruit a more diverse student body. This extends beyond ethnic diversity and includes offering a wider range of campus services, clubs, and activities and recruiting students who differ in age, gender, and abilities (Vangelis, 2021). Additionally, it includes diversifying institutions'

academic portfolios by adding alternative degree structures, delivery formats, and modalities.

By some measures, a residential campus experience now only represents the experience of as few as 14% of college students (Laitinen, 2012). While the traditional-aged student demographic is declining, 36 million Americans hold some postsecondary education and training but have not completed their education and are no longer enrolled in any school (National Student Clearinghouse Research Center, 2019). This market, often more broadly referred to as *adult learners*, reflects "a latent market of up to 80 million students able to tap at least some of the $500 billion invested in postsecondary education and training outside of formal postsecondary education settings" (Soares, 2013, p. 11).

Before further exploring the impact of adult learners as a result of shifting demographics, readers must have a shared understanding of who encompasses the adult learner population. There are many terms used to describe students who are not traditional, and often, they are used synonymously. The most common include *adult learners*, *post-traditional learners*, *nontraditional students*, *nontraditional undergraduates*, *employees who study*, *independent students*, and even *part-time students*. Adult learners can be categized into many broad and overlapping subgroups, and it is essential to recognize the diversity of the characteristics that encompass this audience. For that reason, Appendix A has been adapted from the Advisory Committee on Student Financial Assistance (2012) and includes a broad listing of terms that appear in the literature that can be synonymously used with *adult learners*. While various

groupings help us to understand the statistical aspects of these learners, each fails to capture their true essence, identity, or market impact (Soares, 2013). Ross-Gordon (2011) defines adult learners as meeting at least one of the following characteristics:

> entry to college delayed by at least one year following high school;
> having dependents;
> being a single parent;
> being employed full time;
> being financially independent;
> attending college or university part-time;
> or not having a high school diploma (p. 26).

For the purposes of this study, when referring to *adult learners*, I will be referring specifically to Ross-Gordon's (2011) definition. This definition is more expansive than others that only utilize age (often being over the age of 24) to define adult learners and instead highlights their many unique individual characteristics.

Adult learners are often thought of as representing a small population of students attending college, but that is not the case. Adult learners now make up 75% of the undergraduate student population in the country (Guidry, 2018). It is the same unique characteristics that define this group that often lead to unsuccessful outcomes. Adult learners are more than twice as likely to leave school in their first year compared to traditional undergraduates, and only 31% will have earned their bachelor's degree in five years (Horn & Carrol, 1996). As a result, adult learners have passionately championed an education revolution to make postsecondary education attainable for students balancing the multitude of dynamics associated with being an adult student (Meister & Morrison, 1998).

Due to the unique characteristics of adult learners, they are considered the primary beneficiaries of diversified educational pathways and credentialing systems that

support access to formal education and training in nontraditional formats. “Our traditional system of two- and four-year colleges and universities with their campus-based, semester-timed, credit-hour driven model of instructional delivery are not well-suited to educate adult learners” (Choy, 2002, p. 18). Adult learners are one key to overcoming demographic headwinds and reversing our national educational attainment deficit. “Great changes in history are often the result of slow changes in demography” (Keller, 2001, p. 219). Higher education professionals are already experiencing the demographic shift that will guide their decision-making as they seek to prepare these learners for the global knowledge economy.

State of Iowa Context

Note: This following section was previously published in *Higher Education Politics and Economics*, an interdisciplinary peer-reviewed journal with an emphasis on higher education (Romkey, 2022b). Appendix B satisfies Arizona State University’s Graduate College requirement to acknowledge previously published works. In compliance with the *Higher Education Politics and Economics* copyright policy, I have obtained the express written consent of the *Higher Education Politics and Economics* editorial board to reprint and publish this section in my dissertation.

In 2015, the Georgetown University Center on Education and the Workforce (Georgetown Center), in collaboration with the Office of the Governor of Iowa, published *Iowa: Education and Workforce Trends Through 2025.* This pivotal publication built upon workforce growth anticipated in Iowa’s 12 distinct industry clusters identified in *Iowa’s Re-Envisioned Economic Development Roadmap* (Battelle Technology

Partnership Practice, 2014). The Georgetown Center report, which was commissioned specifically for the state, was designed to ensure that Iowa's "long-term education goals and workforce development needs align with the state's economic development goals" and to "inform postsecondary institutions and K-12 schools of the enrollment, completion, and graduation objectives necessary to fill potential job positions" (Carnevale et al., 2015, p. 8a).

The analysis by the Georgetown Center found that 68% of jobs in Iowa will require education and training beyond high school by 2025, three percentage points above the national average of 65% (Carnevale et al., 2015a). In 1973, only 28% of U.S. jobs required education beyond a high school diploma (Future Ready Iowa, 2016). In 2016, the Lumina Foundation published *A Stronger Nation, Policy Brief,* which was designed to implore policy leaders to respond urgently to the education attainment gap in our nation. At that time, 26 states had responded by setting "attainment goals that meet Lumina's criteria for efficacy (i.e., the goal is quantifiable, challenging, long term, addresses gaps, and is in statute and/or a strategic plan)" (Lumina Foundation, 2016, p. 1). However, despite the report's finding that Iowa's overall postsecondary attainment rate was 47.3% compared to the 68% needed by 2025, Iowa had not yet set a goal that met Lumina's criteria.

In 2016, Iowa Governor Terry Branstad signed Executive Order 88 creating the Future Ready Iowa Alliance, designed to develop a plan to meet Iowa's goal of having 70% of the workforce obtain education or training beyond high school by the year 2025. The Alliance's strategic plan was released in October of 2017 and outlined plans to

increase postsecondary attainment. Acknowledging that more than two out of three jobs in Iowa are anticipated to require at least some postsecondary education or training by 2025, the Alliance was prepared to "highlight best practices, nurture high-quality partnerships, and ensure hardworking taxpayer dollars were focused on areas that will maximize progress towards the goal" (Future Ready Iowa, 2016, p. 1).

The Alliance outlined benchmarks including targets to reduce the socioeconomic, ethnic, and racial achievement gaps and to equalize the completion rates between traditional-age students and adult learners. These targets aligned postsecondary degrees, certificates, and other credentials with high-demand jobs. Mirroring other national trends, Iowans with higher postsecondary attainment earn significantly more than those without. Iowans with a high school diploma earned an average annual income of $35,000 between 2013 and 2015. The average jumped to $42,000 for an associate degree and $60,015 for a bachelor's degree (Future Ready Iowa, 2017).

The 2017 *Future Ready Iowa Talent Scorecard* revealed progress between the Lumina Foundation's report and the presentation of the Alliance's strategic plan. In 2016, 58.1% of Iowans had earned a postsecondary degree or other credential, up from 47.3% in 2014 (Future Ready Iowa, 2017). These data highlight the significant remaining gap of 127,700 Iowans who will need to earn postsecondary degrees or credentials to meet the 70% target by 2025. Those individuals are additionally represented by three distinct categories of potential students: 41,200 traditional-age students who earn degrees or credentials, 35,200 returning adult students who complete degrees or credential they started but did not finish, and 51,3000 adults between the ages of 25 and 64 with no

recognized postsecondary education who earn degrees or credentials (Future Ready Iowa, 2017). Combined, these categories of potential students might help achieve Iowa's postsecondary education target and provide a road map for developing postsecondary education offerings targeted to meet these individual learners' unique characteristics and needs.

In 2019, *Metrics That Matter Future Ready Iowa* was published, containing a somber assessment of the current progress of the state's trajectory toward achieving its goal (Iowa Workforce Development, 2019a): "If Iowans earn postsecondary credentials at current rates, only 60.7% will fall into this category by 2025" (Future Ready Iowa, 2019, p. 2). As a result of this significant projected shortcoming, on June 3, 2019, Iowa Governor Kim Reynolds signed into law H.F. 758, H.F. 546, and S.F. 608, which, combined, established $16 million in funding for the Future Ready Iowa Act.

Thirteen million dollars were utilized to establish the Last-Dollar Scholarship Program. This scholarship was deployed to cover the cost of tuition not covered by other federal and state grants or scholarships for eligible Iowa residents seeking postsecondary credentials in high-demand, well-paying jobs that require up to a two-year degree. One million dollars were reserved to establish the Future Ready Iowa Grant program, which was designed to support Iowans who left college after earning at least half the credits toward a four-year degree in a high-demand field and who return to complete their degree with a minimum of $1,000 for tuition support (Office of the Governor of Iowa, 2019a).

Finally, $1.2 million was used to establish the Future Ready Iowa Employer Innovation Fund, a grant opportunity for employers and other partners to collaborate and

carry out innovative, creative initiatives to address local workforce issues (Office of the Governor of Iowa, 2019a). In the fall of 2019, more than 5,800 Iowa students received funding through the Future Ready Iowa Last-Dollar Scholarship, awarding more than half of the $13 million appropriated by the Iowa Legislature in its first semester available (Office of the Governor of Iowa, 2019b). This increased commitment by the Iowa Legislature to the Future Ready Iowa goals resulted in an increase in Iowa's postsecondary educational attainment from 57.6% in 2018 to 60.2% in 2019 (Iowa Workforce Development, 2019b).

While these initiatives show promising progress, nobody was prepared for the fallout on college enrollment from the COVID-19 pandemic and how dramatically it would set back state and national postsecondary education attainment targets. Nationally, first-time freshman enrollment is down 13%, enrollment for adult learners aged 30 or older declined at twice the rate of their traditional-age counterparts (23.9% versus 12%), and significant declines occurred in enrollment from minority populations, including Native Americans (29.3%), Black (28.4%), and Hispanic students (27.5%) (National Student Clearinghouse, 2020). In the fall of 2020, the Midwest's undergraduate enrollment was the hardest hit in the country, where total enrollment was down 5.7% (Sedmak, 2020). Iowa alone suffered a decrease of 7.1% of total undergraduates compared to the fall of 2019 (National Student Clearinghouse, 2020). In 2020, only 60.5% of Iowa's public high school graduates enrolled in a degree program within one year of graduation (Krejci, 2022). For comparison, in 2012, 69% of graduates enrolled in postsecondary education within one year (Krejci, 2022). In 2021, 72.6% of Iowa public

high school graduates indicated they intended to pursue postsecondary education, the lowest figure since 1997 (Krejci, 2022). These enrollment declines put not only Iowa's Future Ready Iowa targets in jeopardy but our entire country at risk of being outpaced in the future of a global knowledge economy.

Local Context

As an administrator at a private faith-based health science college in Iowa, fulfilling the goal of Future Ready Iowa supports our mission to prepare graduates for service and leadership in the healthcare community. Living out this mission requires responding to the healthcare sector's evolving economic and workforce demands in an emerging global knowledge economy with Catholic values. The healthcare sector is projected to contribute to Iowa's largest skills gap and job growth with 40,000 new jobs being added between 2010 and 2025 (Carnevale et al., 2015a). In 2025, 67% of healthcare-related job openings will require some postsecondary education or training (Future Ready Iowa, 2019). Additionally, adults, defined as individuals mid-20s and beyond, make up 95,000 of the 139,000 Iowans needed to achieve the 70% postsecondary attainment goal by 2025 (Future Ready Iowa, 2019).

Despite the growing education gap in the healthcare sector, our institution has been slow in responding to these educational needs. We have recently gone in the opposite direction and have increased barriers that reduce student access with the intent of improving the quality and rigor of our academic programs. We have raised admissions standards, added aptitude testing requirements, increased prerequisite requirements, and reduced the transferability of credit. The result has been decreasing enrollment and a less

diverse student body. Despite serving primarily adult learners, our institutional policies and delivery formats are the opposite of the education revolution that adult learners need.

Adult learners choose our institution because we hold a favorable position in a competitive landscape as a value-driven Catholic institution with a sole focus on healthcare education. We offer few frills, with no fancy cafeterias, sports teams, or student housing. Our faculty are not offered tenure, but we maintain quality outcomes and provide opportunities for careers in high-paying, high-demand fields. This is an attractive value proposition, particularly for adult learners who might be returning to complete their education or are embarking on a career change.

Our educational offerings prepare students for healthcare occupations focused on utilizing their skills rather than applying theories (Stauffer, 2020). This practical, hands-on learning ensures graduates are proficient in their knowledge before entering the workforce and requires different experiential teaching, such as labs, clinical rotations, and simulation, versus relying solely on internalizing theories through lectures or readings. Other similar industries that are less regulated than healthcare, such as skilled trades like automotive technology, plumbing, manufacturing, or transportation, offer a wide range of learning pathways that often include work-based learning, apprenticeships, or other on-the-job training designed to supplement learning with work experience. Work-based learning is particularly valuable in preparing individuals for "'middle-skill' careers in sectors such as healthcare, advanced manufacturing, construction, and information services" (Holzer & Lerman, 2014, p. 20), where there is difficulty meeting the increasing workforce demands. These alternative learning paths, at varying levels and in

a diverse number of fields, have demonstrated that learning can occur in alternative formats while maintaining efficacy.

As a leader within our higher education institution, I have been challenged to ensure our college remains at the forefront of higher education's evolving entrepreneurial business model and to envision educational opportunities that increase access and student diversity. As a result of my own educational journey, I feel compelled to identify ways to better prepare these students while recognizing the lived experiences they bring with them to the classroom. With an emphasis on preparing our institution for an evolving higher-education marketplace, I find our institution continually bound by the parameters that are placed upon each of us to imagine a future radically different from the one we live in today. I constantly find new ideas are restricted by limitations placed on our institution by accreditors, state and federal agencies, institutional shared governance, and often ourselves.

Graduates who complete a program in a healthcare-related field at our institution must sit for state or national licensure upon completing their formal degree or certificate. As a result, our institution must adhere to the standards of both institutional accreditation and programmatic accreditation. These elements were thoughtfully developed to ensure a consistent and quality educational experience, but they also fail to encourage innovation that supports the creation of diversified education pathways, credentialing, and learning systems that increase access to formal education and training in nontraditional formats. I cannot help but think these policies and practices fail to enable the United States to scale its postsecondary degree attainment to the necessary levels. Our college must balance

these complex challenges of attempting to increase access and flexibility while preparing for changing demographics and evolving into a sustainable organization prepared to educate students for decades to come.

Purpose of the Study

Higher education in the United States is "characterized by a remarkable diversity of institutions and institutional types, and we celebrate and dramatize the uniqueness of our colleges and universities" (Clark, 1992). As a result, it is surprising that nearly 20 million undergraduates who attend 6,606 different postsecondary institutions (National Center for Education Statistics, 2018) would experience a standardized pace, path of learning, and, in many instances, standardized curriculum and assessments (Bjerede, 2013). Developing learning pathways that embrace modalities and teaching strategies that recognize adult learners' unique characteristics is critical to thriving in a global knowledge economy. Providing credit for experiences through competency-based education, prior learning assessment, apprenticeships, work-based learning, or corporate universities are proven examples that "college-level learning may be acquired from experiences outside a formal classroom setting" (Blair & Lewis, 2003, p. 1).

This study is intended to make meaningful changes at my institution and across the higher education landscape by contributing to the literature on the impact of alternative learning models for adult learners in the healthcare sector. Specifically, the study aims to understand whether a work-based learning track increases adult learners' outcomes and supports greater knowledge acquisition through supplementing didactic learning with on-the-job training. This research is supported through the theoretical

frameworks of andragogy and the experiential learning theory, in addition to prior action research cycles conducted at my institution. My hope is to increase awareness of the potential for a new educational ecosystem that offers diversified learning pathways better suited to increase access and learning outcomes for adult learners. If I can make a small impact in demonstrating the efficacy of alternative learning pathways as a viable solution to increase access to post-secondary education opportunities, then this research will not be completed in vain.

Introduction of Innovation

Adult learners face significant barriers that stem from their responsibilities outside of the classroom, such as childcare, work, and barriers that result from institutional policies (Cross, 1991; Kobena et al., 2017). In a survey of 36 students at my institution who self-identified as meeting Ross-Gordon's (2011) definition of an adult learner, only 16.7% of respondents indicated that they always or often have difficulty understanding course content. Instead, more than half of adult learners pointed to other barriers as influencing their ability to be successful, such as having kids (73%), paying for tuition (52.8%), or attending to work commitments (50%) (Romkey, 2022a). These obstacles that define this student population also pose significant challenges to degree attainment through traditional higher education channels.

In response to these challenges, I will deploy a work-based learning pathway within our existing medical assisting (MA) program. "Work-based learning is defined as a student or worker completing meaningful job tasks in a workplace that develops readiness for work, knowledge, and skills that supports entry or advancement in a

particular career field" (Kobes et al., 2018, p. 1). This is similar to, but differs from, an apprenticeship, which can take many forms, including Registered Apprenticeship Programs that are validated by the U.S. Department of Labor or a State Apprenticeship Agency (U.S. Department of Labor, n.d.a). For the purposes of this study, our work-based learning track is a career pathway that allows individuals to obtain paid work experience, college credit, and a nationally recognized certification that is not state or federally recognized as a Registered Apprenticeship (U.S. Department of Labor, n.d.b).

The work-based learning pathway combines on-the-job learning with asynchronous online coursework. Unlike traditional academic programs, this practical, hands-on learning enables students to apply their learning immediately versus relying solely on the internalization of lectures and readings only to apply the concepts upon graduation, a critical component of experiential learning and andragogy. Table 1 compares the traditional track and the work-based learning track in our MA program.

Table 1

Differences in Work-Based Learning vs. Traditional Track

Task	Traditional Track	Work-Based Track
Holistic Admissions Review	X	X
Online Coursework	X	X
Part-Time Credit Load	X	X
Paid Position (Student Medical Assistant)		X
Tuition Paid by Employer		X
Tuition Paid by Student	X	
Federal Financial Aid Eligible	X	X
Service Commitment After Graduation		X
One-Year Program	X	X
Eligible to Take Certified Medical Assistant Exam (CMA)	X	X
Earn College Credit	X	X

The results of this innovation will yield two parallel tracks. The traditional track will only be composed of asynchronous online coursework. The work-based learning track will incorporate on-the-job training, supplemented with the same asynchronous online coursework. The online components will be the same for both tracks, and after completing the one-year program, all students will be eligible to sit for the American Association of Medical Assistants (AAMA) Certificated Medical Assistant (CMA) certification exam. Additionally, both tracks will be fully accredited by the Commission of Allied Health Education Programs (CAAHEP) upon recommendation from the Medical Assisting Education Review Board (MAERB). Table 1 highlights other important nuances between the MA tracks designed to combat obstacles that have emerged from individual interviews with administrators and faculty and additional key

themes that were identified from student surveys in prior action research cycles (Romkey, 2022a).

Perhaps the most notable difference is that students in the work-based learning track will be employed from the first day of the program. Their employer will pay them an hourly wage and cover all associated tuition and fees in exchange for a work commitment after successfully passing their certification exam. This is intentionally designed to reduce the hardship of students trying to manage their financial responsibilities and simultaneously cover tuition costs. Between 70 and 80% of undergraduate students enrolled in postsecondary education over the last 25 years are balancing school and work (Carnevale et al., 2015b). This results in students making difficult choices between covering tuition and living expenses and attending to their academic studies. “There is a widespread consensus that working too much while enrolled in a postsecondary program hurts one’s chances of completing it” (Carnevale et al., 2015b, p. 10). The work-based learning track is intentionally designed to reduce this burden and barrier to adult learners’ postsecondary attainment.

Exploration Into Medical Assisting

The role of an MA and their position within the healthcare system is less critical to this study than the application of a work-based learning pathway to reduce adult learners’ barriers; however, developing a model of learning that is sustainable, scalable, and replicable in other healthcare occupations warrants exploring the depth to which this problem exists and has been tested within the profession. If you have ever been to the doctor, the first person you see is likely an MA. They are often confused for nurses and

primarily work in ambulatory healthcare settings. MAs are often responsible for administrative and clinical tasks such as maintaining patient records, preparing patients and rooms for examination, assisting physicians with exams, drawing blood, giving shots, and performing other critical tasks.

Due to the aging population, heightened focus on preventative medical services, and the increased nursing shortages, demand for MAs is continuing to grow. MAs are also beginning to work in hospitals and other sites that historically have not employed MAs (MAERB, 2019). The job outlook for MAs is expected to exceed 18% growth by 2031, adding 104,400 new openings per year (Bureau of Labor Statistics, 2022c). With 60.5% of CAAHEP-accredited programs only enrolling between one and 25 students per year, there is projected to be a significant shortage in available certified MAs (MAERB, 2019). At my institution, our average annual enrollment over the last decade was five students. The program was preparing to be closed before this proposed innovation emerged as a viable solution to low enrollment.

As of the spring of 2019, only 24 of the 434 CAAHEP-accredited programs offered a work-based learning track, and 12 indicated that the enrollment comprised less than 10% of their total enrollment (MAERB, 2019). Utilizing the U.S. Department of Labor's Occupation Information Network (O*NET) code for Certified Medical Assistants (31-9092.00), a search returned 74 educational entities that offer a Department of Labor–Registered Apprenticeship MA program. Only 46 offer online education, and only 16 are at accredited colleges or universities (U.S. Department of Labor, 2022c). This is important as students enrolled in Registered Apprenticeship programs not offered

through a higher education institution often will not earn college credit. Additionally, if a program is not CAAHEP or Accrediting Bureau of Health Education Schools (ABHES) accredited, graduates are not eligible to sit for the AAMA exam to become a certified MA. While insurance reimbursement models vary from state to state, in Iowa, MAs who are not certified are not eligible to bill for services at the same rate as a certified MA. As a result, noncertified MAs are effectively unemployable as MAs by many healthcare systems.

While finding certified MAs is challenging, keeping them is just as hard. At the University of North Carolina Family Medicine Center, a large academic teaching practice with nearly 66,000 annual patient visits, the MA turnover was 59% in 2017 (Friedman & Neutze, 2020). The per-MA estimated cost of turnover was approximately 40% of the average annual salary of a MA (Friedman & Neutze, 2020). In addition to the hard costs associated with the turnover, Friedman and Neutze (2020) also noted a significant time gap between when an MA departed, a new one started, and a three-month period of onboard training. Managing this for more than half your workforce in one occupation annually is not sustainable.

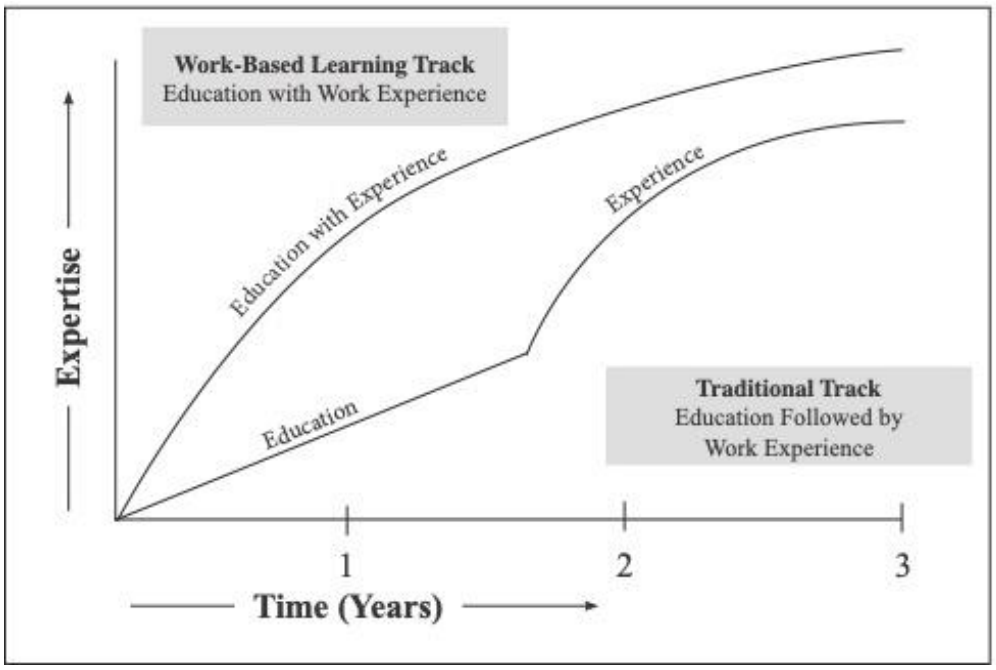
The deployment of a work-based program attempts to address the shortcomings of turnover and our current academic delivery models wherein learning occurs first, then is applied as students enter the workforce. Instead, by placing students in a student MA role from day one of their work-based learning program (operating with a limited scope of practice), we immediately respond to the MA shortage and expand their scope of practice as they complete their online coursework. This model is attractive for employers as

students often temporarily fill the role of another frequently vacant position, such as a front office assistant or receptionist, until they can progress in their coursework. This helps to further justify the cost of paying for tuition as it addresses their needs immediately. Additionally, a study of 15 organizations using MAs in new roles found these new models around MA employment increased patient satisfaction scores, increase staff and provider satisfaction scores, increase quality scores, increase efficiencies and operations, and decrease costs and utilization (Chapman & Blash, 2017).

Utilizing practical experiences to reinforce learning through application alongside coursework, versus upon graduation, is a critical component of work-based learning. A conceptual model for traditional education versus work-based learning has been adopted from the U.S. Department of Labor (2010) and applied to the MA program in Figure 1. "Workers' skill levels increase simultaneously while they are studying their occupation or profession, so they become more productive at a faster rate than taking only classes" (U.S. Department of Labor, 2010, p. 1). This is particularly important for adult learners, given their preference for applying their learning, which will be explored in greater detail in Chapter 2. Additionally, work-based learning programs are shown to increase employee recruitment and retention, reduce training costs, maximize productivity, and increase diversity (U.S. Department of Labor, 2020b).

Figure 1

Conceptual Model for Expertise Development (U.S. Department of Labor, 2020)



Another core tenant of work-based learning is the ability for students to be paid while they are completing their education. At one central Iowa facility, Student Medical Assistants are hired full time, making $17 an hour. At the completion of the program and after successfully passing the certification exam, their pay increases to $17.87 per hour, or $37,170 per year. For comparison, the federal poverty level for a family of three (two working adults and one child) in 2021 was $21,960 (Fisher & Veldhouse, 2022). “A self-sufficiency wage in Iowa is about 200 percent to 250 percent of, or twice to 2½ times, the official federal poverty guideline” (Fisher & Veldhouse, 2022, p. 7), or between $44,000 and $55,000 per year. Unlike some educational pathways, the MA program leads to guaranteed job opportunities that will provide a livable wage.

Research Questions

The purpose of this mixed methods study is to explore adult learners’ experience completing an MA program through a work-based learning track compared to the

experience of students completing a traditional learning track. The following research questions will guide the study:

RQ1: How do outcomes differ in the MA work-based learning track compared to those of learners enrolled in a traditional track?

- **RQ1a:** How do retention rates differ across tracks?
- **RQ1b:** How do graduation rates differ across tracks?
- **RQ1c:** How do licensure pass rates differ across tracks?

RQ2: What andragogical assumptions do adult learners perceive to be the most important factors contributing to their persistence?

RQ3: How do barriers to persistence differ for adult learners in an MA work-based learning track compared to learners enrolled in a traditional track?

Conclusion

After exploring the national and state context and considering the problem through my own educational experience and my time as administrator at a higher education institution, I must conclude that increasing degree attainment for adult learners is of critical concern for academia and our nation. Furthermore, our aging, more ailing population cannot effectively be cared for without a broader, more accessible, and talented healthcare workforce. The combination of these issues poses significant challenges to maintaining our competitiveness and standing as a global leader. Through the deployment of a work-based learning pathway for MAs, I can answer the research questions and contrast adult learners' outcomes and experiences in two parallel learning

tracks. The findings can help inform the efficacy and potential application of similar work-based learning tracks for other healthcare-related occupations.

CHAPTER 2: REVIEW OF SCHOLARLY AND PRACTITIONER KNOWLEDGE INFORMING THE STUDY

Higher education in America is characterized by a broad landscape of diverse institutions and institutional types. We even celebrate and dramatize the uniqueness of their heritage and student composition. Nevertheless, perhaps even more remarkable is that, despite this differentiation, many students experience a standardized pace, path of learning, and in some instances curriculum and assessments (Bjerede, 2013). This uniformity has left higher education struggling to effectively engage adult learners, who represent up to 75% of the undergraduate student population (Guidry, 2018). These learners are often alienated by the traditional college experience and are uninterested in participating in learning experiences that lack the flexibility to make postsecondary education obtainable. Adult learners, who cannot simply be defined by age but by many life circumstances (Ross-Gordon, 2011), are the key to helping the United States ensure global competitiveness in the evolving global knowledge economy (Mangan, 2022).

Despite transformative developments in adult learning theories, technology, and teaching methodologies, higher education has been slow to respond to adult learners' unique needs. The first part of Chapter 2 explores the theoretical frameworks related to adult learning. No single learning theory can be applied to all adult learners. Instead, each theory seeks to explore from a different perspective how adults learn. This is followed by a review of related literature and a discussion of the implications for this study. More specifically, I will explore andragogy and its link to the experiential learning theory to understand why higher education should create more inclusive learning environments and

experiences for adult learners. Finally, I will explore key themes identified in the literature relating to work-based learning programs and the intersection of participatory practices in education and work environments. The empirical research conducted on work-based learning's influence on student outcomes and perceptions will reinforce the theoretical frameworks used to ground my innovation. A complete review of the literature will further guide the innovation and inform the evaluation methods and research questions.

Andragogy

Two models frequently appear in educational research to describe how individuals learn and teachers teach: *pedagogy* and *andragogy*. Both terms share the same Greek root, *gogy*, meaning *leading.* However, *peda* translates as *child*, which makes pedagogy the art and science of teaching children (Conner, 2004; Knowles, 1980; Simpson & Weiner, 1989). Conversely, *andra* translates as the word *adult*, which makes andragogy the art and science of teaching adults (Knowles, 1980). Andragogy has roots tracing back to the 19th century, when Alexander Knapp developed the term while trying to describe Plato's practices when instructing his pupils, who were both youth and adults (Knapp, 1833).

As adults returned to academia after World War I, the term began gaining popularity in the United States in response to the high dropout rates among adult learners (Cartor, 1990). Numerous scientific studies seeking to understand why adults learn differently than children have been well documented. However, it was not until Knowles (1968, 1980, 1984) popularized the term *andragogy* that methods and practices were

developed to support the uniqueness of adult learners compared to children. Knowles (1980) contrasted andragogy as "the art and science of helping adults learn" with pedagogy, "the art and science of teaching children" (p. 43). The unique needs of these two learning populations are critical to understand when considering the design of learning experiences for adults that may supplement or replace existing learning pathways.

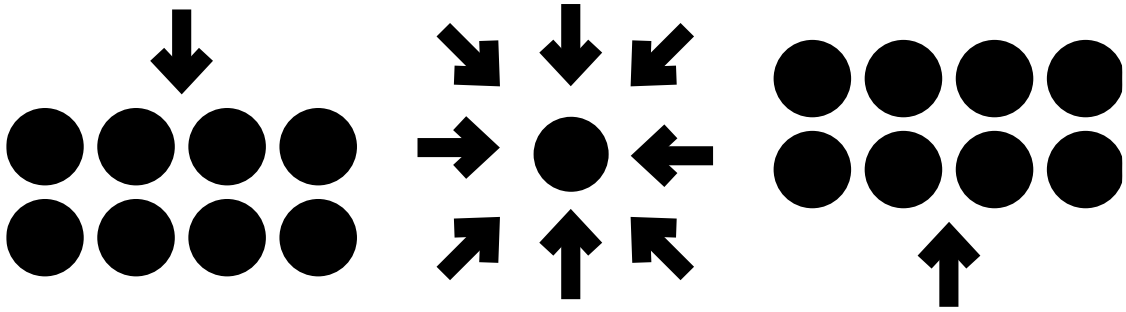
Knowles (1968, 1972, 1980, 1984, 1989) identified five assumptions about adult learners' needs and their relationship to learning:

1. **Self-concept:** Adults are internally motivated and self-directed. Their self-concept has transitioned from being dependent to being self-directed.
2. **Experience:** Adults bring a rich reservoir of life experiences into the learning environment.
3. **Readiness for Learning:** Adults like to be involved in the learning process and want to know why they need to learn something before learning it. Adults are goal-oriented, practical, and realigning their personal and professional priorities.
4. **Orientation to Learning:** Adults are most interested in subjects that they can immediately apply and that impact their job or personal life. This is a transition from subject-centeredness to problem-centeredness.
5. **Motivation to Learn:** Adults are transitioning away from external motivation to personal, or internal, motivation (Knowles, 1980, 1984).

Andragogy puts the learner at the center of the experiences instead of the teacher (pedagogy) or learner-autonomy (heutagogy). This is displayed in Figure 2, which contrasts the learner centeredness of the three different theories. Knowles often cites the work of other notable scholars, particularly Lindeman (1926), who believed "education was based on situations defined by learner needs versus predetermined curriculums because learners came to understand the meaning of education while they were actually 'engaged in the process' (p. xix) of education" (Blondy, 2017, p. 117).

Figure 2

Learner Centeredness



Knowles (1968, 1975, 1980, 1984) focused not only on the difference in the learner but also in the environment surrounding where and how the learning occurs. This, combined with the assumptions of andragogy, has contributed to numerous theories and frameworks, such as creating learning communities, which emphasizes how social relationships contribute to adult learner-centeredness (Shapiro & Levine, 1999), and constructivist learning theory, both cognitive (Piaget, 1968) and social (Vygotsky, 1978).

Other theories, such as transformative learning theory (Mezirow, 1985), self-directed learning (Candy, 1991), and heutagogy (Kenyon and Hase, 2001), all highlight

the strengths, interests, and uniqueness of adult learners. For example, heutagogy, an instructional theory of self-determined learning, draws upon the andragogical principles of autonomy, motivation, and capability (Blaschke, 2012). Additionally, Knowles (1984) explored the role of the teacher in facilitating versus directing learning, which more recently Illeris (2002) has applied to the three dimensions of cognitive, emotional, and social learning.

The ongoing debate of many modern educational theories and practices does not leave andragogy without its critics. Some argue that andragogy is simply a set of principles of good practice (Hartree, 1984), and others point to challenges related to measuring whether these assumptions are being implemented (Taylor & Kroth, 2009). Additional criticisms consider andragogy a series of assumptions as they were not developed through empirical research but were the result of Knowles' experiences and observations (Blondy, 2007). Knowles (1984) acknowledged many of these shortcomings and, instead of an educational theory, considered andragogy a "system of concepts" (p. 8), a model of assumptions, or a conceptual framework that serves as the basis for an emergent theory.

Other critics contest that the term *pedagogy* does not relate solely to the education of children (Darbyshire, 1993; Cohen, 1993). Hanson (1998) studied the motivations and life experiences of adults and children in relation to learning and expressed that life experiences alone do not simply separate andragogy from pedagogy, as there may be situations where children have much more experience with the learning situation than an adult does. Perhaps the most damaging criticism is that Knowles' adult learning

principles are framed in a sociohistorical context that does not represent today's modern adult learners. Pratt (1993) argued that the learner operates "as if he or she has risen above the web of social structures. Andragogy does not acknowledge the vast influence of these structures on the formation of the person's identity and ways of interpreting the world" (p. 18).

Blackley and Sheffield (2015) leveraged this criticism to build upon andragogy by identifying the unique characteristics of the 21st-century learner and introduced the concept of digital andragogy. Digital andragogy highlights the accessibility of digital technologies for personalizing learning and facilitating learners' interactions with peers and tutors, thus accommodating and strengthening the traits of adult learners fundamental to andragogy (Blackley & Sheffield, 2015). Horn and Carrol (1996) added to Knowles' work and developed a nontraditional student index. Traditional students have none of the characteristics identified by Ross-Gordon (2011), students with one characteristic are considered minimally nontraditional, students with two or three characteristics are considered moderately nontraditional, and students with four or more characteristics are considered highly nontraditional.

Despite the criticisms and critiques, andragogy remains the best-known conceptualization of how and why adult learners learn and serves as a foundation for many modern theories related to adult learners (Fairbanks, 2021). Andragogy enables adult learners to draw on their experiences and create new learning based on previous understandings. After all, self-directed learners are naturally dispositioned to focus on information that they deem important and experiment with it in real-life settings. This

process is explored in greater detail in a review of the literature related to the experiential learning theory.

Experiential Learning Theory

Experiential learning theory (ELT) was designed to recognize the value of life experiences in connection to a person's education and provides a model that explains how individuals learn through experiences. Kolb's four-part model is the most widely known conceptualization of ELT. Kolb states that his model was built upon the work of earlier scholars who identified experience as a central role in learning. For example, Dewey (1938) asserted that an "organic connection between education and personal experience" (p. 58) exists and is essential for learning. Lewin's (1951) model of action research was described as a spiral of steps that move between action and reflection, similar to Dewey's conception of learning from experience. Piaget (1970) viewed learning as a lifelong process of constructing knowledge through assimilation and accommodation of learning from experience. The central tenets of those scholars' work led Kolb and Kolb (2005) to identify six propositions detailing critical aspects of the learning experience:

1. Learning is better understood as a process, rather than a set of outcomes.
2. All learning is relearning.
3. Resolving conflicts is crucial to the learning process, which invokes a new adaptation to the world.
4. Learning is a holistic process of adapting to surroundings and the world.

5. Synergistic interactions between the learner and the environment foster positive learning experiences.
6. Learning is the process of creating knowledge (Austin & Rust, 2015, p. 143).

Research suggests that experiential learning methods can help students to apply theoretical concepts and improve their reasoning skills (e.g., Coker-Bolt, 2010). As a result, ELT has been recognized as one of the most notable trends in higher education within the last 30 years (Austin & Rust, 2015). At the core of ELT is recognizing the "important role that experience plays in the learning process…[and] how experience is translated into concepts, which, in turn, are used as guides in the choice of new experiences" (Kolb, 1981, p. 235). ELT identifies four states, or processes, as part of the cycle of learning: (1) concrete experience, (2) reflective observations, (3) abstract conceptualization, and (4) active experimentation. In the cycle of learning, concrete experiences become the object of learners' observations and reflections, a process of sensemaking that serves as the basis for developing and expanding abstract concepts and generalizations. That, in turn, is applied through experimentation in relevant situations. This is a critical connection to andragogy, as adult learners bring a rich reservoir of personal and professional experiences to the classroom.

Critics of experiential learning question whether all experiences enhance student learning outcomes. Katula and Threnhauser (1999) argue that some experiences are not effective for learning if offered out of context, that some real-life experiences do not result in mastery of abstract concepts, and that many experiential learning programs lack specified learning goals. Additionally, critics point to the role that nonreflective

experiences play in the learning process and ELT's lack of attention to the social and cultural dimensions of learning (Yardley et al., 2012).

Despite these criticisms, ELT, along with andragogy, offers useful guidance for the development of alternative learning paths that recognize the value of adult learners' experiences beyond the classroom. As individuals mature, they are exposed to a broad range of new experiences that develop into a reservoir of knowledge that is an increasingly rich resource for learning. If adults learn differently due to their bank of prior experiences (andragogy) and experiences can create richer, more in-depth knowledge (ELT), then how can we create a richer learning environment to recognize these contributions that adult learners bring to the classroom? In the next section, I will explore how these questions are addressed in the literature on work-based learning.

Work-Based Learning

Internships, service-learning, practicums, capstone projects, fieldwork, clinical experiences, and simulations are all examples of experiential learning that have become common in modern academia. Researchers have recently pointed to important differences between work-based and traditional classroom learning (Rousseau, 2006). Work-based learning is a process designed to give individuals the education and experience to serve or advance in a specified role (Garnett, 2016; Manuti et al., 2015; Cathill, 2016) and includes a diverse set of practices and participation time periods (OECD, 2010). The International Labour Organization (n.d.) broadly defines work-based learning as any learning that takes place in a real work environment with acknowledgment of both formal and informal learning structures.

The literature on work-based learning entails two parallel themes: (1) Work-based learning as an interaction with the work environment (informal) and (2) work-based learning as an interaction with the work environment and education (formal). Both streams emphasize learners' interactions with others, not just their teacher, and experiences applying their learning in a social environment.

Informal Structures

The literature on informal learning structures of work-based learning focuses on developing a culture of personal and professional development within a work environment to maximize employees' knowledge and skills (Bishop, 2016; Garnett, 2016). Key themes in this literature include how work-based learning can increase productivity (Noe et al., 2013), increase job competency (Tripathi & Agrawal, 2014; Kyndt et al., 2016; Park & Choi, 2016), and increase the need for supervisory support of learning (Aryati et al., 2018).

Nikolova et al. (2014) identified two core components of informal work-based learning: (1) interactional and (2) task-based. Interactional activities include engagements with colleagues and supervisors and task-related activities, include learning through experimentation and reflection. These can also be referred to as "participatory practices" (Nikolova et al., 2014, p. 3), and they draw a distinct connection to ETL, which recognizes experimentation and reflection as critical components of the experiential learning cycle (Kolb, 1984). Participatory practices encompass the activities and interactions that a workplace provides to learners and how learners choose to participate in these practices (Nikolova et al., 2014). The effects and outcomes of these informal

work-based learning participatory practices have been the primary focus of research in the past decade (Eraut et al., 2001; Nikolova et al., 2014; Skul, 2004). Despite the existence of these practices in every work environment, there is a lack of taxonomies to define and provide appropriate measures and ways to discuss the various components of formal and informal work-based learning structures and environments (Nikolova et al., 2014; Skul, 2004).

Formal Structures

This second focus of the literature on work-based learning adds formal learning to the existing informal workplace participatory practices. Students participating in work-based learning have the benefit of receiving both informal and formal participatory learning practices. In the literature, formal work-based learning is commonly referred to as apprenticeships, registered apprenticeships, internships, on-the-job training, co-op arrangements, or externships. It is important to recognize the considerable diversity in structure and schedules across the breadth of formal work-based learning activities.

The U.S. Department of Education (2017) published a *Work-Based Learning Tool Kit* designed to expand state-wide work-based learning programs. In the tool kit, they identified three components of a successful work-based learning program: "the alignment of classroom and workplace learning; application of academic, technical, and employability skills in a work setting; and support from classroom or workplace mentors" (U.S. Department of Education, 2017). In *Strengthening Career and Technical Education for the 21st Century Act (Perkins V),* the U.S. Senate and House of Representatives defined work-based learning as "sustained interactions with industry or community

professionals in real workplace settings, to the extent practicable, or simulated environments at an educational institution that fosters in-depth firsthand engagement with the tasks required in a given career field that are aligned to the curriculum and instruction" (Carl D. Perkins Career and Technical Education Act, 2019, p. 14). This definition encompasses both streams of literature and highlights the need for work-based learning participatory practices to include interactional, task-based, and structured education.

In 2010, the Organisation for Economic Cooperation and Development (OECD) published *Learning for Jobs*, an analysis of 17 countries' education and training programs that found that work-based learning has been widely considered a solution to reducing skills mismatches, increasing higher education responsiveness, reducing education costs, and smoothing the transition to professional employment (International Labour Organization, n.d.; Pylvas et al., 2022). In 2010, the OCED published *Jobs for Youth*, a 16-country complementary study focused on how students transition from school to the workforce. "These two substantial studies—both of which involved country self-assessments, site visits by experts, and extensive quantitative data collection—make a compelling case for the power of work-based learning" (Symonds et al., 2014, p. 19). *Learning for Jobs* concludes that work-based learning is the best way for people to prepare for and transition into the workforce (OECDa, 2010).

Additional studies also support this conclusion. For example, graduates across nine academic programs at two Midwest community colleges "identified applied learning experiences such as clinical rotations, work-based learning, co-op experiences, and

applied learning in classrooms and labs as most beneficial to developing the skills needed after graduation" (Torraco, 2008, p. 219). Additionally, a study of 388 New York high school students from 2010 to 2016 found that students who took work experiences alongside adults were more likely to enter the industries in which they completed their work-based learning experience and were also likely to have higher earnings than their counterpart graduates who did not complete a similar experience (Bozick et al., 2019).

As a result of these and other similar findings, many states are looking to work-based learning as an innovative solution to help individuals achieve their postsecondary attainment goals while simultaneously enhancing their work experience (Hauge & Parton, 2016). Holzer and Lerman (2014) found higher persistence and completion rates among students in work-based learning programs, which in part they attribute to contextualized learning—another nod to Kolb's (1984) experiential learning cycle. The foundation of work-based learning requires student participation, accountability, and self-guided learning, all positive attributes to increase knowledge acquisition for adult learners (Ross-Gordon, 2011). Researchers also note that work-based learning can help reduce barriers to access for underserved populations and adult learners (Cahill, 2016). Embedding work-based learning into programs for all students reduces barriers to equitable access for students who do not have the professional connections or social capital to obtain these experiences independently (Cahill, 2016). This can often be a criticism of experiential learning opportunities such as internships that depend on learners' ability to identify and secure appropriate placements.

Employers play a vital role in the adoption of work-based learning. In the United States, educating the workforce has largely been the responsibility of academia (Symonds et al., 2015). Symonds et al. (2015) call for "work-linked learning," encouraging a closer connection than what exists today between students, academia, and business partners. In work-linked learning, career exploration would begin in middle school; then in high school, students would collaborate with industry partners; and at the postsecondary level, there would be even tighter coordination between curricula, soft and hard skill acquisition, and student supports. Engaging in this holistic process earlier is suggested to increase postsecondary entry rates by identifying and nurturing student interest while demonstrating the real-world value of formal education (Cahill, 2016). By embedding employers throughout the educational experience, they are invested in training the workforce, which ensures students have the skills needed to thrive in the classroom and in the workplace.

While the emergence of a new educational ecosystem that requires more business involvement and oversight might seem unlikely, the Georgetown Center on Education and the Workforce calculated employers already spend $177 billion on formal education and $413 billion on informal, on-the-job training annually (Carneval et al., 2015c). Additionally, work-based learning can improve school-to-work transition, provide a productive benefit for the employer, reduce future recruiting costs, and ensure learning matches labor market needs (OECD, 2010). Other literature highlights the value of reduced onboarding costs, improved employee morale, and a broader pool of qualified and skilled workers (Hauge & Parton, 2016).

Workplaces serve as a high-quality extension of formal learning environments. By combining formal and informal participatory practices, students can maximize their learning through positive contributions to the workforce, reduce knowledge and skills gaps, and more effectively transition into the workforce. OECD (2010a, 2010b) has demonstrated how other countries successfully educate a much larger portion of their population than the United States through work-based learning pathways and collaboration between educators and employers (Symonds et al., 2015). A review of the existing literature suggests that work-based learning is a natural and necessary extension of our current academic delivery systems at all levels and can be a viable solution to reducing our global postsecondary attainment deficits.

Summary of Implications

Higher education continues to teach adults using the same methods applied to children in elementary and secondary schools (Knowles, 1988). Scholars recognize these shortcomings and the need for alternative learning models to move from theory to broader adoption. Today's students are more nontraditional than ever and require an educational experience that is unlike what most commonly exists within higher education today. With proven and generally accepted adult learning theories, institutions can recognize that adults bring with them many learned and earned experiences. By embracing participatory practices of formal and informal learning structures, adult learners can utilize their experiences to strengthen their learning through work-based learning pathways.

The unique barriers and learning needs of adult learners are critical to understand when considering the design of adult learning experiences that may supplement or replace existing learning pathways. Andragogy explores the motivations of adult learners and techniques for effectively teaching adults. Experiential learning theory suggests that learning is strengthened for adult learners as they draw on their experiences and create new knowledge based on their previous understandings. As individuals mature, they are exposed to a broad range of new experiences that develop into a reservoir of knowledge that is an increasingly rich resource for learning.

A review of the literature informed my proposed innovation, the development of a work-based learning track designed to capitalize on adult learners' unique characteristics and the participatory practice of a work environment. Knowles's (1989) six assumptions about adult learners' needs and their relationship to learning are most effectively engaged through Kolb's (1981) experiential learning theory. In turn, the cycle of learning is operationalized through the participatory practices of work-based learning and the unique activities and interactions afforded to learners in these environments. Kolb's (1981) cycle of learning provides a rationale for adult learners to complete coursework and on-the-job training simultaneously. Work-based learning enables adult learners to actively participate in their education and learning experiences, strengthening their commitment to learning and positively influencing outcomes and knowledge acquisition.

Conclusion

A review of the existing scholarly, theoretical, and empirical research suggests several optimal ways to deliver adult education and many alternative learning models

designed to support adult learners' unique needs and life experiences. By developing an understanding of the andragogical principles, we can recognize that adults have different preferences and priorities that shape their orientation toward learning. Andragogy and ELT offer theoretical support for developing alternative learning paths, such as work-based learning. After exploring the efficacy and value of formal and informal work-based learning participatory practices, we further see how the proposed innovation aligns to the theories explored throughout this chapter.

CHAPTER 3: METHODS

In Chapter 1, I outlined the national and local context and the importance of my research. In Chapter 2, I built upon this by exploring the theoretical framework relating to adult learners, which helped to ground the proposed innovation. In Chapter 3, I will review this study's methods and methodological approaches. I will begin by exploring action research within the context of the Doctor of Education (EdD) program at Arizona State University's (ASU) Mary Lou Fulton Teachers College. From there, I will introduce my institution's setting and participants and explore my role as an administrator and researcher. I will conclude by reviewing each mixed method strategy's participants, data collection sources, and data analysis.

Action Research

Action research is an iterative and reflective process that seeks to identify solutions to practical problems (Butin, 2010). As individuals gain an understanding of a problem by reading literature or conducting research, they take action toward a solution. Many individuals approach everyday problems in this manner; however, action research enables researchers to plan and take actions to solve the problem through the process of research (Mertler, 2017). The cycle of action research follows a process of repeatedly identifying a problem, gathering information, acting upon that information, and reflecting on the outcomes.

As a result of the cyclical nature of action research and its emphasis on solving practical problems, action researchers are continually engaged in improving specific problems that are directly related to their contexts. Action research is often associated

with educational environments and is designed to influence the researcher's academic community and situated context. The role of an action researcher as a practitioner, not just an impartial scholar, plays a pivotal role in the importance of action research in the ASU EdD program, versus a Doctor of Philosophy (PhD) program.

In preparation for submission of their dissertation proposal, students enrolled in the EdD program in the Mary Lou Fulton Teachers College at ASU conduct multiple cycles of action research. Due to the cycles of research deployed in ASU's program, students initiate, reflect, and continue their inquiry over multiple cycles of action, which enhances their innovation and data collection procedures (Buss, 2018). The first phase of action research, Cycle 0, is an exploratory phase designed to serve as reconnaissance for students' problem of practice and to inform future innovations and more in-depth inquiry. Cycle 0 requires the researcher to be informed about the national and local context, the scholarly and practitioner literature informing their study, and how to conduct and analyze research using the appropriate methods. This is designed to prepare researchers for Cycle 1, where students extend their efforts from Cycle 0 and enhance their design and deployment of a preliminary action research study. After each cycle, the researcher is more informed and prepared to conduct subsequent cycles of action and have a complete dissertation proposal that is informed by previous cycles. After Cycle 1, the researcher is prepared to develop and defend their dissertation proposal.

Prior Cycles of Action Research

In my two prior cycles of action research, I deployed surveys and interviews with college administrators, faculty, and adult learners. The results of these prior cycles

yielded five key themes related to adult learners' uniqueness and effectiveness: (1) prior personal and professional experiences, (2) adult learner characteristics, (3) andragogical principles, (4) measures of learning, and (5) alternative assessments of learning effectiveness. These prior cycles helped to inform my proposed innovation and research questions. More specifically, a key theme from the quantitative electronic survey distributed to adult learners in Cycle 1 found that adult learners' success is predicated on the balancing of numerous external factors unrelated to their coursework (this finding was reinforced through my dissertation process and will be explored in greater detail in Chapter 4). In Cycle 0, I conducted interviews with college administrators (director or above) to understand their perception of institutional effectiveness in meeting adult learners' needs. The proposed innovation is in response to the prior action research cycles and subsequent data collected during the dissertation research built upon these prior action research cycles.

Setting

This research began at the end of the fall quarter (December) during the 2022–2023 academic year at a small private, Catholic health science college in Iowa. My role as an administrator within the institution strengthened my knowledge of the student body and the institutional and industry challenges facing adult learners. The institution is composed primarily of adult learners, as discussed in Chapter 1. However, despite this student body composition, the institution has a very traditional approach to teaching methodologies and has struggled to embrace nontraditional teaching approaches and alternative learning pathways. Even with administrative charges for programs to

prioritize the implementation of adaptive teaching, andragogy, and flexible learning paths, many initiatives have been stalemated by institutional shared governance, individual program leadership, and independent program accreditation standards. My innovation and research are one way to evaluate the successful deployment and efficacy of alternative learning pathways for adult learners.

Prior to conducting any research, I obtained approval from ASU's Institutional Review Board (IRB). Upon receiving approval from ASU's IRB, I obtained approval from the IRB of the institution described above. As the primary researcher, I was the only individual who had access to the data, and it was stored securely and maintained in accordance with ASU's IRB protocol. Verbal consent was given for the interviews and written consent was provided by survey respondents. All data was anonymized and stored separately from the contact information used for participant recruitment.

Role of the Researcher

My role was that of the data collector and interpreter. Additionally, as an administrator at the institution, I had to balance the roles of authority, peer, and mentor. Due to the nature of action research, it was difficult to entirely remove or suppress the dynamics, biases, and conflicts of interest that might arise from my role, particularly in the interview portion of the data collection. I view interviewing as an art and a process of obtaining information (Brinkmann & Kvale, 2015). I sought to obtain respondents' candid opinions and experiences with the innovation (Talmy, 2019) while acting in a way that affected the interviewee's responses as little as possible. The unavoidable power dynamics required me to facilitate the interviews while trying to minimize my bias or

authority. I strived to accomplish this by adhering to a strict set of questions and not acting affirmatively or negatively to the interviewee's responses. I probed topics for greater specificity and moved away from areas that did not strengthen my understanding or situated context of the research questions. My role within the institution made this a natural process as the context for responses was mutually understood.

Additionally, as an administrator at the institution, I believe my knowledge of the student body and the adult learner market within the community strengthened my ability to be an informed interviewer and researcher on this topic. Further, the background and theoretical knowledge I obtained as part of the action research process enriched the interview and analysis process, enabling me to be a more informed researcher. However, within this role, I had to ensure that responses were handled ethically, with adherence to anonymity, and in accordance with all standards laid out through the institutional review board guidelines. Similarly, as the data collector and interpreter, I attempted to suppress any bias whenever it inhibited my judgment or analyses of the survey responses, though I must acknowledge that, due to my role within the institution, there is an increased likelihood of bias.

Innovation

A review of the existing scholarly and theoretical research suggests several optimal ways of delivering adult education and many existing alternative learning models designed to support adult learners' unique needs and life experiences. While significant research examines adult learner satisfaction with their existing learning models, no research exists that compares delivery modalities for adult learners in MA programs. My

innovation is designed to respond to adult learners' unique needs in a scalable way that also meets the unique needs of health sciences education.

By embracing the core andragogical principles of adult learners—need to know, self-concept, orientation to learning, experience, and motivation (Knowles, 1984)—and with the application of the experiential learning cycle (Kolb, 1984), I deployed a work-based learning pathway within our existing MA program. While the online coursework was not built on an andragogical framework, a work-based learning pathway embraces those principles reviewed in Chapter 2 by combining on-the-job learning with asynchronous online coursework. Unlike traditional academic programs, this practical, hands-on learning enables students to apply their learning immediately versus relying solely on the internalization of lectures and readings only to apply the concepts upon graduation.

The results of this innovation yielded two parallel tracks. Table 1 (from Chapter 1) contrasts the traditional track and the work-based learning track in our MA program. The traditional track is composed of asynchronous online coursework, two skills workshops, and a 160-hour practicum, which takes place in the final quarter of the MA coursework. The work-based learning track incorporates on-the-job training, supplemented with the same asynchronous online coursework, skills workshops, and a non-remunerable 160-hour practicum. Students completing on-the-job training will often work full time in a clinical setting, serving in a role commonly referred to as a *Student Medical Assistant*. In some instances, students completing the work-based learning track will be existing employees identified by a health system for an opportunity to promote

and develop their current workforce. In those instances, these individuals often work in environmental services, in dietary services, or as a scheduler and transition to a Student Medical Assistant in a clinical setting when their role has been backfilled. This typically occurs within the first quarter of the program, but due to staffing challenges it does not always occur, as I'll explore further in Chapter 4. All students, regardless of their enrollment track, must meet the minimum admission requirements for the MA program of a 2.25 GPA on a 4.0 scale from their high school coursework or from their most recent institution where they earned nine or more college credits. Some candidates do not meet these minimum qualifications and are offered a holistic evaluation at the discretion of the director of admissions.

While the online coursework embraces andragogical principles, it is not the foundation of how these courses were developed. Prior to the deployment of this innovation, the MA program was an in-person, two-year program with steep private college tuition. For many students, the cost of the program would equate to more than their first year's salary. As a result, it was not an attractive option for students, and over the last decade, the average enrollment was five students. This innovation reflects a transition of the MA program from an in-person, two-year program to a condensed one-year online program at a reduced tuition of around $10,000. Courses were designed to embrace online pedagogy first and andragogy second. Each course includes discussion boards through *Yellowdig*, a gamified discussion board in *Canvas*, our learning management system, which is uniquely designed to create a robust, active, and social online learning community. Additionally, students utilize *Cengage MindTap* as their

electronic textbook for all their courses. This reduces costs and creates a personalized learning experience that facilitates a seamless learning experience with videos, assessments, and study tools.

The course sequence for the MA program, along with the course descriptions, is outlined in Appendix C. Each course is delivered over a 10-week quarter. Due to the accelerated nature of the coursework, students taking four credit hours are part time and eight credit hours are full time. Students are enrolled in a cohort model in which the first quarter is full time and each subsequent quarter is part time. The MA coursework is thoughtfully designed to first teach students how to manage the front of the clinic, covering administrative topics such as scheduling and patient records. Then, the program teaches students about the back of the clinic and more complex physician support and patient liaison responsibilities such as phlebotomy, pharmacology, and dosage calculations.

Finally, students are required to participate in two in-person skills workshops. These workshops provide opportunities for students to reinforce and demonstrate the psychomotor skills they learned and practiced virtually, such as taking blood pressure or drawing blood. The workshops were thoughtfully crafted to not exceed the maximum required in-person synchronous instruction that can be delivered to still be considered distance education and governed by the State Authorization Reciprocity Agreement (SARA), versus individual state laws and reporting requirements. Structuring the workshops in this manner enabled our institution to participate in distance education

through the SARA, making our educational offerings available to the entire United States, except for California.

The online components are the same for both tracks, and after completing the one-year program, all students are eligible to sit for the American Association of Medical Assistants (AAMA) Certificated Medical Assistant (CMA) certification. Additionally, both tracks are fully accredited by the Commission of Allied Health Education Programs (CAAHEP) upon the recommendation of the Medical Assisting Education Review Board (MAERB), and our institution maintains institutional accreditation through the Higher Learning Commission.

Mixed Methods

I utilized a mixed methods approach composed of three data categories: (1) institutional data, (2) quantitative survey data, and (3) qualitative semi-structured interview data. A mixed methods approach invites "multiple mental modes into the same inquiry space for purposes of respectful conversation, dialogue, and learning from the other, toward a collective generation of a better understanding of the phenomena being studied" (Greene, 2007, p. 13). The use of a mixed methods research approach has grown significantly over the past 30 years to ensure the reliability and validity of the research findings and identify additional areas for future research (McKim, 2017). A mixed methods approach has been found to be particularly useful in health science research due to the complexity of the phenomena being studied and to triangulate the basis of theory with empirical findings (Ostulund et. al, 2010).

The use of multiple instruments will provide different aspects of understanding of the central phenomenon. The reader will see this in Chapter 4 as data from multiple sources will be interwoven to answer each research question. By engaging in this mixed methods approach, I hoped to inform a comprehensive understanding of my research questions.

Overview of Data Collection, Sources, and Analyses

In the following sections I will discuss each type of data, along with its corresponding sources and analytic approaches. A crosswalk of the research questions, data sources, and data analysis methods has been provided in Table 2 and will continue to be explored in greater specificity throughout this chapter. The discussion progresses from institutional data to the quantitative survey and finally to qualitative semi-structured interviews to move from a macro to a micro level. Prior cycles of action research have informed these data sources and research questions. While a research question may be addressed by one primary data source, core conjectures will be triangulated, analyzed, and narrated through multiple sources.

The primary source to answer RQ1 is institutional data. RQ2 and RQ3 are answered by the quantitative survey data with narrative data provided by the semi-structured interviews. To support a clear understanding of the participants, data collection procedures, and data analysis, a more thorough explanation is incorporated within each mixed methods strategy below.

Table 2

Research Question Data Crosswalk

Research Question	Will Inform	Data Source	Analysis
RQ1: How do outcomes differ in the MA work-based learning track compared to those of learners enrolled in a traditional track?	Institutional Student Outcomes Enrollment Track Identification	Institutional Data Financial Aid Data	
	Narrative Understanding	SS / INT	
RQ1a: How do retention rates differ across tracks?	Institutional Student Outcomes Enrollment Track Identification	Institutional Data	Descriptive statistics, independent *t* tests, and coding.
RQ1b: How do graduation rates differ across tracks?	Institutional Student Outcomes Enrollment Track Identification		
RQ1c: How do licensure pass rates differ across tracks?	Institutional Student Outcomes Enrollment Track Identification		
RQ2: What andragogical assumptions do adult learners perceive to be the most important factors contributing to their persistence?	Andragogical Principles	SS / INT	Coding, descriptive statistics, and independent *t* tests.
	Adult Learner Characteristics	SS / INT	
	Prior Personal and Professional Experiences	SS / INT	
RQ3: How do barriers to persistence differ for adult learners in an MA work-based learning track compared to learners enrolled in a traditional track?	Alternative Learning Effectiveness	SS / INT	Coding, descriptive statistics, and independent *t* tests
	Measures of Learning	SS / INT	

Note. Data Source: SS = Student Survey; INT = Semi-Structured Interviews

Institutional Data

To answer RQ1 (How do outcomes differ in the MA work-based learning track compared to those of learners enrolled in a traditional track?), I utilized institutional data. The institutional data provided aggregate information on student outcomes based on a student's specific learning track. Institutional data was provided by the institution's Office of Institutional Research and Effectiveness upon approval from the institutional review board and was requested after the add/drop period of the winter 2023 quarter to accurately ensure student matriculation. The following data was requested:

1. Student ID
2. First Name
3. Last Name
4. Student Email
5. Personal Email
6. First Semester Enrolled
7. Last Semester Enrolled
8. Degree Earned

The data needed significant manipulation as there were several incongruencies found that needed to be analyzed further. For example, seven students' first semesters enrolled at the institution did not align with the start of the MA cohorts. To accurately determine program retention, I evaluated these seven students' academic records through our student information system, Colleague, to ensure the most accurate data was gathered and students were placed in their proper cohort. Many of these students had enrolled and failed out of other programs at the institution before enrolling in the MA program. For

example, one student had completed nearly the entirety of an associate degree in an allied health profession before failing out. Additionally, one individual had the same contact information but different last names. It was determined that she married and changed her name during the program. This in-depth analysis of students who had clear inaccuracies in their data highlights the uniqueness of students' pathways. This level of analysis was not completed on every student.

Students' enrollment track was determined with the support of the Financial Aid department, which has coded each student based on which employer was paying their tuition. In coordination with the enrollment coach, MA program chair, and sponsoring institutions, I verified which students were sponsored by an employer meeting the criteria outlined in Chapter 1. The learning track column was created and coded as follows: Work-Based Learning = 1; Traditional Track = 2.

Upon obtaining accurate learning track information, I then needed to obtain licensure exam status for all graduates. I spoke with the program chair of the MA program, who has access to the various licensure exam results and can verify how many attempts students have made and their outcomes. Initial candidates for the American Association of Medical Assistants (AAMA) certification are only allowed three attempts. Therefore, three columns were added to the institutional data to record each individual's exam attempt and were coded as pass, fail, and no attempt in the following manner: Pass = 3; Fail = 2; and No Attempt = 1.

Students' emails follow a standard nomenclature of firstname.lastname, and many individual's personal emails were also similarly descriptive. As a result, that information

was moved to a separate document for survey distribution through Qualtrics. Student ID, first name, last name, and emails were also removed before the data analysis, which left the following anonymous categories to answer RQ1:

1. Cohort
2. First Semester Enrolled
3. Last Semester Enrolled
4. Degree Earned
5. Learning Track
6. Licensure Exam Status

Institutional Data Participants

The institutional data was composed of 177 students who had enrolled in the program since the curricula revisions were completed, and the first cohort started in the fall of 2020. Ninety-eight of these individuals were in the work-based learning track, and 79 were in the traditional track. Ninety-two individuals were currently enrolled; of these 49 were nearing the conclusion of their first quarter and 43 were at the conclusion of their third quarter. Fifty-four individuals were graduates, and the remaining 31 students had failed to persist to quarter four. Students' enrollment status is summarized in Table 3.

Table 3

Student Enrollment Status

Enrollment Status	Count
Total Current Students	92
Graduates	54
Failed to Persist	31
Total Students	177

Five students withdrew or failed and returned in a subsequent quarter, and four individuals earned an associate degree instead of a certificate. In total, there were five different cohorts, and sponsored students were supported by 10 different organizations. The distribution of work-based learning students versus traditional track students was nearly equally split (55.4% vs. 44.6%). Cohort sizes differed significantly, from 10 students starting in the first cohort in the fall of 2020 to a high of 51 students starting in the spring of 2022. A summary of total enrollment and matriculation by cohort can be found in Appendix P.

Finally, the MA program has an option for students to earn an associate of science in medical assisting, provided students have completed all the necessary general education requirements before starting the program. Four of the total 55 graduates in the first three cohorts graduated with an associate degree. Three of these four students were work-based learning students. Further analysis of these four graduates found that they had collectively attempted 581 semester hours (164, 169, 149, and 99) and had earned 559 (157, 154, 149, and 99) semester credit hours. To earn an associate degree in medical assisting, you must complete 29 general education credits and 28 MA major courses, for a total of 57 semester hours. To earn the certificate, which prepares you for the same certification exam, requires just 28 semester hours. Yet, these four students had been awarded transfer credits dating back to 2012 (for two) and 2015 (for the other two). They had earned college credit from as many as four different institutions before they completed an associate degree. These individuals had nearly a decade of financial, social,

and cultural capital lost to navigating higher education that has only prepared them for entry-level work.

Institutional Data Analysis

To answer RQ1, I used descriptive statistics to analyze the institutional data for students enrolled in the work-based learning track compared to students enrolled in the traditional track. It is important to note potential variations or discrepancies in Chapter 4 charts and appendices related to the institutional data analysis. These discrepancies are the result of students who stopped the program and then returned. For the purposes of cohort graduation rates, retention, and licensure pass rates, these students are still accounted for in their original cohort; however, they will show up in the total enrollment of the current quarter, making some numbers appear inconsistent. For example, if a student started in the fall of 2020 but failed or withdrew in the first quarter, they needed to wait until quarter one was offered again in the spring of 2021 to reenroll. Thus, cohorts include unique students, while total enrollment may include students who stop and return in future quarters.

Survey Data

A primary critique of andragogy is the lack of a uniform instrument to measure andragogical assumptions that could support empirical measurability (Ekoto & Gaikwad, 2015). While researchers have attempted to measure the constructs of andragogy by developing uniform instruments, many focus on the faculty's role in utilizing andragogical techniques, and only one could be found that evaluates learner satisfaction

(Wilson, 2005). As a result, I developed a survey instrument and borrowed related components from other surveys wherever applicable to ensure validity.

Prior to distributing the instrument, I shared it with a group of 13 individuals to ask for their feedback. Participants included academic leaders in the MA program at the survey institution, admissions staff, academic advisors, peers from my doctoral cohort, individuals from my dissertation committee, and our institutional statistician. Their feedback was designed to address the following categories:

1. **Completion**: How long did it take you to complete the survey?
2. **Comprehension**: Were there any questions that were confusing or unclear?
3. **Content**: Does the format of the questions, segmentation, and flow work properly?
4. **Copy**: Did you notice any copy, formatting, or response errors?

Two email reminders were sent, and nine individuals provided feedback. Four were from my institution, three were from my doctoral cohort, and two were from members of my dissertation committee. Of the respondents, eight responded affirmatively that the survey instrument was ready for distribution and one disagreed. Most respondents indicated that it took them approximately 10 minutes to complete. In total, participants provided 19 qualitative comments that guided revisions to ensure the questions and experience met the intended outcomes.

The survey was designed to measure a wide range of independent variables to enrich my understanding of adult learner preferences and barriers in response to RQ2 (What andragogical assumptions do adult learners perceive to be the most important

factors contributing to their persistence?) and RQ3 (How do barriers to persistence differ for adult learners in an MA work-based learning track compared to learners enrolled in a traditional track?). The survey includes five blocks of questions that build upon the five key areas identified in the literature related to adult learners and alternative learning paths as well as prior action research: (1) prior personal and professional experiences, (2) adult learner characteristics, (3) andragogical principles, (4) measures of learning, and (5) alternative learning effectiveness. Each block and its relationship to the research questions is defined below. Additionally, Appendix D highlights the questions related to each category and the response options.

1. **Prior Personal and Professional Experiences:** These questions determine respondents' alignment with Ross-Gordon's (2011) definition of an adult learner and identifies their learning track.
2. **Adult Learner Characteristics:** These questions evaluate how adult learners' characteristics may become barriers to completing their education. Respondents are asked to evaluate several factors that impact their persistence, such as understanding the course content, paying for tuition, or learning in an online environment. This addresses RQ3 and student persistence based on the learning track.
3. **Andragogical Principles:** These questions evaluate respondents' perceptions of the importance of andragogical assumptions about the unique needs of an adult learner: their need to know, self-concept, orientation to learning, experience, and motivation (Knowles, 1984). The questions were adapted

from *The Adult Learning Principles Design Process Elements Questionnaire* (Wilson, 2005) and asked respondents to evaluate the importance of several factors in their learning experience, such as having their input valued, being told what material was going to be covered, and applying their learning immediately in their work/life. This helps answer RQ2 in identifying the most important factors contributing to adult learners' persistence.

4. **Learning Track Effectiveness:** These questions measure the effectiveness of key features of each learning track in reducing adult learners' barriers and supporting their persistence. Questions regarding such topics as paying for tuition, receiving pay near that of a Certified Medical Assistant while in the program, and the ability to regularly apply the coursework in a hospital or clinic setting allowed respondents to imagine, or evaluate, how certain attributes of their learning track did or may impact their learning and preparation for the licensing exam. The questions for each track mirror each other, with some minor modifications, and help to provide an understanding of RQ1, RQ2, and RQ3 and the nuances of outcomes by learning track, perceived barriers, and preference for learning.
5. **Measures of Learning:** This final set of questions evaluates the overall effectiveness of the MA program. Respondents are asked to reflect on the overall program difficulty, how well the program prepared them to sit for the licensing exam, and their overall experience. This construct includes open-

ended questions, which help to provide a narrative to RQ1 and the institutional outcome data by learning track.

The survey was web-based and administered using Qualtrics. The survey asked questions utilizing a Likert scale in addition to open-ended questions. I elected to utilize multiple response formats to develop a more thorough understanding of individuals' perceptions and support the statistical analysis through SPSS Version 28. Items using a Likert scale required respondents to indicate their level of agreement or disagreement with the respective statement. More specifically, a six-point Likert scale was utilized to reduce participants' ability to select neutral or noncommittal choices. Some researchers have indicated maximum reliability on a seven-point Likert scale (McKelvie, 1978; Nunally, 1967); however, seven-point Likert scales fail to direct respondents to pick one side. As a result, when researchers desire to have responses that indicate either affirmative or negative beliefs, a six-point scale is most favorable (Taherdoost, 2020). The complete quantitative survey and its response options can be found in Appendix E.

Survey Data Participants

With the support of the program leadership and faculty, I had a target of having approximately one-third of program participants, or nearly 50 individuals, participate in the survey. Students were recruited to participate in the survey through emails from myself and the MA program chair. The survey was distributed to all 177 individuals who were identified by the institutional data. The first email outreach to student and personal emails occurred on January 6, 2023, the weekend before the winter quarter started. Six personal and one student emails were undeliverable. Subsequent emails were sent on

January 13, 2023; January 17, 2023 (including a follow-up email from the MA program chair); and February 1, 2023. After not receiving any new responses between February 1, 2023, and February 7, 2023, the survey was closed.

In total, 72 individuals started the survey. Unfortunately, 18 individuals completed between 0% and 61% of the survey, so they were excluded from the analysis, leaving a total respondent group of 54 students. It was noted that three respondents indicated that they satisfied none of Ross-Gordon's (2011) definition of an adult learner. Before excluding them from the survey results, independent *t* tests were run. In total, there were eight questions in which their responses were statistically significantly different enough to reject the null hypothesis that there was no difference between the respondents who had one or more of Ross-Gordon's (2011) adult learner characteristics. As a result, I elected to remove them from further data analysis. A list of that complete analysis can be found in Appendix S.

After removing those three individuals, two of whom were in the traditional track and one who was in the work-based learning track, there were a total of 51 respondents remaining. Of the 51 remaining respondents who completed the survey, 37 were in the work-based learning track (72.5%) and 14 were not (27.5%). This distribution was not representative of the overall student population, which was split more equally. Thirty-six participants were current students, 12 were graduates, and three were former students who did not graduate. Forty-two respondents satisfied two characteristics of an adult learner as defined by Ross-Gordon (2011), 31 satisfied three, 15 satisfied four, and seven satisfied all five characteristics. Only eight noted that they satisfied just one

characteristic, and seven of those eight noted full-time employment. Six of those seven individuals were in the work-based learning track.

Table 4

Summary of Eligible vs. Actual Respondents

	Work-Based Learning	Percentage of Total	Traditional	Percentage of Total	Total
Eligible Respondents	98	55.37%	79	44.63%	177
Actual Respondents	34	70.83%	14	29.17%	48

Survey Data Analysis

All survey data was downloaded from Qualtrics, organized in Excel, and analyzed in SPSS 28. Survey respondents' levels of agreement or disagreement were coded during the survey design process to convert Likert-scale responses to numerical values. A numerical value of six (6) was assigned to values of always or strongly agree and one (1) was assigned to responses of never or strongly disagree. Not applicable responses were treated as missing (Holman et al., 2004) and were only provided as options for two questions: (1) factors related to being a parent and (2) work commitments. Descriptive statistics were run by individual question and independently by learning track to assess variability within the two groups. Additionally, I calculated mean scores for each of the five constructs. This was also completed by the individual respondents and by learning track.

For comparison between the two learning tracks, I used independent *t* tests to determine if there were significant differences between the group's responses. The respondent's learning track was determined by utilizing the following question: When I

was enrolled in the program, I was employed by a health system or clinic that was paying my tuition. When comparing the two groups, I was testing the null hypothesis that there would be no difference between learning tracks at a significance of $\alpha = .05$. The combination of these two procedures allowed me to evaluate baseline responses and variability amongst the learning tracks.

Reliability and validity. Utilizing the frameworks explored in Chapter 2, the survey demonstrates content-based validity in that the survey items are a fair sample of the "universe of items for which the test is designed" (Salkind & Frey, 2020, p. 117). I utilized Cronbach's alpha to assess one type of reliability, internal consistency, of the items associated with each construct on the questionnaire. An acceptable range for Cronbach's alpha is a value of .70 or above (Nunnally, 1967). Cronbach (1951) suggested that, while a high value of alpha is desirable, what is more important is that the responses need to be interpretable and that could be done with a low alpha. While a value of .70 or above is desired, a low alpha may often occur when the number of questions within a given domain is small (Taber, 2018). The measures of learning construct only consisted of three questions and was the only construct to score below .70. As a result, all constructs have acceptable internal consistency reliability well above the acceptable range as calculated by Cronbach's α coefficient. Table 5 presents the reliability of each survey construct.

Table 5

Survey Coefficient—Alpha Estimates of Internal Consistency Reliability

Construct	Number of Items in Construct	Cronbach's Alpha
Adult Learner Characteristics	17	.928

Andragogical Principles	22	.901
Alternative Learning Effectiveness	9	.842
Measures of Learning	3	.626

Open-ended responses. Finally, individuals were asked, but not required, to respond to three open-ended prompts. The three open-ended questions were: (1) Please share any additional comments about your educational experience; (2) Please share any additional comments about your work experience as a Student Medical Assistant in the clinic or hospital; and (3) Please share any additional comments about barriers to success in the medical assisting program. In total, 16 participants submitted 41 unique comments. Eleven respondents were in the work-based learning track, and five were in the traditional track. The open-ended survey responses were coded utilizing an inductive imitative coding process and the six-phase thematic analysis framework described by Braun and Clarke (2006). These steps include: (1) becoming familiar with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining themes, and (6) completing a write-up.

While Braun and Clarke identify the coding process, Saldaña (2021) helps define each step and its role in the process of qualitative data analysis. Coding is "a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data" (p. 5). Synthesizing the codes is a transition from coding to categorizing in which you attempt to consolidate meaning (Saldaña, 2021). Beyond coding and categorizing are themes. A theme is an "extended phrase or sentence that identifies what a unit of data is about and/or what it

means" (Saldaña, 2021, p. 258). Utilizing the above framework and definitions, I began to analyze the open-ended survey responses.

Firstly, the data was organized by respondents' learning track. When conducting a thematic analysis, there is a mutual exclusivity requirement that ensures each data can only be assigned one subcategory (Schreier, 2014). As a result, I carefully analyzed each comment and conducted sentence-by-sentence coding for each response. After arranging the codes in groups by topic, categories were developed to synthesize multiple related codes. After reviewing the categories, I determined they did not offer enough salient intersections between them to form theories helping to answer the research questions. Therefore, the open-ended survey data analysis was concluded after the development of several unique categories.

After comparing the initial coding exercise for both learning tracks, I noted that the categories had significant overlap. As a result, the categories are presented as a group of open-ended question findings. There were six categories identified, including (1) positive experience, (2) criticisms of the program, (3) suggestions for improvement, (4) adult learner barriers, (5) Student Medical Assistant experience, and (6) licensure exam preparation.

An example of this qualitative analysis process has been provided in Table 6, and a complete summary of the categories and supporting comments can be found in Appendix G. These categories and overall comments mirror very closely the comments and coding from the qualitative interviews, which will be explored in the next section.

Table 6

Open-Ended Code-to-Category Example

Key Comment	Code	Category
I absolutely loved the staff, and the team at Mercy College they helped and encouraged us.[1]	[1]Good Experience	Positive Experience
I just wish in certain areas like medications or math they would do weekly video refreshers explaining how to do it.[1]	[1]Opportunities for Improvement	Criticism of the Program

Interview Data

Qualitative semi-structured interviews aim to identify nuanced aspects of the interviewee's experience and knowledge (Brinkmann & Kvale, 2015). Interviewers seek to obtain information using language and words, not numbers. The semi-structured nature of the interviews allowed me to probe certain topics for greater specificity while moving away from other areas that did not enrich my understanding of the research questions. Each of my prior action research cycles included semi-structured interviews with college administrators and faculty. Expanding the semi-structured interviews to students was a natural extension of these prior research cycles.

At the conclusion of the survey, individuals had the opportunity to self-identify their interest in participating in these virtual interviews. Upon identifying their interest, respondents were directed to a separate questionnaire to maintain the anonymity of their survey responses. Allowing students to describe their experiences in depth provided a richer, more open dialogue and a deeper understanding of their barriers and the efficacy

of alternative learning tracks within the MA program. All interviews were conducted virtually over Zoom.

Prior to conducting the interviews, descriptive statistics were generated from the survey results to help inform the interview questions. Survey questions with the highest standard deviation were areas that I wanted to explore deeper in the interviews. All but one of the top 16 questions with the greatest standard deviation were from the adult learner characteristics construct that sought to understand barriers to adult learners' persistence. Based on the literature review conducted in Chapter 2, I hypothesized that this deviation was likely caused by differences between respondent experiences in the two learning tracks. Two questions with the highest standard deviations were: (1) How often is/was covering the cost of tuition a barrier to completing the MA program? (SD = 2) and (2) How often is/was being able to apply the concepts immediately in life/work a barrier to completing the MA program? (SD = 1.82). Appendix H contains questions with the highest standard deviations that were utilized to inform the interview questions.

In response to my research questions, and supported by my survey data, these areas were natural for me to explore deeper. As a result, during the interviews, I investigated how well the interviewees' learning track reduced barriers and supported andragogical principles. The following 11 questions guided the semi-structured interviews and were thoughtfully crafted to elicit information about the participants' experiences in the MA program and to better inform an understanding of the nuances of being an adult learner.

1. Tell me a little about yourself.

2. What interested you in the MA program?
3. Where are you in the program? Have you passed the licensing exam?
4. Did you have prior experience that related to your coursework?
5. What did you struggle with in the program?
6. What was easy for you in the program?
7. How did working as a Student Medical Assistant and being able to apply what you learned in coursework help you?
8. What barriers/challenges did you face throughout the program?
9. Did you notice a difference in the proficiency of non-student medical in the skills workshops?
10. What motivates you?
11. What best prepared you for the licensing exam, being an SMA, or the coursework?

Interview Participants

I intended to recruit six individuals to participate in the individual qualitative interviews, split equally between the two learning tracks, as that would provide enough responses to conduct a thematic analysis to strengthen my understanding of the quantitative findings and individuals' unique experiences. At the closing of the survey on February 7, 2023, eight individuals indicated a willingness to participate in an interview. Seven of the eight respondents were in the work-based learning track. An email was sent to all eight individuals on February 7, 2023, providing a link to schedule an appointment

directly on my calendar based on their availability. Two individuals responded to the first request.

A second request was sent to the remaining six individuals on February 14, 2023. One additional individual responded and scheduled a meeting. During that same time, one of the three interview candidates was a no-show and one had rescheduled. Prior to this research study, I had supported the MA program in conducting virtual mock interviews, an assignment that was a required part of their final course designed to support job readiness and prepare students to transition to practice. Attempting to schedule these interviews that were not a required course assignment reminded me of the difficulty of scheduling those mock interviews. As a result of the continued challenges to get interview participants, on February 17, 2023, I sent an email to the entire respondent population, except for those who had already scheduled an interview time, and requested they schedule an interview. As a result of these efforts, three additional students responded. In total, seven students scheduled interview times. Of the seven individuals who registered, three were no-shows and did not respond to additional follow-up emails. At the conclusion of this outreach and follow-up, four interviews were conducted.

All four interview participants were students in the work-based learning track. This caused some challenges in providing a comprehensive narrative understanding of the differences between learning tracks explored in RQ3. Three of the four participants were graduates, each having indicated that they passed their licensing exam and were practicing Certified Medical Assistants. Two of the participants were in their forties, one was in their thirties, and one was in their twenties ($M = 39$ years, $SD = 10.28$). The

interviews were conducted over one week and lasted about 15 minutes on average. To protect participants' anonymity and privacy, they each have been given a pseudonym in accordance with the practices identified by the institution's review board. A full transcript of each interview can be found in Appendices M–P.

Interview Data Analysis

Utilizing a thematic analysis framework, I attempted to understand participants' views about their experiences during the MA program. Participants shared their perspectives on their experiences while I interpreted and applied the theoretical and organizational frameworks explored in the prior chapters. I followed an inductive coding process explored above for the open-ended survey responses using the six-phase thematic analysis framework as described by Braun and Clarke (2006) and the definitions of codes, categories, and themes provided by Saldaña (2021).

While conducting the interviews, I wrote numerous memos designed to assist me in identifying and recalling interesting comments and areas for further recall and exploration. Immediately following each interview, I deidentified the interview and saved the audio recording and the Zoom auto-transcribed transcript in Microsoft Word and documented my memos. The interviews took approximately one week to complete. Upon the completion of all interviews, I listened to the interviews again, strengthening my interpretation of central phrases related to each participant before transcribing them.

Next, I transcribed all four interviews over the course of several hours. By completing this process in one sitting, I was able to intimately familiarize myself with the data. After the interviews were transcribed, I conducted initial coding sentence by

sentence, and in some instances paragraph by paragraph, which yielded 63 unique codes. After the initial coding, I sought to consolidate the codes into categories. The codes were grouped into categories and were arranged based on similarities and examined for any relationships that might exist between them. At the center of the coding and consolidation process are the research questions that "embed the values, work view, and direction of an inquiry" (Trede & Higgs, 2009, p. 18).

A sample of this qualitative inquiry process can be found in Table 7, and a full list of the coding supporting statements can be found in Appendix J.

Table 7

Interview Code-to-Theory Example

Key Comment	Code	Category	Theme
Having a teacher Thursday night from 7 to 9 that is there to answer our questions, because sometimes reading[1], you just don't get it, but if someone says it out loud…[2] I understand we chose online, but occasionally, we need that teacher interaction.[3]	[1]Challenges With Reading Comprehension/Application [2]Desire for Synchronous Sessions [3]Challenges With Online Learning	Student Experience Opportunity for Improvement	Navigating Challenges and Maximizing Learning Opportunities in Online Education
Maybe have a day a week that the students can leave [their SMA position] at two, just to have that time to study[1] away from our families.[2]	[1]Flexibility to Complete Coursework [2]Family Responsibilities as a Barrier	Student Experience Opportunity for Improvement	
The ICD coding was very hard.[1] I think it's just because we're so	[1]Difficulties With Coding	Curricular Improvement Opportunities	

computer oriented that it's not something hands-on that we really must do so that was difficult.[2]	[2]Update Teaching Practice to Align With Workforce Practices	
A lot of the admin was a little difficult just with the billing part of it.[1]	[1]Challenges With Coding	Curricular Improvement Opportunities
I ended up paying additional for the actual AAMA website to do the testing there to get some more study materials.[1]	[1]Lack of Licensure Exam Preparation	Opportunities for Exam Prep

To identify themes, King and Brooks (2017) recommend arranging the categories in an outline format to identify initial clusters as themes are identified. Themes are my interpretations that summarize my beliefs about the data (Morgan, 2018) and help to summarize what the unit of data is about or means (Saldaña, 2021). My final thematic outline with the supporting categories can be found below Figure 3.

Figure 3

Qualitative Thematic Outline

Theme 1. Nurturing a Passion for Healthcare Through Experience and Connections
Supporting Categories

I. Prior Healthcare Experience
II. Interest in Healthcare Occupations
III. Family in Medical Field

Theme 2. Overcoming Barriers and Harnessing Intrinsic Motivation to Achieve Personal Growth
Supporting Categories

I. Children
II. Age
III. Medical Challenges
IV. Marital Status
V. Intrinsic Motivation

Theme 3. Navigating Challenges and Maximizing Learning Opportunities in Online Education

Supporting Categories

I. Challenges With Coding
II. Request for Synchronous Sessions
III. Licensure Exam Preparation
IV. Learning in an Online Environment
V. Desire for Synchronous Sessions

Theme 4. Providing Alternative Pathways to Medical Assisting Education

Supporting Categories

I. Preference for Hands-On Learning
II. Deficiencies in the Traditional Track
III. Free Tuition
IV. Differences in Student Medical Assistant Experience
V. Opportunities for More Exam Preparation

Since I was the only researcher coding the interview data, I completed the initial coding, categorization, and outline exercise twice over subsequent days to ensure that the same key categories emerged. Completing this exercise twice further highlighted the importance of analyzing and interpreting the thematic analysis, rather than simply summarizing and organizing (Braun & Clarke, 2006). The conclusion of this work helped identify central opportunities and challenges for adult learners in the work-based learning track and was utilized to evaluate and support a narrative understanding of the research questions.

Finally, I developed key assertions based on the themes. An assertion is a "declarative statement of summative synthesis supported by evidence from the data" (Saldaña, 2013, p. 93). Assertions allow the researcher to make interpretations from the data and summarize major themes from the study (Saldaña, 2013). A complete summary of the categories, themes, and assertions can be found in Table 8.

Table 8

Themes, Supporting Categories, and Assertions

Theme	***Supporting Categories***	***Assertion***
Nurturing a Passion for Healthcare Through Experience and Connections	1. Prior Healthcare Experience 2. Interest in Healthcare Occupations 3. Family in Medical Field	Building connections within the healthcare industry, drawing on prior healthcare experience, and nurturing a personal interest in healthcare occupations can collectively instill a passion for healthcare that can support learners' knowledge acquisition and application when pursuing careers in this field.
Overcoming Barriers and Harnessing Intrinsic Motivation to Achieve Personal Growth	1. Children 2. Age 3. Medical Challenges 4. Marital Status 5. Intrinsic Motivation	By harnessing their intrinsic motivation and taking proactive steps to overcome the barriers presented by age, family responsibilities, medical challenges, and other factors, adult learners can achieve personal growth and pursue their educational and career goals despite the challenges they face.
Navigating Challenges and Maximizing Learning Opportunities in Online Education	1. Challenges With Coding 2. Request for Synchronous Sessions 3. Licensure Exam Preparation 4. Learning in an Online Environment 5. Peer/Instructor Mentorship	Despite the challenges of coding, online learning environments, and licensure exam preparation, learners in the work-based learning track were able to seek out resources, connect with peers, instructors, and mentors, and practice their skills in real-world environments that supported the application of their learning and knowledge acquisition.
Providing Alternative Pathways to Medical Assisting Education	1. Preference for Hands-On Learning	By providing alternative pathways to medical assisting education that address the deficiencies of traditional

	2. Deficiencies in the Traditional Track 3. Free Tuition 4. Differences and Benefits of the Student Medical Assistant Experience 5. Opportunities for More Exam Preparation	learning tracks, such as lack of hands-on learning and financial barriers, educational institutions can broaden access to this field and cultivate a more diverse and skilled workforce of medical assistants.

Conclusion

Chapter 3 explored the research methods, participants, and data analysis procedures that were used to complete this study. In conducting multiple cycles of action research, I was better informed and able to articulate the problem my innovation and research strove to address. The respondents who participated in the mixed methods instruments helped inform insights into the research questions. Utilizing a mixed methods research design allowed quantitative and qualitative to be collected and analyzed separately but utilized together to interpret and triangulate the results (Creswell & Guetterman, 2019). The results of this data collection, along with their interpretations and analysis, will be explored in Chapter 4.

CHAPTER 4: ANALYSIS AND PRESENTATION OF THE FINDINGS

The purpose of this mixed methods action research study was to examine adult learners' experience completing the medical assisting (MA) program through work-based learning, compared to a traditional learning track. To examine this, data was collected from three instruments: (1) institutional data, (2) online survey, and (3) semi-structured interviews. In this chapter, I will provide an analysis of the data interpretation procedures and then present the findings. Finally, I will conclude with a summary and discussion of the findings. Since multiple instruments were utilized, Chapter 4 is organized by research question, which is designed to support a comprehensive understanding of each research question. Each section begins with an analysis of the relevant data sources and concludes with a summary of the findings and a response to the research question.

Data collection and analysis were designed to address the following research questions:

RQ1: How do outcomes differ in the MA work-based learning track compared to those of learners enrolled in a traditional track?

- **RQ1a:** How do retention rates differ across tracks?
- **RQ1b:** How do graduation rates differ across tracks?
- **RQ1c:** How do licensure pass rates differ across tracks?

RQ2: What andragogical assumptions do adult learners perceive to be the most important factors contributing to their persistence?

RQ3: How do barriers to persistence differ for adult learners in an MA work-based learning track compared to learners enrolled in a traditional track?

Research Question One: Comparison of Outcomes Across Learning Tracks

As noted in Chapter 3, institutional data was the primary data source used to answer RQ1, with numerical support from the survey and narrative support from the semi-structured interviews. RQ1 and RQ1a–RQ1c seek to answer the following questions:

RQ1: How do outcomes differ in the MA work-based learning track compared to those of learners enrolled in a traditional track?

- **RQ1a:** How do retention rates differ across tracks?
- **RQ1b:** How do graduation rates differ across tracks?
- **RQ1c:** How do licensure pass rates differ across tracks?

Institutional Data Findings in Support of Research Question One

The analysis of institutional data revealed that 177 students had enrolled in the program since the fall of 2020. Cohorts 1–3 were the only cohorts that had students who had matriculated to graduation; therefore, licensure pass rates and graduation rates were only determined for those first three cohorts. Thirty-four work-based learning students and 21 traditional students had completed the program at the time the data was compiled. A summary of students' enrollment status can be found in Table 9, and a complete summary of total enrollment and matriculation by cohort can be found in Appendix Q.

Table 9

Summary of Student Statuses

	Total	Current Students	150% Graduation Rate	Failed to Persist
WBL	98	55.1% (54)	94.4% (34)	10.2% (10)
Traditional	79	34.2% (27)	48.8% (20)	40.5% (32)

Note. 150% Graduation Rate "is the total number of completers within 150% of the normal time" (Integrated Postsecondary Education Data System, 2016, p. 4).

Retention Rates

The National Center for Education Statistics Glossary (n.d.) defines retention as "a measure of the rate at which students persist in their educational program at an institution, expressed as a percentage" (Retention section). For my purposes, I analyzed how many students reached the final quarter of the program with their original cohort. For students in the work-based learning track, 63 out of 70 students made it to quarter four, or a retention rate of 90%. Conversely, for students enrolled in a traditional learning track, only 31 out of 58 students persisted to quarter four, or a retention rate of 53.4%. The retention rate by cohort can be found in Table 10. The cohort nature of the MA program can adversely impact term-over-term retention, as students are required to sit out multiple quarters if they must retake a course. To aid in an understanding of overall success outcome measures, graduation rates were also looked at.

Table 10

Retention Rate by Cohort

When I was enrolled in the program, I was in the work-based learning track.		Total Quarter 1	Total Quarter 4	Retention Rate
	Cohort 1	2	2	100.0%
	Cohort 2	14	13	92.9%
	Cohort 3	20	18	90.0%
	Cohort 4	34	30	88.2%
Yes	Total	70	63	90.0%
	Cohort 1	8	1	12.5%
No	Cohort 2	16	8	50.0%

Cohort 3	17	11	64.7%
Cohort 4	17	11	64.7%
Total	58	31	53.4%

Graduation Rates

Since the program is one year in length, to account for students who must sit out for one or two quarters, graduation rates were measured at the 100% and 150% graduation rates. The 1990 Student Right-to-Know Act requires postsecondary institutions to report the percentage of students who complete their program within 150% of the normal completion time (National Center for Education Statistics, 2022). The 150% completion time frame for the MA program is one and a half years. The graduation rate at the 150% completion time frame for the work-based learning students was 94.4%. For traditional students, the 150% graduation rate was 48.8%. Table 11 displays this data by learning track and cohort.

Table 11

Graduation Rates by Learning Track

When I was enrolled in the program, I was in the work-based learning track.	Graduation Rate	Cohort 1	Cohort 2	Cohort 3	Total
Yes	100% Graduation Rate	100.0% (2/2)	92.9% (13/14)	90% (18/20)	91.7% (33/36)
	150% Graduation Rate	100.0% (2/2)	100.0% (14/14)	90% (18/20)	94.4% (34/36)
No	100% Graduation Rate	12.5% (1/8)	37.5% (6/16)	64.7% (11/17)	43.9% (18/41)
	150% Graduation Rate	12.5% (1/8)	50.0% (8/16)	64.7% (11/17)	48.8% (20/41)

No students graduated from the MA program beyond the 150% mark. Students who sit out more than two quarters have to reapply to the program and likely would be required to start the program over. Therefore, they would not be included in this analysis, and there was no sign that any student fit into this category. Four students completed a fifth quarter, with four out of five completing the program in their final semester. Of the 57 students who enrolled in the final quarter of the MA program, all but two graduated, and both of those students were in the traditional track.

Licensure Pass Rates

At the completion of the program, students are eligible to test to become a Certified Medical Assistant. Several MA certification exams can be taken; however, the American Association of Medical Assistants (AAMA) is "the only certification that requires graduation from a postsecondary medical assisting program accredited by an accrediting body recognized by the U.S. Department of Education" (AAMA, n.d., para. 5). All but one MA graduate sat for certification through the AAMA. Initial candidates for AAMA certification are only allowed three attempts. Each attempt requires a new exam and application fee and can be seen as a standard measure for institutions to evaluate students' knowledge acquisition throughout the MA program and as a benchmark to compare against other MA programs. The final-attempt pass rate for students in the work-based learning track was 86.6%. The final-attempt pass rate for students in the traditional track was 78.6%. These pass rates may seem low, but for both learning tracks, they are well above the national average. According to the AAMA (2021), 8,870 CMA Certification Exams were administered from July 2020 to July 2021,

with a pass rate of 62% for those exams administered. The licensure pass rate and student counts for each track are displayed in Table 12 and only display the outcome of students' final licensure exam attempt. For example, a student may have failed on their first attempt but passed on their second attempt. That individual would only show in the passed column.

Table 12

Licensure Pass Rates

When I was enrolled in the program, I was in the work-based learning track.	Category	Total Eligible	Attempted	Passed	Failed	No Attempt
Yes	Student Count	34	30	26	4	4
	Percentage of Total Eligible	100.00%	88.20%	86.60%	11.80%	11.80%
No	Student Count	20	14	11	3	6
	Percentage of Total Eligible	100.00%	70.00%	78.60%	15.00%	30.00%

There are a few interesting trends in the licensure testing data that warrant further discussion. First, 11.8% of the work-based learning graduates and 30% of the traditional students did not even attempt to take the licensing exam. This is interesting because more graduates (10) did not attempt the exam than failed it (7). Students are only eligible to sit for the AAMA within 12 months of graduating from their program. Students who do not

attempt the exam are at the greatest disadvantage as their academic credit is likely not portable. The MA major credits might transfer for elective courses at another institution, but should they attempt to get a job they will not be eligible to be hired as a Certified Medical Assistant. If they are hired into an MA role, they likely will be paid less because they are not certified.

Only one student tested three times. They were in the work-based learning track and failed all three attempts. Seven work-based learning students failed their first attempt. Five out of those seven passed on their second attempt, while the other two students who failed on their first attempt did not test again. Conversely, five traditional-track students failed on their first attempt. Two retested and passed on their second attempt. Nine traditional students passed on their first attempt. Only two traditional students took the exam twice.

Students in the work-based learning track are required to become certified at the conclusion of the program for continued employment, as that is a condition of employment and receiving free tuition. This may have led to a greater number of testing attempts for work-based learning students and a higher pass rate. The institutional data was compiled and analyzed more than four months after any student would have completed their final course. The longer students delay in taking the certification exam after their formal coursework is complete, the less likely they are to be successful. Since the time this analysis was completed, it is plausible, although unlikely, that other students tested. The first attempt outcomes for both learning tracks can be seen in Table 13.

Table 13

First-Attempt Pass Rate

When I was enrolled in the program, I was in the work-based learning track.		Total Individual Attempts	Pass	Fail
Yes	Student Count	30	21	9
	Percentage of Total Eligible	-	70.0%	30.0%
No	Student Count	14	9	5
	Percentage of Total Eligible	-	64.3%	35.7%

Survey Findings in Support of Research Question One

While institutional data were the primary basis for addressing RQ1, the survey and semi-structured interviews provided additional insight into these findings. The final survey component of the alternative learning effectiveness construct contained three questions related to measures of learning: (1) How well did the program prepare you to pass the licensing exam? (2) How was your overall experience? and (3) How challenging was the program? The null hypothesis is that there is no difference in the responses to these questions regardless of the respondents' learning track. The directional hypothesis is that students in the work-based learning track were better prepared for their licensing exam due to their experiences, which made the overall program easier and resulted in a more positive student experience. To measure this, independent sample *t* tests were

conducted. The null hypothesis was rejected as the work-based learning track respondents believed that the program more favorably prepared them (M = 5.73, SD = .69) to pass the licensing exam, $t(14.68) = 2.94$, p = .01. Descriptive statistics were calculated to better understand respondents' experience based on their learning track. Those findings are in Table 14. There were differences in the overall mean scores of each of these questions. Based on Table 14, we can see that students in the work-based learning track felt better prepared to pass their certification exam and did not find the program as challenging (M = 3.14, SD = .92 vs. M = 3.07, SD = .83).

Table 14

Descriptive Statistics Measures of Learning by Learning Track

When I was enrolled in the program, I was in the work-based learning track.		N	Min.	Max.	Mean	Std. Deviation
Yes	The MA program has/will prepare me to pass the licensure exam.	37	3	6	5.73	0.693
	Overall, how would you rate your experience in the MA program?	37	1	6	5.08	0.983
	Overall, how challenging is/was the MA program?	37	1	5	3.14	0.918
	Valid N (listwise)	37				

	The MA program has/will prepare me to pass the licensure exam.	14	1	6	4.36	1.692
No	Overall, how would you rate your experience in the MA program?	14	1	6	4.71	1.729
	Overall, how challenging is/was the MA program?	14	2	5	3.07	0.829
	Valid N (listwise)	14				

Note. Likert scale scores from (1) Never Important to (6) Always Important or (1) Extremely Difficult to (6) Extremely Easy.

When looking at the responses in totality, not by learning track, we can see that, overall, respondents felt the program prepared them to pass the licensure exam (M = 5.35, SD = 1.12), they had a favorable experience (M = 4.98, SD = 1.2), and the program was, on average, moderately difficult to hard (M = 3.12, SD = .887). These descriptive statistics can be found in Table 15.

Table 15

Descriptive Statistics on Measures of Learning

	N	Mean	Std. Deviation
The MA program has/will prepare me to pass the licensure exam.	51	5.35	1.214
Overall, how would you rate your experience in the MA program?	51	4.98	1.225
Overall, how challenging is/was the MA program?	51	3.12	.887

Valid N (listwise)	51

Note. Likert scale scores from (1) Very Strongly Disagree to (6) Very Strongly Agree.

Research Question One: Interview Findings

The semi-structured interviews can help provide more insight into the quantitative findings explored above. Please recall, all interviewees were from the work-based track. Themes 1, 2, and 4 helped provide an understanding of the experiences across and perceived deficiencies between the learning tracks. These themes and supporting quotes to answer RQ1 are explored in greater detail below.

Theme 1: Nurturing a Passion for Healthcare Through Experience and Connections

Each participant in the interviews had multiple years working in a healthcare setting before starting the MA program. Only participant A was in a non-direct patient care role prior to starting the program. Other individuals were working as certified nursing assistants (CNAs), phlebotomists, or mental health technicians. “I’ve worked in the medical setting for over 20 years, primarily in the lab doing phlebotomy and some point of care testing,” said B. “I got my CNA when I was 17,” commented D. “I worked as a mental health tech…it was like a CNA,” they continued. “I started with CNA and then decided I wanted more hands-on and went into the MA program,” said A.

The primary assertion from the data supporting Theme 1 is that building connections within the healthcare industry, drawing on prior healthcare experience, and nurturing a personal interest in healthcare occupations can collectively instill a passion for healthcare that can support learners’ knowledge acquisition and application when pursuing careers in this field. This is a key assumption of andragogy and the uniqueness of educating adults due to their prior lived experiences.

Theme 2: Overcoming Barriers and Harnessing Intrinsic Motivation to Achieve Personal Growth

With a mean participant age of 39, interview participants had a lot going on in their personal lives outside their studies. “I’m Mexican, and my primary language is Spanish. I’m married, but no kids,” commented A. “I’m married, going on 21 years in July, and I have two kids, 21 and 17,” said B. “I’m in my fifties, married, and we have a total of four children,” C said happily. The characteristics that defined the interview participants also influenced their ability to persist through their studies.

“[The first semester] was just mentally draining, staying up till midnight, reading everything that I needed to do in my coursework. It was a lot, and I was even willing to just repay everything that was paid upfront, because I wasn’t able to do it. It was too much,” recalled B. “Right before I started the program, I had shoulder surgery, and I was still recovering for about three months into the program,” said D. “There were a lot of people in their late twenties or early thirties that were doing the program, so that was hard for them to balance everything,” they continued. These comments from a small group of participants highlight the uniqueness of adult learners’ path to postsecondary education and the experiences they bring with them to the classroom.

The primary assertion from the data supporting Theme 2 is that, by harnessing their intrinsic motivation and taking proactive steps to overcome the barriers presented by age, family responsibilities, medical challenges, and other factors, adult learners can achieve personal growth and pursue their educational and career goals despite the challenges they face.

Theme 4: Providing Alternative Pathways to Medical Assisting Education

Participants highlighted the unique nature of serving as Student Medical Assistants (SMAs) and how that supported their learning in the work-based learning track. “I definitely think that it helps being in the SMA program; it helps me every single day in my work now as a Certified MA,” commented D. “I’m more of a hands-on learner, and I thought this might be a better avenue to be doing this program along with learning in the clinic,” recalled C. “Throughout the program, it’s hard to learn online to do something that is so hands on, so it was nice to have that hands-on aspect of what I was involved with versus other people who didn’t have that,” said D. “There [the clinic], it’s asking more questions, it’s shadowing the whole time, it’s fine-tuning all my skills, and just really more digging into it to ensure that I am doing it correctly versus picking up bad habits,” commented C.

A category supporting Theme 4 identified by the interview participants relevant to RQ1 centered around the specific benefits of the work-based learning track. “It’s very beneficial to be a student working in the clinic and taking the courses. Giving vaccinations, understanding vaccinations... The patient care, how the history of their medications is so essential when talking to a patient,” commented C. “If I had a question, or if I needed a clarification of what we were reading in the coursework, I could ask my nurse. I had a lot of, oh, that’s what that means moments! I’d read about it, and then it would come up the next couple of days at work. The light turned on many times because I was working at the clinic. I feel much more advanced because I’ve been at the clinic

learning and just listening to the nurses and the doctors talk that language," continued C. "I felt like I learned more being in the clinic than being in the class," recalled A.

Additionally, participants noted a difference between individuals who were in the work-based learning track and those who were not. "The people who were struggling in the courses were the people who weren't in the Student Medical Assistant program," recalled D. "A lot of people really struggled with blood draws. I had the opportunity to practice on coworkers, and it didn't bother them. They were okay getting poked because that's not an easy thing either, to get the vein," said C. This also directly ties to RQ3 and andragogical principles related to their persistence, which will be explored later in this chapter.

The primary assertion from the data supporting Theme 4 is that, by providing alternative pathways to medical assisting education that address the deficiencies of traditional learning tracks, such as lack of hands-on learning and financial barriers, educational institutions can broaden access to this field and cultivate a more diverse and skilled workforce of medical assistants.

Summary of Findings for Research Question One

After reviewing the institutional data, survey data from the measure of learning construct, and four key themes from the semi-structured interviews, I can provide a numeric and narrative response to RQ1:

> **RQ1:** How do outcomes differ in the MA work-based learning track compared to those of learners enrolled in a traditional track?
>
> - **RQ1a:** How do retention rates differ across tracks?

- **RQ1b:** How do graduation rates differ across tracks?
- **RQ1c:** How do licensure pass rates differ across tracks?

As demonstrated above, there are clear differences in retention (90% vs. 64.6%), graduation (94.4% vs. 48.8%), and licensure pass rates (70% vs. 64.3%) between the learning tracks. I have summarized each of these categories by learning track in Table 16. Based on the success measures identified in RQ1a–RQ1c, students are much more likely to persist, graduate, and pass their licensing exam in the work-based learning track versus the traditional learning track.

Table 16

Outcomes by Learning Track

	Work-Based Learning	Traditional
Retention	90.0%	64.6%
150% Graduation Rate	94.4%	48.8%
Licensure Pass Rates	70%	64.3%

The survey responses further illustrate these findings by noting that students in the work-based learning track felt better prepared to pass their certification exam, had a better experience, and did not find the program as challenging. This numeric analysis is supplemented by the themes from interview participants and the assertions that accompany them. The themes supporting RQ1 show how adult learners leverage prior healthcare experience to aid in their learning, helping them overcome barriers to persist by harnessing their intrinsic motivation. This is made possible through alternative learning experiences that combat the shortcomings of the traditional learning track in the MA program.

Research Question Two: Andragogical Assumptions Impacting Persistence

Significant data was collected via the survey instrument and the semi-structured interviews as a basis for addressing RQ2. This section will begin by sharing the findings from the survey before reviewing the findings from the semi-structured interviews related to RQ2.

RQ2: What andragogical assumptions do adult learners perceive to be the most important factors contributing to their persistence?

Research Question Two: Survey Results

To address RQ2, I first ran descriptive statistics on the andragogical constructs questions of the survey. Each of these andragogical constructs is represented by several questions designed to measure the five assumptions about adult learners' needs and their relationship to learning popularized by Knowles (1968, 1972, 1980, 1984, 1989) and adapted from *The Adult Learning Principles Design Process Elements Questionnaire* (Wilson, 2005). Those constructs include self-concept, experience, readiness to learn, orientation to learning, and motivation. The motivation domain was composed of eight questions intended to measure two categories of motivation: intrinsic and extrinsic. Each question and a summary of its descriptive statistics by construct can be found in Table 17.

Table 17

Summary of Andragogical Constructs

Construct	Question	Mean	Std. Dev.
Please rank the importance of the following items to your learning experience.			
Self-Concept	Having the flexibility to design my learning experience (activities, assignments, etc.).	5.12	0.95
	Having my input valued.	5.02	0.97

	Having responsibility for my learning in the program.	5.37	0.69
	Total Self-Concept	5.17	0.87
Experience	Having my prior life and work experiences helped my learning.	5.35	0.82
	Having my life and work experiences valued in this program.	5.24	0.86
	Having faculty help me relate my prior life and work experiences to the coursework.	4.73	1.23
	Total Experience	5.11	0.97
Readiness to Learn	Knowing why the coursework is relevant for a medical assistant.	5.51	0.81
	Providing input on the coursework and learning objectives.	5.02	1.05
	Being told what material the class was going to cover.	5.53	0.73
	Total Readiness to Learn	5.35	0.86
Orientation to Learning	Applying the knowledge I gained immediately in my life/work.	5.53	0.67
	Having instructor(s) show me how the class material applies to my job.	5.2	0.98
	Feeling that the coursework will benefit my life/work.	5.39	0.72
	Total Orientation to Learning	5.37	0.79
	What keeps you motivated in your coursework?		
Intrinsic Motivation	Personal satisfaction	5.69	0.62
	Desire for a better quality of life after graduation	5.75	0.56
	Becoming more knowledgeable	5.78	0.50
	Increased self-esteem	5.43	0.88
	Total Intrinsic Motivation	5.66	0.64
Extrinsic Motivation	Dissatisfaction with current work	4.14	1.46
	Potential to earn a higher salary	5.59	0.75
	Recognition from other people	4.78	1.38
	Societal pressure to attend college	3.33	1.76
	Total Extrinsic Motivation	4.46	1.34
	Valid N (listwise)	51	

Note. Likert scale scores from (1) Never Important to (6) Always Important.

Only three questions had mean scores less than five, indicating significant affirmative responses to all questions within this construct except for the following questions: motivation by societal pressure to attend college (M = 3.33, SD = 1.763), motivation due to dissatisfaction with current work (M = 4.13, SD = 1.46), and the

importance of faculty to relate my prior life and work experiences to the coursework (M = 4.73, SD = 1.23). Respondents are incredibly motivated, particularly intrinsically, which received the top three highest mean score responses (M = 5.78, SD = .50; M = 5.75, SD = .56; and M = 5.69, SD = .62). Interestingly, extrinsic motivation had three of the four lowest mean scores. The highest-ranking external motivation question was the fourth-highest mean response (M = 5.59, SD = .75) and asked whether respondents were motivated to complete their coursework due to the prospect of earning a high salary. The motivation domain responses were sorted from highest to lowest mean score and are displayed in Appendix X.

The fifth-highest mean response was the first non-motivation-related question and was a tie between two questions: the importance of the respondent's ability to apply the knowledge immediately in their life/work (M = 5.53, SD = .674) and being told what material the class was going to cover (M = 5.53, SD = .73). A condensed summary of the andragogical domains sorted by means is provided in Table 18.

Table 18

Summary of Andragogical Domains

	Sum of Means	Avg. Std. Deviation	Work-Based Learning Means	Traditional Track Means
Intrinsic Motivation	5.66	0.64	5.72	5.52
Orientation to Learning	5.39	0.79	5.43	5.21
Readiness to Learn	5.35	0.86	5.37	5.31
Self-Concept	5.17	0.87	5.26	4.93
Experience	4.73	0.97	5.19	4.88
Extrinsic Motivation	4.46	1.34	4.52	4.31
Grand Total	5.13	0.91	5.24	5.01

Note. Likert scale scores from (1) Never Important to (6) Always Important.

Interview Findings in Support of Research Question Two

The semi-structured interviews can help provide more insight into the quantitative findings explored above. Please recall, all the interviewees were from the work-based track. Theme 2 helped provide an understanding of the andragogical principles related to RQ2. This theme and supporting quotations to answer RQ2 are explored in greater detail below.

Theme 2: Overcoming Barriers and Harnessing Intrinsic Motivation to Achieve Personal Growth

When exploring their motivations for enrolling in the MA program given all the participants have going on, there was a reinforcement of the primary intrinsic motivation that was so apparent in the survey data. “I’ve always wanted to go into nursing,” said C confidently. “I felt like I needed to get out of the lab. I wanted to expand my horizons and just have more options available to me,” commented B. “I knew that I didn’t want to struggle like I’ve watched my mom all of my life…and that pushes me to do more and get an education,” expressed D. “One of my motivations is my family, to help my parents. In some ways, just to do better. Also, my mother-in-law, she is an RN. She inspired me to be in the medical field,” said A excitedly. “I’m more mature…As an adult, you realize this is what you chose to do. You like it. And so, you just learn it, even if it’s difficult material,” recalled C. “It’s just that satisfaction that I’m doing something to help others,” C continued. “It was a little bit boring in some ways to be just a receptionist. I felt like I wasn’t helping the patients enough,” commented A.

During the coding process, comments were not coded to align with the assumptions of andragogy. The only andragogical assumption that naturally identified as a key component of a theme was intrinsic motivation. This is consistent with the findings of the quantitative data that clearly highlighted the intrinsic motivation of adult learners. Recall that the primary assertion from data supporting Theme 2 is that, by harnessing their intrinsic motivation and taking proactive steps to overcome the barriers presented by age, family responsibilities, medical challenges, and other factors, adult learners can achieve personal growth and pursue their educational and career goals despite the challenges they face.

Summary of Findings for Research Question Two

After analyzing the quantitative and qualitative data, we can answer RQ2:

RQ2: What andragogical assumptions do adult learners perceive to be the most important factors contributing to their persistence?

The quantitative data summarized in Table 18 demonstrates that the andragogical principles adult learners perceive to be the most important factors contributing to their persistence rank in the following order:

1. Intrinsic Motivation
2. Orientation to Learning
3. Readiness to Learn
4. Self-Concept
5. Experience
6. Extrinsic Motivation

When we corroborate this data with the findings from the qualitative interviews, we see internal motivation as a primary driver to support adult learner persistence and desire to learn. This reinforces what Knowles (1980, 1984) described as a key difference between andragogy and pedagogy in that adults have transitioned from being externally motivated to being internally motivated due to their significant past knowledge and experience. While adults can be motivated by external factors, the most "potent motivators are internal pressures" (Knowles et. al., 1998, p. 68). Utilizing a work-based learning model, students can reinforce classroom learning with hands-on training, facilitating the cycle of learning through concrete experiences and active experimentation. To support adult learners' persistence and motivation, and to maximize the most critical andragogical principle identified in the study, educators should clearly demonstrate how adult learners' learning and assignments are clearly connected to their goals and intrinsic motivation.

Research Question Three: Comparison of Barriers by Learning Track

The final research question, RQ3, seeks to understand how barriers to persistence differ for adult learners based on their learning track. Recall from the analysis of RQ2 that adult learners had no significant differences in responses to the motivating factors and importance of the andragogical assumptions assessed regardless of their learning track. To say that a different way, adult learner respondents value the same things in their learning experience and are motivated by the same factors regardless of their learning path. Therefore, we can assess how their learning path changes their ability to persist without considering motivational or andragogical differences. This is explored by RQ3:

RQ3: How do barriers to persistence differ for adult learners in an MA work-based learning track compared to learners enrolled in a traditional track?

Survey Data Findings in Support of Research Question Three

Two primary survey constructs help answer RQ3: (1) adult learner characteristics and (2) learning track effectiveness. Recall from Chapter 3 that the adult learner characteristics construct asks respondents to evaluate 12 factors that may impact their persistence, such as covering the cost of tuition, meeting course requirements, and learning in an online environment. To compare the two groups, descriptive statistics were calculated for each question in both constructs based on the respondents' learning track. These descriptive statistics are displayed in Table 19.

Table 19

Learning Track Effectiveness Construct Descriptive Statistics

Please indicate how important the following attributes are (or would be) in helping you complete the medical assisting program and pass the licensing exam.	When I was enrolled in the program, I was employed by a health system or clinic that was paying my tuition.	N	Mean	Std. Deviation
Ability to regularly apply the coursework in a clinic or hospital setting.	Yes	37	5.62	.594
	No	14	5.86	.363
Working in a clinic or hospital environment while I completed the online coursework.	Yes	37	5.57	.728
	No	14	5.14	1.027
Receiving pay near the starting wage of a Certified Medical Assistant while in the program.	Yes	37	5.43	.689
	No	14	4.71	1.437
	Yes	37	5.73	.560

Flexibility to work and attend school at the same time.	No	14	5.79	.579
Receiving free tuition.	Yes	37	5.70	.661
	No	14	4.57	1.828
Knowing I had a job after graduation.	Yes	37	5.73	.804
	No	14	5.50	.760
Learning more about the job and career I am interested in.	Yes	37	5.73	.693
	No	14	5.64	.497
Working in a clinic or hospital setting will/did better prepare me to pass the licensure exam.	Yes	37	5.73	.693
	No	14	5.50	.941
Working in a clinic or hospital setting kept me motivated to complete my coursework.	Yes	37	5.65	.676
	No	14	5.50	.855

Note. Likert scale scores from (1) Never Important to (6) Always Important.

Questions that showed wide variations in their mean scores were areas for further analysis through independent sample *t* tests to understand whether the differences between learning tracks was significant. In the adult learner characteristics construct, there were two statistically significant differences in responses to the barriers influencing persistence between the two learning tracks: (1) covering the cost of tuition was far less of a barrier (M = 2.76, SD = 2.02) to persistence for the work-based learning track, $t(29.32) = -2.550$, $p = .016$; and (2) the traditional track was more likely not to persist (M = 4.21, SD = .7) due to a lack of understanding of why the content is relevant, $t(48.76) = 3.145$, $p = .003$.

When we reflect on the andragogical principles examined in RQ2, recall that the highest-mean scoring non-motivation question was a tie between understanding what was going to be covered in class and applying the coursework immediately in their life/work.

This directly relates to not understanding why the content is relevant, which is likely to result in a failure to persist in the traditional track. The descriptive statistics for these two questions by learning track can be found in Table 20.

Table 20

Descriptive Statistics on Barriers

How often are/were the following items barriers to completing the medical assisting program?	When I was enrolled in the program, I was employed by a health system or clinic that was paying my tuition.	N	Mean	Std. Deviation
Covering the cost of tuition.	Yes	37	2.76	2.019
	No	14	4.14	1.610
Understanding why the content is relevant.	Yes	37	3.14	1.751
	No	14	4.21	.699

Note. Likert scale scores from (1) Never Important to (6) Always Important.

The learning track effectiveness construct explores the effectiveness of the respondents' learning track in reducing these barriers, either practically or hypothetically. For example, in the work-based learning track, respondents were asked how important receiving free tuition was in helping them complete their coursework. Conversely, respondents in the traditional learning track were asked how receiving free tuition may have helped them complete their coursework. The null hypothesis is that respondents in the traditional track would perceive the unique learning experiences of the work-based learning track to be as important as the actual experiences of respondents from the work-based learning track.

Independent *t* tests were conducted across all items in this construct, and the null hypothesis was supported except for one question: the importance of receiving free

tuition. The rejection of the null hypothesis is interesting because it is not because either group responded unfavorably that free tuition would support their persistence; instead, respondents in the work-based learning track responded much more strongly (M = 5.70, SD = .66) that receiving free tuition helped them persist in the program compared to what the traditional track respondents perceived the importance of free tuition to be, $t(14.31) = 2.26$, $p = .04$. The descriptive statistics for this construct were provided in Table 18.

Finally, there was one question that was only asked of the work-based learning track: Did working in a hospital or clinic help you apply the coursework? The 37 work-based learning individuals responded in resounding support (M = 5.65, SD = .753). This is important due to the above finding that the traditional track believes a lack of understanding of why the content is relevant can negatively impact their persistence. As Knowles (1984) explained, adult learners want to be involved in the learning process and know why they need to learn something before learning it. Additionally, adults have reoriented their position to learning and are most interested in learning things that can be applied immediately. This can also be seen in the qualitative comments explored in the next section.

Interview Data Analysis in Support of Research Question Three

The semi-structured interviews can help provide more insight into the quantitative findings explored above. Please recall that all the interviewees were from the work-based track. While, unfortunately, the nature of the participants does not allow for comparison, it does highlight how the practical application of learning may support how learners are involved in the learning process and can apply their learning through the work-based

learning track. Themes 3 and 4 helped provide an understanding of the andragogical principles related to RQ3. The themes and supporting quotations to answer RQ3 are explored in greater detail below.

Theme 3: Navigating Challenges and Maximizing Learning Opportunities in Online Education

Theme 3 predominantly focuses on challenges students had in the MA program in translating their education into practical experience. Many of the supporting quotations have a negative tone and generally identify areas for further improvement in the curricula. However, a supporting category of this theme to address these challenges relates to opportunities for mentorship and guided supervision in the work-based learning track.

"Throughout the program, it's hard to learn online to do something that is so hands-on, so it was nice to have that hands-on aspect of what I was involved with versus, like, other people who didn't have that," D said. "What we do is, I'm side by side with my RN there, and I also work side by side with other nurses, but she's mainly my preceptor," C explained. This is supported by the literature review of work-based learning that highlights the value of informal learning structures, such as engagements with colleagues and supervisors that enable learners to learn through continuous experimentation and reflection.

The primary assertion from data supporting Theme 3 is that, despite the challenges of coding, online learning environments, and licensure exam preparation, learners in the work-based learning track were able to seek out resources, connect with

peers, instructors, and mentors, and practice their skills in real-world environments that supported the application of their learning and knowledge acquisition.

Theme 4: Providing Alternative Pathways to Medical Assisting Education

Individuals highlighted the direct application of their coursework in the role of a Student Medical Assistant. “There [in the clinic] it’s asking more questions, it’s shadowing the whole time, it’s fine-tuning all my skills, and just really more digging into it to ensure that I am doing it correctly versus picking up bad habits,” C replied. “My first three months I was a receptionist…Then I was moved to the lab and was trained as a phlebotomist…After those three months, I was more capable, and they transferred me to help other nurses for another two months. By the last three months, I was rooming a doctor all by myself. I was assigned to this doctor. I graduated, and I continue with that doctor,” A shared.

Individuals pointed out numerous benefits they experienced by participating in the work-based learning track and pointed to deficiencies they observed in traditional-track students when they gathered in person for their skills workshops (also called “boot camp”). “In boot camp, we had some people that just did the schooling and not the clinical part of it. They weren’t familiar, they never saw it, and they didn’t do it in person before the boot camp, so I know that helped a lot,” recalled B.

“If I had a question, or if I needed a clarification of what we were reading in the coursework, I could ask my nurse. I had a lot of ‘Oh, that’s what that is!’ I’d read about it, and then it would come up the next couple of days at work. The light turned on many times because I was working at the clinic,” commented C. “Taking blood pressure and

vitals; trying to find someone's pulse. That's not just something you can read about. I feel much more advanced because I've been at the clinic learning and just listening to the nurses and the doctors talk that language. I very much appreciate the opportunity," C continued. "I felt like I learned more being in the clinic than being in the class," A stated.

Participant D highlighted another critical component of the work-based learning track, in that their employer pays for their tuition. "Obviously, they pay for the tuition. That was a big thing for me…That was really a factor in my decision of choosing [institution]," said D. This was reinforced by participant C, "This way I can still financially benefit the family, while I'm doing what I want to do."

The primary assertion from data supporting Theme 4 is that, by providing alternative pathways to medical assisting education that address the deficiencies of traditional learning tracks, such as lack of hands-on learning and financial barriers, educational institutions can broaden access to this field and cultivate a more diverse and skilled workforce of medical assistants.

Summary of Findings for Research Question Three

After analyzing the quantitative and qualitative data, we can answer RQ3:

RQ3: How do barriers to persistence differ for adult learners in an MA work-based learning track compared to learners enrolled in a traditional track?

Two key barriers to persistence were identified as significantly different across tracks: (1) covering the cost of tuition and (2) understanding why the content is relevant. The analysis shows statistically significant differences in these two areas related to

persistence by learning track, and the qualitative responses demonstrate how these barriers are overcome in the work-based learning track.

Firstly, financial constraints regularly top the list of cited reasons why students fail to persist (Parker, 2023). Reducing this barrier to students in the work-based learning track by having employers cover the cost of tuition takes away a significant burden, particularly for adult learners with many other financial responsibilities. Secondly, the reinforcement of classroom learning with hands-on training in the work-based learning track strengthens students' understanding, application, and relevancy of their coursework. This is a core component of andragogy, and adult learners' readiness and orientation to learning is also found in the literature related to the informal structures of work-based learning. Recall, these were the second- and third-most important andragogical principles identified by adult learners contributing to their persistence. In a program that has so many hands-on requirements, it is understandable how some of the theoretical and non-patient-care components of the coursework may not seem relevant if you are not actively engaged with those concepts in practice.

Summary of Research Findings

After reviewing RQ1 and RQ3, we can conclude that the null hypothesis for this research study is that there will be no difference in outcomes and barriers to persistence regardless of the learning track. The directional hypothesis is that students in the work-based learning track will have better outcomes and fewer barriers than the traditional track. Based on the inferential statistics and coded interviews reviewed above, we would reject the null hypothesis and accept the directional hypothesis. There are significant

differences in retention rates, graduation rates, and licensure pass rates between the two tracks, each significantly favoring the work-based learning track. Finally, there were two significant barriers that increase students' persistence in the work-based learning track: first, reducing the burden of tuition, and second, making clear how the course concepts were relevant to learners' field of study.

After reviewing RQ2, we can conclude the that null hypothesis for this research study is that there will be no difference in preference of andragogical principles regardless of the learning track. The hypothesis is that there is a difference in andragogical preferences between learning tracks. Based on the data reviewed above, we would accept the null hypothesis. Adult learners indicated the same motivation and preference toward learning regardless of their learning track. Based on the research findings, the three most important andragogical principles supporting a student's persistence are intrinsic motivation, orientation to learning, and readiness to learn.

The research questions in this study were designed to build upon each other and provide a detailed understanding of the phenomenon being studied. Understanding andragogical principles (RQ2) and barriers to persistence (RQ3) helps inform practices in support of student outcomes (RQ1). These research findings underscore the need for innovative and flexible approaches to healthcare education that can help adult learners overcome obstacles, build their skills, and achieve their career goals. For higher education to become more accessible to adult learners, we need to create learning pathways that reduce these barriers and embrace adult learners' unique characteristics and preferences for learning. The combination of these efforts can advance knowledge

acquisition and put adults in a position to maximize their financial, social, and cultural capital for advancement, instead of hindrance.

CHAPTER 5: DISCUSSION OF FINDINGS AND IMPLICATIONS FOR RESEARCH AND PRACTICE

In Chapter 5, I will discuss the outcomes of this action research study and make connections back to the existing literature and theories explored in Chapter 2. I will also identify areas of implication for future practice and areas for further research while acknowledging this study's limitations. Finally, I will reflect on my doctoral journey and this inspiring and monumental academic milestone.

Outcomes Related to Research and Theory

There are many instances where the findings of this action research study connect to existing theories and prior research. Many of these elements were highlighted in the findings explored in Chapter 4, but I will explicitly note and connect the findings to my research in the following section. Providing these connections helps to further contextualize my research and highlights future areas for subsequent inquiry. Recall from Chapter 2 that there are three theories that grounded this innovation.

First was andragogy, which is the art and science of helping adults learn and contains five assumptions about adult learners and their relationship to learning: self-concept, experience, readiness for learning, orientation to learning, and motivation to learn (Knowles, 1968, 1972, 1980, 1984, 1989). Second was the experiential learning theory, which recognizes the value of life experiences in connection to a person's education and provides a model that explains how individuals learn through experiences, called the cycle of learning. The cycle of learning is a continuous process that helps individuals acquire knowledge or skills through concrete experience, reflective

observations, abstract conceptualization, and active experimentation (Kolb, 1981). Finally, Chapter 2 explored the literature behind work-based learning. There are two threads in the literature: formal structures, which embed formal learning with on-the-job training, and informal structures, which include engagements with colleagues and supervisors and task-related activities, including learning through experimentation and reflection.

With these theories as the foundation, an education model designed to support adult learners by reinforcing classroom learning with hands-on training was developed. It was thoughtfully designed to provide rich opportunities for the cycle of learning to occur by naturally giving students concrete experience and active experimentation through participation in formal and informal work-based learning structures on a daily basis. Furthermore, the development of this educational model was designed to reduce common tension points for student persistence, such as by covering the costs of tuition. This work-based learning model required the higher education institution to reduce the tuition and find innovative ways for employers to cover the tuition in exchange for a post-graduation work commitment from students.

When measuring the success of this innovation in instantiating the theoretical frameworks explored above, several core components warrant highlighting. First, individuals made specific comments about how their work in the clinic helped to make sense of abstract concepts and pointed to the strength of the formal structures of work-based learning, which were reinforced by the informal structures. “If I had a question, or if I needed a clarification of what we were reading in the coursework, I could ask my

nurse. I'd read about it, and then it would come up the next couple of days at work. The light turned on many times because I was working at the clinic," said C. "The clinic prepared me better to be a successful MA. You need the coursework, they kind of go hand in hand, but the clinic was, overall, the advantage," continued C.

The combination of education and on-the-job training helped orient adult learners to their learning experience and gave them a rich readiness for learning that reinforced their engagement with the course content. This is demonstrated by the statistically significant difference between the two learning tracks. Students in the work-based learning track felt the program better prepared them for the licensing exam, they had an overall better experience, and they did not find the program as challenging.

Finally, the andragogical principles shown to be most important to the study participants were intrinsic motivation, orientation to learning, and readiness to learn. As individuals mature, they are exposed to a broad range of new experiences that develop into a reservoir of knowledge that is an increasingly rich resource for learning. In the study context, prior experience in healthcare settings was particularly relevant. This experience was clear in the interview participants: "I've worked in the medical setting for over 20 years," said B.

If adults learn differently due to their prior experiences, which influence their preference toward learning (andragogy), and if experiences can create richer, more in-depth knowledge (experiential learning theory), then we should provide natural opportunities to embed those together through work-based learning delivery models. Unlike traditional academic programs, this practical, hands-on learning enables students

to apply their learning immediately versus relying solely on the internalization of lectures and readings only to apply the concepts upon graduation.

The research findings also suggest that, to support adult learners' persistence and motivation and to maximize the most critical andragogical principle identified in the study, educators should clearly demonstrate how adult learners' learning and assignments are connected to their goals and intrinsic motivation. For adult learners, building connections, leveraging prior healthcare experience, and nurturing a personal interest in healthcare can foster a passion for the field, aiding learners in acquiring and applying knowledge for their careers. Additionally, intrinsic motivation and proactive steps enable adult learners to overcome barriers like age and family responsibilities, achieving personal growth in pursuing educational and career goals. Moreover, by offering alternative pathways in medical assisting education that address the shortcomings of traditional tracks, educational institutions can enhance accessibility and diversity in the field, cultivating a skilled workforce of medical assistants.

Limitations

Regardless of the format of the research, all studies have limitations (Ross & Zaidi, 2019). Limitations do not confine themselves to a certain methodology, research design, or instrument; therefore, there are several limitations from this study that warrant exploration. First, the doctoral research process at ASU does not support a longitudinal research design or the collection of data from different groups over an extended time frame. As a result, participants in the study had varying levels of exposure to the learning track about which this study was trying to seek information. Table 2 highlighted each

student's status at the time of the instrument distribution. No respondent, except possibly those who failed out, should have been enrolled in the program for less than one quarter (10 weeks). Inversely, individuals could have been out of the program for more than one year when they participated in the research. A study design that assessed all students' perceptions at a consistent time in their educational journey, or that examined potential changes in perspective over time, would provide more nuanced insight into similarities and differences across learning tracks.

Second, a major limitation was the participation of only work-based learning students in the qualitative interviews. No individuals from the traditional track responded to numerous encouragements for participation. Additionally, only a small number of traditional-track students completed the survey, which led to a sample population that was not as well representative of that learning track. One could infer a lack of connection or interest in participating as the result of a poor or disconnected educational experience. However, that is merely an observation about the characteristics of other students who fail to participate in other institutional activities. Understanding the characteristics of each learning group and their unique attributes and differences would have been strengthened by greater participation from the traditional learning track that more closely mirrored the actual students and could have aided in making comparisons across the two learning paths.

Since the doctoral research process at ASU does not support a longitudinal research study, it is important to note students' academic progression in the MA program related to the data collection timeline. The MA program is composed of four academic

quarters (one year), with two starts per year (fall: October and spring: April). As a result, student respondents had different levels of exposure to the alternative delivery techniques explored and assessed in the data instruments. Table 21 displays the survey distribution and interview timeline in comparison to current students' progression in the MA program. Due to the multiple cohorts starting per year, participants will either be graduates or near the beginning or end of their program. This could influence the actual or perceived benefits or ability to reduce barriers by either learning track.

Table 21

Medical Assisting Program Progression and Research Timeline

Activity	April–June 2022	July–Sept. 2022	Oct.–Dec. 2022	Jan.–March 2023	April–June 2023	July–Sept. 2023
Cohort 4	Quarter 1	Quarter 2	Quarter 3	Quarter 4		
Cohort 5			Quarter 1	Quarter 2	Quarter 3	Quarter 4
Survey			Survey Distribution			
Interviews				Conduct Interviews		

Finally, it is worth noting a limitation in action research, which is the role of the researcher. Action research is designed to be conducted in the researcher's local setting. This creates unique opportunities to understand the local context and deploy an innovation to solve practical problems. However, this also leads to an entanglement with the local context, the innovation, the study deployment, and the outcomes. It was my positionality within the organization that I believe encouraged individuals to participate, but I believe it was the same positionality, as an administrator within the institution, that

caused them to share feedback in support and criticism of the program. As a result, participants may have revealed themes and assertions about the data that otherwise would not have existed. This is certainly a strength and weakness of action research and a limitation of this study.

Implications for Practice

As explored in the Introduction, higher education is facing significant headwinds. In just three years, the federal government has given billions of dollars to institutions and students to support a struggling industry, with tuition costs that have risen by 130% since 1990, even after adjusting for inflation (Hanson, 2022). In 2020, $14.25 billion was awarded to higher education institutions through the High Education Emergency Relief Funds as part of the Coronavirus Aid, Relief, and Economic Security Act (U.S. Department of Education, 2023), and in 2022, the Biden-Harris administration announced a three-part Student Debt Relief plan anticipated to have an average annual cost of $30 billion over the next decade (U.S. Department of Education, 2022). If these significant actions are any indication, there are many areas of academia that demand critical attention. Add public skepticism of the ability of higher education to translate classroom experiences into practical on-the-job knowledge, and you can see that a divergent path is necessary. This research indicates how one alternative learning pathway can reduce costs to students and better prepare them than traditional learning pathways.

Financial constraints regularly top the list of cited reasons why students fail to persist (Parker, 2023). The University Professional and Continuing Education Association (2021) surveyed more than 3,000 students who failed to persist and found

that 42% of participants cited financial reasons that forced them to drop out of their college or university. Even though it can be difficult to single out financial constraints, as they can often be coupled with, or compounded by, family responsibilities, dissatisfaction with coursework, fear of failure, or any number of obstacles facing today's learners, their impact is real and significant.

A primary finding of this study was the perception of participants that reducing costs was a key factor in their persistence. Combined with the findings that participants in the work-based learning track felt more prepared, persisted at a higher rate, and were more successful on the licensing exam, this study demonstrates that this work-based learning track was effective for this population and program.

Implications for Future Research

Most of the existing literature on alternative learning models focuses on increased job competency and the ability of employers to reduce their onboarding time and costs while increasing workforce retention by investing money and energy into individuals' educational experiences. Nearly all the top 30 apprenticeship industries in the fiscal year 2021 were in skilled trade fields (U.S. Department of Labor, 2021). As a result, a future iteration of this study could be to expand beyond an analysis of the learner experience to explore the employer experience. Did this work-based learning model support their workforce needs? Did Student Medical Assistants meet the competency expectations during and after the program was completed? Did employers retain graduates through their two-year work commitment? An analysis beyond the learner experience focusing on the employer experience would combine the two threads of the existing research and

provide a comprehensive picture of the impact of work-based learning in educating and retaining a competent workforce.

In addition to the above area for further research, there was one interesting question that warrants further examination that was uncovered during the courses of this research: Why do graduates not sit for their licensing exam? To have such a high number of graduates who do not take their licensing exam (11.8% of the work-based learning graduates and 30% of the traditional-track graduates) warrants further exploration. Additionally, further research should be conducted using the same instrument to continually understand how learners' experiences change over time in the MA program.

Personal Lessons Learned

In 1928, Alfred North Whitehead, a British mathematician and philosopher, had the following to say as he asked for universities to reconsider their necessary functions:

> So far as the mere imparting of information is concerned, no university has had any justification for existence since the popularization of printing in the fifteenth century. The justification for a university is that it preserves the connection between knowledge and the zest of life, by uniting the young and the old in the imaginative consideration of learning. The university imparts information, but it imparts it imaginatively. At least, this is the function which it should perform for society. A university which fails in this respect has no reason for existence. This atmosphere of excitement, arising from imaginative consideration, transforms knowledge. A fact is no longer a bare fact: it is invested with all its possibilities. It is no longer a burden on the memory: it is energizing as the poet of our dreams, and as the architect of our purposes. (p. 448)

As I read, and reread, my dissertation, I am struck by the notion that what I was truly trying to understand is how postsecondary institutions can reduce barriers to persistence while providing adult learners the most necessary knowledge and experience to flourish. Very rarely in life is persistence about intellectual capacity. Instead, the

ability to complete something is more about knocking down barriers and finding the motivation to continually show up—when the thought of writing and rewriting another chapter inspires you, instead of making you want to quit.

Education is a lesson in persistence, and that truly is the essence of a doctoral journey. Will you put in the unseen work to persist? What steps did you take to increase your knowledge when no one was watching? This journey is full of options for shortcuts, but the outcome is deficiencies in this final document. Any individual obtaining a college degree at any level must wake up for consecutive years and commit themselves to their studies. They will nag at you, so you cannot sleep. It will disrupt your time with your friends and family. It will seep into your professional life. Your commitment to seeing it through and chipping away becomes a masterpiece of unseen work.

During this journey, I have adopted an attitude and mantra of "never finished." When my dissertation is done, I have a list of supporting and unrelated research topics I am eager to explore. I have compiled books I will make the time to read. Whenever I finish something, I always look to what is next; that is the epitome of never finished. We all might start at the beginning, but there is no end with a never-finished mindset. It is a determination and hunger for continual growth and constant challenges. At times this has hurt me, because I have never settled for good enough and I am always looking for the next adventure, challenge, or obstacle to overcome. This dissertation captures my research in a snapshot of time. It provides a launchpad for future iterations and inquiries into challenges plaguing our education systems. To never finish means to not accept my

limitations and shortcomings, of which there are many, and forge forward. To finish means to stop, something I will never embrace.

When I started my doctoral journey, I had three children under two. Completing anything, let alone something that requires continuous sustained focus, with three young children is like writing your dissertation two sentences at a time. During that time my mother passed away, I had numerous job transitions, and there were countless blessings and challenges that faced me each day, none of which I take for granted as I finish this monumental step of personal achievement.

Schön (1995) wrote on the epistemology practice of rigor versus relevance, in which he highlighted a gap between theory and practice. Do we solve societal problems that are of greatest concern or focus on localized, relatively unimportant problems? Action research, by its very nature, is localized and intentionally focused. The essence of action research is to conduct inquiry by practitioners, for practitioners (Melter, 2014). While I would not argue that this dissertation will broadly change the way education is delivered, I hope to have made the case that alternative learning pathways can be viable options for today's learners. Furthermore, today's learners being more non-traditional than ever before requires new tuition structures, support systems, environments, and learning models. It is incumbent upon academia to seek this uncomfortable future and distrust our business models, so we can practically and meaningfully reach and educate learners where they are at, with what they need.

The blank spaces between paragraphs and pages in this dissertation are important because they are designed to give you time to pause and reflect. I hope that others can

reflect and act on these findings and further fill the gap between theory and practice. To the three students in the work-based learning track who averaged 137 semester hours (more than enough for a bachelor's degree) and were seeking an entry-level credential, higher education has failed you. This innovation was designed to support students like you so that no one will ever again have to lose nearly a decade of financial, social, and cultural capital navigating higher education only to be prepared for entry-level work.

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APPENDIX A

OVERLAPPING SUBGROUPS IDENTIFIED IN THE LITERATURE

Adult learners can be categorized into many broad and overlapping subgroups. The following list is adapted from the Advisory Committee on Student Financial Assistance, a Federal advisory committee charted by Congress and reporting to the Secretary of the U.S. Department of Education (Advisory Committee on Student Financial Assistance, 2012).

- Single parents (adult single parents, teen single parents, and children living in single-parent households)
- Married students (divorced, widowed)
- Students with dependent children
- Students working full-time
- Part-time students
- Financially independent students
- Military personnel (active duty, reservist, and veteran)
- Adult learners (ready adult)
- Dislocated workers
- Low-income students (low-income adults)
- Working poor
- Unemployed poor
- Public assistance recipients
- Homeless students (accompanied homeless youth)
- High school non-completers (GED students)
- Historically underrepresented minorities (e.g. African American and Hispanic males)
- Distance learners (online learners)
- English as a Second Language (ESL) students
- First-generation students
- Undocumented students
- Students with disabilities (physical, mental, and learning disabilities)
- Older adults (senior citizens, retirees)
- Under-prepared students
- Students from foster care
- Orphans
- Wards of the court
- Minors (p. 89).

APPENDIX B

PREVIOUSLY PUBLISHED WORK

In accordance with the Arizona State University Graduate College's *Policy on Using Previously Published or Publishable Work in a Culminating Experience Document*, I acknowledge that the *Local Context* section of this dissertation was previously published on August 8, 2022, in *Higher Education Politics and Economics*, Vol. 8, No. 1 (Romkey, 2022b). In compliance with the *Higher Education Politics and Economics* copyright policy, I have obtained express written consent of the *Higher Education Politics and Economics* editorial board to reprint and publish this section in my dissertation.

APPENDIX C

MEDICAL ASSISTING COURSE SEQUENCE

Quarter Taken	Course Name	Credit Hours	Course Description
1	Medical Assisting Administrative Procedures I	4	This course introduces the medical assisting profession. It focuses on basic medical office functions and emphasizes administrative responsibilities including bookkeeping, accounting, patient scheduling, referrals, medical record keeping, and communication skills. A medical terminology overview emphasizes prefixes, suffixes, and root words, stressing spelling and pronunciation. Students will explore and demonstrate computer literacy with computer applications of Microsoft Word, Excel, PowerPoint, and Outlook. Library resources, APA format, and plagiarism will be applied as students produce work products utilizing critical thinking. Learning styles, time and stress management, as well as test-taking strategies are introduced.
1	Anatomy and Physiology	4	This course offers basic concepts in human anatomical structure and physiology with relation to body functions. It includes all major body systems in regard to gross anatomy and function as it relates to homeostasis. The laboratory component emphasizes lecture topics and includes further exploration of tissues and organs through hands-on work.
2	Medical Assisting Lab Procedures I	4	This course introduces students to clinical medical assisting skills. It offers concepts of clinical procedures, including asepsis and infection control, specimen collection, compassionate patient care, OSHA regulations, vital signs, obtaining patient histories, and chart documentation. Students learn to assist with procedures including pulmonary functions, electrocardiography, prenatal,

			pediatric, gynecologic, special senses, and comprehensive exams. Students will develop and deliver a patient education project.
2	Medical Assisting Administrative Procedures II	3	This course focuses on medical insurance billing, diagnostic, and procedural coding. Medicolegal issues are discussed as well as insurance fraud, abuse, and medical etiquette. Legal and ethical issues as well as emergency preparedness and first aid are covered.
2	Quarter 2 Skills Lab	-	
3	Diseases of the Human Body	3	This course studies the major diseases of the urinary, reproductive, digestive, respiratory, circulatory, nervous, endocrine, musculoskeletal, integumentary, and special senses (eye and ear) systems. It includes etiology, signs and symptoms, diagnostic procedures, treatment, prognosis, and prevention of common and well-known illnesses. The content also includes the immune and genetic relationships, as well as pain management. Alternative and complementary healthcare is introduced. Students will produce pathology reports and review current research.
3	Medical Assisting Clinical Procedures II	4	This course focuses on diagnostic testing in the areas of hematology, phlebotomy, chemistry, immunology, microbiology, and urinalysis. Principles of pharmacology including drug classifications, dosage calculations, and administration of medicines are introduced and demonstrated. Sterile technique will be covered with CLIA regulations and quality control.
3	Quarter 3 Skills Lab	-	-

4	Medical Assisting Professional Components	2	This course focuses on personal attributes, job readiness, workplace dynamics, human resources, risk management, and emphasizes the professional opportunities and responsibilities of the medical assistant. The Medical Assistant is introduced to their role as office manager. Allied health professions, credentialing, and working as part of the healthcare team are discussed. It provides an opportunity for students to discuss situations that arise in the practicum experience.
4	Medical Assisting Practicum	4	This course expands knowledge and skills and incorporates previously presented information in the major to prepare the student for transition into practice as a Medical Assistant. The student receives supervised experience in an ambulatory healthcare setting.

APPENDIX D

SUMMARY OF DOMAIN QUESTIONS

Questions	Responses	Learning Track
Please select the following characteristics that apply to you:	I waited one year or more after high school to enter college. I have dependent(s). I am employed full-time. I am financially independent. I attend college part-time (6 credits per semester or more). None of the above.	Both
My current status in the Medical Assisting program is:	Current Student Graduate Former Student who did not complete.	Both
While enrolled in the program I was employed by a health system or clinic that was paying my tuition.	Yes No	Both
I have participated in at least one in-person skills workshop.	Yes No	Both
My first Quarter in the Medical Assisting program was:	Fall 2020 Spring 2021 Fall 2021 Spring 2022 Fall 2022 Unknown	Both
I have graduated from the Medical Assisting program.	Yes No	Both
Did you take and pass your Certified Medical Assisting licensing exam?	Yes No, I have not taken it. No, I did not pass.	Both
I have participated in some (or all) of my 160-hour clinical practicum experience.	Yes No	Both
I have training or educational experiences that relates to my current program of study.	Yes No	Both
I have personal experiences that relates to my current program of study.	Yes No	Both

Summary of Adult Learner Characteristics		
How often are the following items barriers to completing your education?	Understanding Course Content	Both
	Covering the Cost of Tuition	Both
	Applying Course Theories	Both
	Personal Factors Outside of Classwork	Both
	Factors Relating to Being a Parent	Both
	Work Commitments	Both
	Meeting Course Requirements	Both
	Ability to Access Student Support	Both
	(Tutoring, Writing, Library, etc.)	Both
	Lack of Services Offered Outside	Both
	Regular Business Hours	Both
	Faculty Feedback or Participation in	Both
	Online Learning	Both
	Learning in an Online Environment	Both
	Access to Technology (Computer, Internet, etc.)	
Summary of Andragogical Principles		
Need to Know	Knowing why this learning experience would be beneficial to me.	Both
Need to Know	Being told why the material was important to me.	Both
Need to Know	Being told what material the class was going to cover.	Both
Self-Concept	Having the flexibility to design my learning experience (activities, assignments, etc.)	Both
Self-Concept	Having my input valued.	Both
Self-Concept	Feeling responsible for my learning in this program.	Both
Orientation to Learning	Having instructor(s) show me how the class material applies to my job.	Both
Orientation to Learning	Applying the knowledge gained immediately in my life/work.	Both
Orientation to Learning	Feel this material will benefit my life/work.	Both
Experience	Feeling my prior life and work experiences helped my learning.	Both
Experience	Feeling my life and work experiences were valued in this program.	Both
Experience	Having faculty help me relate my prior life and work experiences to coursework.	Both

Motivation	I felt energized by being part of this program.	Both
Motivation	This program motivated me to do my best.	Both
Motivation	What motivates you to learn?	Both
	Ability to regularly apply the coursework in a hospital or clinic setting.	Both
	Working in a hospital or clinical environment while I completed the online coursework.	Both
	Receiving pay near the starting wage of a Certified Medical Assistant while in the program.	Both
	Flexibility to work and attend school at the same time.	Both
	Receiving free tuition.	Both
	Knowing I had a job after graduation.	Both
	Learn more about the job and career you are interested in.	Both
Please indicate how important the following attributes are in helping you complete the Medical Assisting program and pass the licensing exam.	The hours I worked.	Both
	Working in a hospital or clinic would better prepare me to pass the licensure exam.	Traditional
	Working in a hospital or clinic will/did better prepare me to pass the licensure exam.	Work-Based Learning
	Working in a clinic setting, in addition to the practicum, would prepare me better than the online coursework.	Traditional
	Working in a clinic setting prepared me better than the online coursework.	Work-Based Learning
	Working in a clinic or hospital setting helped me apply the coursework.	Work-Based Learning
	Working in a clinic or hospital kept me motivated to complete my coursework.	Work-Based Learning
	The requirements of the Medical Assisting program have/will	Both

prepare me to enter the workforce when I graduate.	
The Medical Assisting program has/will prepare me to pass the licensure exam.	Both
How difficult is the Medical Assisting program?	Both
Overall, how would you rate your learning experience in the Medical Assisting program?	Both
Overall, the most valuable experience in preparing me to do entry-level medical assisting occurred in	Both

APPENDIX E

QUANTITATIVE SURVEY

Start of Block: Demographic & Organization

Please select ALL characteristics that apply to you:

- ☐ I waited one year or more after high school to enter college. (1)
- ☐ I have dependent(s). (2)
- ☐ I am employed full-time. (3)
- ☐ I am financially independent. (4)
- ☐ I attend college part-time (6 credits per semester or more). (5)
- ☐ None of the above. (6)

My current status in the Medical Assisting program is:

- ○ Current Student (1)
- ○ Graduate (2)
- ○ Former student who did not graduate. (3)

My first semester in the Medical Assisting program was:

- ○ Fall 2020 (1)
- ○ Spring 2021 (2)
- ○ Fall 2021 (3)
- ○ Spring 2022 (4)
- ○ Fall 2022 (5)

When I was enrolled in the program I was employed by a health system or clinic that was paying my tuition.

- ○ Yes (1)
- ○ No (2)

Branch: New Branch
If

If When I was enrolled in the program I was employed by a health system or clinic that was paying my... Yes Is Selected

Standard: Work-Based Learning Track - Learning Track Effectiveness

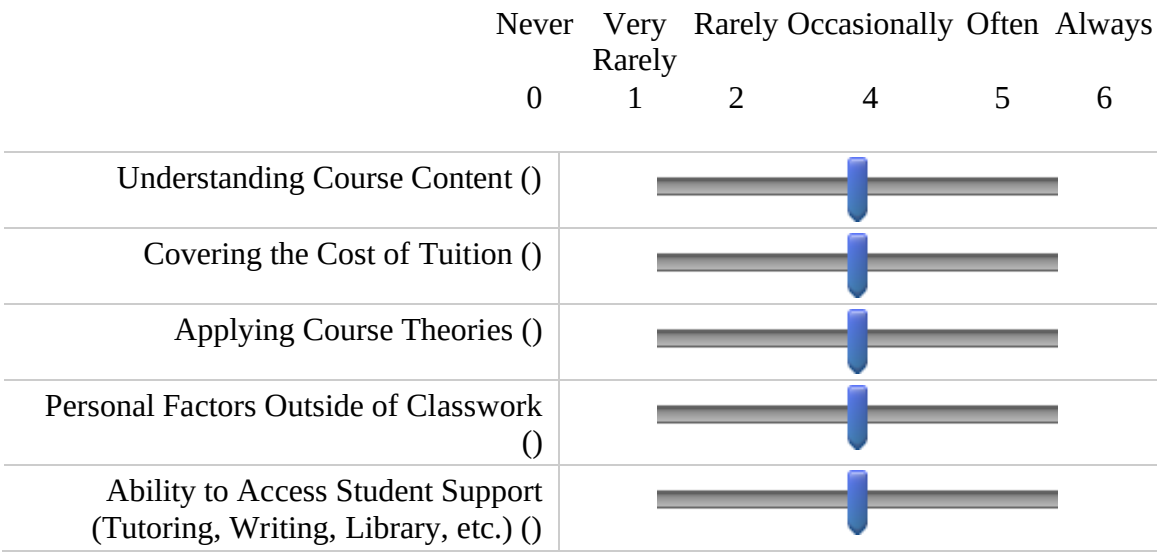
Branch: New Branch
If
If When I was enrolled in the program I was employed by a health system or clinic that was paying my... No Is Selected

Standard: Traditional Track - Learning Track Effectiveness

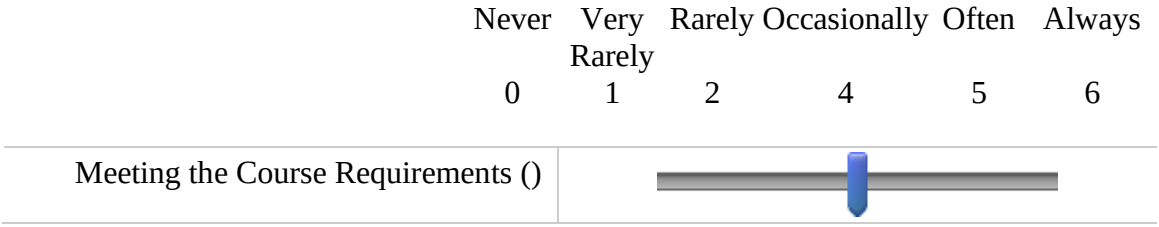
End of Block: Demographic & Organization

Start of Block: Adult Learner Characteristics

How often are/were the following items barriers to completing the Medical Assisting program?



How often are/were the following items barriers to completing the Medical Assisting program?



Access to Services Offered Outside Regular Business Hours ()	
Faculty Feedback or Participation ()	
Access to Technology (Computer, Internet, etc.) ()	
Learning in an Online Environment ()	

How often are/were the following items barriers to completing the Medical Assisting program?

	Never	Very Rarely	Rarely	Occasionally	Often	Always
	0	1	2	4	5	6
Work Commitments ()						
Factors Relating to Being a Parent ()						

How often are/were the following items barriers to completing the Medical Assisting program?

	Never	Very Rarely	Rarely	Occasionally	Often	Always
	0	1	2	4	5	6
Not having your prior life and work experience recognized. ()						
Not having your input valued. ()						
Not understanding why the content is relevant. ()						
Not being able to apply the concepts immediately in life/work. ()						
Staying motivated. ()						

End of Block: Adult Learner Characteristics

Start of Block: Andragogical Principles

Please rank the importance of the following items to your learning experience.

	Never Important 0	Very Rarely Important 1	Rarely Important 2	Occasionally Important 4	Often Important 5	Always Important 6
Having the flexibility to design my learning experience (activities, assignments, etc.). ()						
Having my input valued. ()						
Feeling responsible for my learning in this program. ()						
Feeling my prior life and work experiences helped my learning. ()						

Please rank the importance of the following items to your learning experience.

	Never Important 0	Very Rarely Important 1	Rarely Important 2	Occasionally Important 4	Often Important 5	Always Important 6
Feeling my life and work experiences were valued in this program. ()						
Having faculty help me relate my prior life and work experiences to the coursework. ()						
Knowing why the coursework is relevant for a medical assistant. ()						
Providing input on the coursework and learning objectives. ()						
Being told what material the class was going to cover. ()						

Please rank the importance of the following items to your learning experience.

	Never Important 0	Very Rarely Important 1	Rarely Important 2	Occasionally Important 4	Often Important 5	Always Important 6
Applying the knowledge I gained immediately in my life/work. ()						

Having instructor(s) show me how the class material applies to my job. ()	
Feeling that the coursework will benefit my life/work. ()	
Feeling part of the Medical Assisting program. ()	
This program motivated me to do my best. ()	

What keeps you motivated in your coursework?

Never	Very Rarely	Rarely	Occasionally	Often	Always
0	1	2	4	5	6

Better Quality of Life ()	
Potential to Earn a Higher Salary ()	
Personal Satisfaction ()	
Potential for a Better Job ()	
Increased Self-Esteem ()	
Recognition from Other People ()	
Becoming More Knowledgeable ()	
Societal Pressure to Attend College ()	

End of Block: Andragogical Principles

Start of Block: Work-Based Learning Track - Learning Track Effectiveness

Please indicate how important the following attributes are in helping you complete the Medical Assisting program and pass the licensing exam.

Never Important	Very Important	Rarely Important	Occasionally Important	Often Important	Always Important

	0	1	2	4	5	6
Ability to daily apply the coursework in a hospital or clinic setting. ()						
Working in a hospital or clinic environment while I completed the online coursework. ()						
Receiving pay near the starting wage of a Certified Medical Assistant while in the program. ()						
Flexibility to work and attend school at the same time. ()						
Receiving free tuition. ()						

Please indicate how important the following attributes are in helping you complete the Medical Assisting program and pass the licensing exam.

	Never Important	Very Rarely Important	Rarely Important	Occasionally Important	Often Important	Always Important
	0	1	2	4	5	6
Knowing I had a job after graduation. ()						
Learning more about the job and career you are interested in. ()						
Working in a hospital or clinic will/did better prepare me to pass the licensure exam. ()						
Working in a clinic or hospital setting helped me apply the coursework. ()						
Working in a clinic or hospital kept me motivated to complete my coursework. ()						

End of Block: Work-Based Learning Track - Learning Track Effectiveness

Start of Block: Traditional Track - Learning Track Effectiveness

Please indicate how important the following attributes would be in helping you complete the Medical Assisting program and pass the licensing exam.

	Never	Very Rarely	Rarely	Occasionally	Often	Always
	0	1	2	4	5	6
Ability to daily apply the coursework in a hospital or clinic setting. ()						
Working in a hospital or clinical environment while I completed the online coursework. ()						
Receiving pay near the starting wage of a Certified Medical Assistant while in the program. ()						
Flexibility to work and attend school at the same time. ()						

Please indicate how important the following attributes would be in helping you complete the Medical Assisting program and pass the licensing exam.

	Never	Very Rarely	Rarely	Occasionally	Often	Always
	0	1	2	4	5	6
Knowing I had a job after graduation. ()						
Learn more about the job and career you are interested in. ()						
Receiving free tuition. ()						
Working in a hospital or clinic during the program would better prepare me to pass the licensure exam. ()						

End of Block: Traditional Track - Learning Track Effectiveness

Start of Block: Measures of Learning

The Medical Assisting program has/will prepare me to pass the licensure exam.

- ○ Very Strongly Disagree (1)
- ○ Strongly Disagree (2)

- ○ Disagree (3)
- ○ Agree (4)
- ○ Strongly Agree (5)
- ○ Very Strongly Agree (6)

Overall, how would you rate your experience in the Medical Assisting program?

- ○ Extremely Dissatisfied (1)
- ○ Dissatisfied (2)
- ○ Slightly Dissatisfied (3)
- ○ Slightly Satisfied (4)
- ○ Satisfied (5)
- ○ Extremely Satisfied (6)

Overall, how challenging is/was the Medical Assisting program?

	Extremely difficult 0	Difficult 1	Moderately Difficult 2	Moderately Easy 4	Easy 5	Extremely Easy 6
Overall, how challenging is/was the Medical Assisting program? ()						

Please share any additional comments about your educational experience, work experience, or barriers to success in the Medical Assisting program at Mercy College.

_____

_____

_____

End of Block: Measures of Learning

Start of Block: Interview

Would you be interested in participating in a brief virtual discussion about your experience as a Medical Assisting student?

○ Yes If you select yes, you will be directed to a new survey to ensure your previous responses remain anonymous. (1)

○ No (2)

End of Block: Interview

Branch: New Branch
If
If Would you be interested in participating in a brief virtual discussion about your experience as a... Yes <ul> If you select yes, you will be directed to a new survey to ensure your previous responses remain anonymous. Is Selected

ReferenceSurvey: Student Information

Start of Block: Zoom Contact Info

Please provide your contact information.

○ **First Name** (1) _____

○ **Last Name** (2) _____

○ **Email** (3) _____

○ **Mobile** (4) _____

Q2 When I was enrolled in the program I was employed by a health system or clinic that was paying my tuition.

○ Yes (1)

○ No (2)

End of Block: Zoom Contact Info

END OF SURVEY

APPENDIX F

QUALITATIVE INTERVIEW QUESTIONS

1. Tell me a little about yourself.
2. What interested you in the MA program?
3. Where are you in the program? Have you passed the licensing exam?
4. Did you have prior experience that related to your coursework?
5. What did you struggle with in the program?
6. What was easy for you in the program?
7. How did working as an SMA and being able to apply what you learned in coursework help you?
8. What barriers/challenges did you face throughout the program?
9. Did you notice a difference in the proficiency of non-SMA students in the workshops?
10. What motivated you?
11. What best prepared you for the licensing exam, being an SMA, or the coursework?

APPENDIX G

SURVEY OPEN-ENDED QUESTIONS CODING

Category	Key Comments
Positive Experience	I'm loving it and I'm very excited to further my education I appreciate the opportunity to be in this program as being able to work the job while I learned it is the perfect way for me to learn as someone that has to do it to learn it. Thank you. I enjoyed all my classes and my instructors.
	I absolutely loved the staff, and the team at Mercy College they helped and encouraged us. I just wish in certain areas like medications or math they would do weekly video refreshers explaining how to do it.
	I thought Dr. [name] was great. He was the one teacher that made lecture videos, which were helpful. I did not have time to watch many of them because some weeks were tough with timing in anatomy and physiology.
	I feel like the instructors do their best to help remove any possible barriers from an educational standpoint. If you don't know how to cite your sources, they provide easy to understand information on how to properly cite them. If it has been 10+ years since you have made a power point project, they have instructions to guide you through it. They set you up to be successful instead of letting you struggle.
	Great experience
Criticism of the Program	I felt like I was constantly correcting tests that were false and the grading process from these automatic tests we were taking a lot of the questions and answers got mixed up. I would email my professors and they would say yes you are correct sometimes the online grading and automatic tests get mixed up.
	I was trying to achieve my associates degree with the MA and I needed to complete one course, English 102 and that course was not included in the MA curriculum, so I was going to have to take it on it on my own and pay out of pocket for it.
	10-week program is very challenging due to heavy school workload, considering many of us are working full-time and a family to take care of. Some students are working two jobs. First quarter was challenging because I struggled in navigating Canvas and missing assignments because I did not know those assignments existed. Suggest that you make it into a 12-week program that will ease the burden. Yellowdig due on Wednesday did not help either. Two days to work on assignments for posting was stressful in view of crunch time due to working full-time. As a result, the quality and thoughts put into the post were substandard.

Suggestions for Improvement	Every two weeks exam for all the classes are barriers to success. There is very little time to study four chapters per class when one is working full-time. Having two or three classes exam at the same time put so much stress and become overwhelming. This could lead of a nervous breakdown! It will be a good idea to have one class exam this week and the other class exam next week. This means one class exam per week and student can be more focused. At times it was hard to reach individuals that were teaching the program or other facility at the college. I am satisfied with my experience in the program so far. My favorite part of the program have been the video lectures along with the online coursework. The video lectures are fun and really help audio learners. They cover more subject matter and better understanding of coursework. My experience with [institution] was awful. I could never get anyone to call me, email or help with anything which is why I withdrew my classes which was a terrible experience as well I have been working in the medical field for 15 yrs. I wanted to do the CMA class for self gratification and learn as much as possible. So much of the classes were about discussion boards it was ridiculous. I wanted to learn, not be expected to talk to other people and have debates....this had nothing to do with me learning the material. This was the #1 reason I left. I care about learning for myself, not what everyone else is doing and their opinions. The discussion board assignments were beyond time consuming and absolutely pointless. I would recommend having a Zoom on the math. I am a student that does not do well with solely learning on my own. I would prefer at least some in person study/ lecture time. When I was in the program, I felt that I was teaching myself, yet paying a college for me to teach myself. The way the program was set up online was confusing and could only reach out for help through emails that usually ended up not answering my questions or further confusing me. I have been a student at [institution] in other programs and carried good grades, so its not the material or my ability to learn. I feel it was the combination of it being all online/self serve/self learning and the way the websites were set up. Maybe go back to offering in person or partial in person learning. There were many times throughout the program I was confused. It would be nice to have a time to have open group chat with instructor and other students. Sometimes I just needed the instructor to explain some of the course work out loud, vs reading in the book. It can be challenging to work full time and raise a family while taking this course. It takes prioritizing time, but it can be done.

	It was and still being a little difficult for the fact I was for so long away from the school and I have to work in two jobs to keep everything flowing. Timing is key, and keeping a rhythm with homework. Working full time and my daily life sometimes made it hard to get homework done.
Adult Learner Barriers	Personal barriers for anyone in this program is managing time with work, family, and school. The course is outlined very well with what to expect each week so that helps. Having access to the internet may also be an issue for some. Just trying to keep up with homework. Just a reminder to be flexible with hours and expectations as to fulltime employees, I have been pulling until 8pm shifts and working weekends to make sure my hours get completed. Having a conversation with the instructor. I think online learning could also include study groups. I like this program, the difficulty i have is being a provider of 4 young children, and working 40 plus hours a week while also trying to complete work. I wish all the work was due on the same day every week versus, some is due on Wednesday and then Sunday.
Student Medical Assistant Experience	Boss that is rude and rarely helpful. Did work for a doctor that was extremely rude but am now with a much better doctor! I have the a lot of co-workers willing to help me in any way. The only difficulty I have had in the transition of positions is management at work struggling to see me as a student and not the employee I started out as. I have regularly been pulled back into working reception and lab even after that portion of the program was supposed to be done for me. I have thankfully been able to get my learning in, but it got to be hard for me for a while and I was worried about losing information and skills I had been working on. I understand that we are short staffed and don't mind helping out if needed, but I also am a student and I need to be able to learn as the program is designed. Working as a SMA was incredibly beneficial. Hands on work while reading helped tremendously. Working in the clinic was a great experience and very helpful. I currently work in OB/GYN as a registered medical assistant and have been here for 7 months and the courses have certainly helped understand test results more and are improving my current skills as well. I don't feel that the program prepares you for the exam.

Licensure Exam Preparation	I felt like after completing the program I spent additional money on different books geared towards the exam as the exam questions are completely different than the practice exams, we took the last semester of school. I think we should have been doing practice exams starting first semester and not the final term of school. The practice exams at school were more administrative which yes those are some questions on exam but most of them were clinical questions and I wish the program prepared me for more the clinical side and not just administrative. I spent 3 months after graduation studying additional books that i purchased and without them, I probably would not have passed the exam the first time.

APPENDIX H
STANDARD DEVIATION OF SURVEY QUESTIONS INFORMING INTERVIEW QUESTIONS

Descriptive statistics for survey questions informing interview questions

	N	Min.	Max.	Mean	Std. Deviation
ALC_How often are/were the following items barriers to completing the Medical Assisting program? - Covering the Cost of Tuition	51	1	6	3.14	2
ALC_How often are/were the following items barriers to completing the Medical Assisting program? - Access to Technology (Computer, Internet, etc.)	51	1	6	2.73	1.856
ALC_How often are/were the following items barriers to completing the Medical Assisting program? - Being able to apply the concepts immediately in life/work.	51	1	6	3.41	1.824
ALC_How often are/were the following items barriers to completing the Medical Assisting program? - Meeting the Course Requirements	51	1	6	3.08	1.809

APPENDIX I

INTERVIEW CODING

Theme	Interview Excerpts
Nurturing a Passion for Healthcare through Experience and Connections	"I've worked in the medical setting for over 20 years, primarily in the lab doing phlebotomy and some point of care testing," B. "I started in healthcare, when I was 21, maybe 22. I started at the plasma center. I worked in the front doing prescreening blood pressure, checks and everything, and I wanted to do more so I went to the back to do the phlebotomy portion of it, helping donors get hooked up to the machines. Then I wanted to do more so I learned how to process the samples and ship them out. Then life happens, I got married, had a child, and the hours we're working for me, so I went to [medical employer]. From there I worked in the Patient Service Center, and then I transitioned to a hospital site, and then I transitioned after that to doing the nursing home draws, and then I transitioned back to the outpatient site," B. "I got my CNA when I was 17, I had been a tech, so I knew a lot of what I was already doing so, a lot of it came pretty easy to me," D. "I worked as a CNA in a nursing home when I was in high school, and then once I started going to college, I got the I started at [hospital] in May of 2019," D. "I worked as a mental health tech is what they call this, but it was like a CNA," D. "I started with CNA and then decided I wanted more hands on and went into the and a MA program," C.
Overcoming Barriers and Harnessing Intrinsic Motivation to Achieve Personal Growth	"I'm Mexican and my primary language is Spanish. I'm married, but no kids," A. "I'm married, going on 21 years is July. I have two kids, my son will be 21 in April. He's currently at [college] studying education. My daughter, is 17 and going to [high school]," B. "I'm in my fifties, married, we have a total of 4 children," C. "I've always wanted to go into nursing, my first year of college was at [college], which was an all-girls nursing college, but I didn't want to settle down and do the math," C. "I felt like I needed to get out of the lab. I wanted to expand my horizons and just have more options available to me. The only way to get out of the lab was either to do some additional education, or maybe to go in a hospital setting, and I really did not want to go back into the hospital setting," B. "I knew that I didn't want to struggle like I've watched my mom all of my life, and obviously that makes me better with money management, but also it pushes me to do more and get an education," D. "My family, and then just wanting to do more, and I don't know, just my co-workers were a big help," B.

	"One of my motivations is my family, to help my parents. In some ways, just to do better. Also, my mother-in-law, she is an RN. She inspired me to be on this medical field," A. "I wanted to be more personable, do more of the patient care aspect of it. That's what I felt that I wanted to do so I decided to go back to school," C. "I always wanted to be a nurse, but I didn't really know how I was going to accomplish that, though, because my parents didn't help with anything," D. "That first semester was the most difficult to where it did reach out to [human resources] and asked to either be transferred to a different site or reduce my hours, just because mentally I couldn't do it working the hours that I was working at being the only phlebotomist in the large clinic that I was in, and being stuck in the lab. It was just mentally draining staying up till midnight, reading everything that I needed to do in my coursework. It was a lot, and I was even willing to just repay everything that was paid upfront, because I just I wasn't able to do it. It was too much," B. "I'm more mature, knowing that I have to do this because I know what the future holds. Sometimes, when you're first going to school in your early twenties, you don't have that rationale. To you the future is just a 100 years away, and as an adult you realize this is what you chose to do. You like it. And so you just kind of learn it, even if it's difficult material," C. "When I do things right and having the support at work," C. "That makes me feel really good because I help the patient. It's just that satisfaction that I'm doing something to help others," C. "Well, it was, a little bit boring in some ways to be just a receptionist. I felt like I wasn't helping the patients enough when they would say, 'Hey, I need this. Can you tell the doctor this.' No, I'm a receptionist. I don't know what to do. I know how to help you. And yeah, it was something totally out of my league," A. "Right before I started the program, I had shoulder surgery, and I was still recovering for about three months into the program. I had to do physical therapy and stuff like that," D. "There was a lot of people in their late twenties or early thirties that we're doing the program so that was hard for them to balance everything," D.
Navigating Challenges and Maximizing Learning	"To allow, maybe a day a week that the students can leave like at two or something, just to have that time. Like me, I'd go to either a library or a coffee shop, and just no family," C. "The coding was difficult to remember that many numbers and what they mean," A.

Opportunities in Online Education	"Having a teacher Thursday night from 7 to 9 that's there to answer our questions, because sometimes reading, you just don't get it, but if someone says it out loud… and I understand we chose online, but every once in a while we need that teacher interaction more," C. "The ICD coding, the procedural was very hard, and I think it's just because we're so computer oriented that it's not something hands on that we really have to do so that was difficult," C. "A lot of the admin, I think, was a little difficult just with the billing part of it and then, remembering all the codes," B. "The clinic prepared me better to be a successful MA. You need the coursework, because they kind of go hand in hand, but I guess the clinic working was overall, the advantage," C. "Because there were people that had never even like taken a blood pressure before, and might be in our classes, so I knew that was a little better off than them. But it was kind of also hard at the same time, because you only do meet two times, and those two times you just bust out a ton of skills, and then you go home," D. "The preparation testing that they had on the actual AAMA website. That helped a lot. Also just having support from my team, my co-workers, and that because I know that the some of the books that they told us to get during the class to help prepare for the testing, those really did not do any good. I ended up paying additional for the for the actual AAMA website to do the testing there to get some more studies there," A. "What I did was I bought the practice questions on the AAMA website and I studied those like every single day. Any free time I had, I was reading those, and I don't really know if even any of those questions were on my test.," A. "No, nothing that I've ever learned was on that," D. "Well… Some people ask me if it will be easy to take this course and I'm like well, yeah, but you have to learn by yourself. It's not like the classes will teach you. No one will say, yeah, that's correct, or no one will tell you, no, because of this. No one is teaching. They're just telling you what to learn then you have to learn somehow at your own piece. I don't feel like there is a feedback to say why. Or, if I want to ask, what's the difference between bacteria and a virus? There's no conversation. There's no feedback. There is a lot of that lacking in the course, I feel, and I think that's important for anyone to learn," A. "Just what I've already mentioned that in the future maybe if they had an instructor on a Thursday night that can get on there just so if something's not clicking by reading, they can say it out loud," C. "Throughout the program, it's hard to learn from online to do something that is so hands-on so it was nice to have that hands-on

	aspect of what I was involved with versus like other people who didn't have that," D. "What we do, is I'm side by side with my RN there, and I also work side by side with other nurses, but she's mainly my proctor," C. "I was working full time and then I was doing the classes in the evenings or weekend. I think the tutors they are supposed to help they should be reading their emails. Every time I was in need of any help with a system or a question no one was available," A.
Providing Alternative Pathways to Medical Assisting Education	"I defiantly think that it helps being in the SMA program, it helps me every single day, and, like my work as a CMA now, but no, there was like nothing in that I'd ever learned on that exam," D. "I learned a lot being a Student Medical Assistant, and you know the way that they go about it, like first you learn the clerical part of it, and so sometimes when some of my other co-workers get frustrated with our front staff, I'm like, okay well, that's because they have to do this or like, oh, they forgot to do this. I understand more on that aspect," D. "Just because I know in boot camp, we had some people that just did the schooling and not the clinical part of it. They weren't familiar, and you know they never saw it, and they didn't do it in person prior to the boot camp, so I know that helped a lot," B. "Other people have done it. I just think for me, because I'm a hands-on learner because they're very sociable, it just kind of worked better for me," C. "Being in the SMA program and being in a paid position, I was in the lab almost the entire process, until I push my supervisor that the boot camp is coming up in the next term. I need to start learning how to do this stuff, because I didn't do any of the front desk, part of it, or registration, or anything just got like an hour refresher course of it. I really had to push to get out there so I could start learning and be, you know, know what I was doing once the camp came," B. "I'm more of a hands-on learn and I thought this might be a better avenue to be doing this program along with learning in the clinic," C. "There it's asking more questions, it's shadowing the whole time, it's fine tuning all my skills, and just really more digging into it to ensure that I am doing it correctly versus picking up bad habits," C. "I think one thing that would help probably future SMA candidates might be to, I know we're paid employees, but to have them do what they're doing in the workplace what they're currently doing in their studies, because that makes a big difference. Because I had brought it up with my manager, and because I was a paid employee, I was put where I was needed most, and unfortunately, we're so short in the lab, I couldn't get the training until I really pushed to get on the clinical part of it. I really didn't get much of the registration or any of that training that I needed… I don't know," B.

“My first my first three months I was a receptionist, which I already had a little experience there. Then I was moved to the lab and was trained as a phlebotomist and I was trying to use the machines and disinfect the instruments, and all the other stuff… But then, after those three months, I was more capable, and they transfer me to help other nurses for another two months. I was assigned for like two weeks to this nurse, to help this doctor. Then the other nurse to [help] this other doctor and also support urgent care coverage. By the last three months, I was rooming a doctor all by myself. I was assigned to this doctor. I graduated. I continue with that doctor. So it was good,” A.

“I'd say that the program is pretty easy. It helps that I was already doing the work hands on every day,” D.

“I would have been in a class if I could afford to not work right now,” C.

“Other people have done it. I just think for me, because I’m a hands-on learner because they're very sociable, it worked better for me,” C.

“We could have, and it was an option, it just would have been a strain. It was an option for me to do it, but this way I can still financially benefit the family, while I'm doing what I want to do,” C.

“The hands-on training was something… I’m not very confident in myself, like I know a lot, I know that I am intelligent, and I can do things, but I’m not really like confident in myself so I knew that, doing that, and learning alongside someone and having someone answer all my questions along the way of me learning in the clinical then in the coursework as well, would help me become more confident. And then obviously, they pay for the tuition. So that was a big thing for me, because, although I don't get like anything from financial aid, and I was going to have to take out like $10,000 worth of money to be able to pay for the class, so that was something that really, obviously was a factor in my decision of choosing [institution],” D.

“I felt like I learned more being in the clinic than being in the class,” A.

“Yeah, a lot [was easy]. I mean, it's very beneficial to be a student working in the clinic and taking the courses. Giving vaccinations, understanding vaccinations. The patient care, how history of their medications is so essential when talking to a patient. Even though we don't diagnose, but just having that understanding, so you can relay it back to the doctor what’s going on, is very beneficial. Learning, even the computer system that [health system] has, that took forever. So I already had that heads up because I learned that system. It's been very helpful, I wouldn't have it any other way, that's for sure,” C.

“Yeah, the people who were struggling in the courses were the people who weren't in the Student Medical Assistant program,” D.

“If I had a question, or if I needed a clarification of what we were reading in the coursework, I could ask my nurse. I had a lot of oh, that's

	what that is! I'd read about it, and then it would come up the next couple of days at work. And I'd be like, okay, okay, okay… The light turned on many times because I was working at the clinic. Just learning the correct way to even give just a vaccine, a shot, and all the different where they go. That's all more hands on. Taking blood pressure and vitals, trying to find someone's pulse. That's not just something you can read about. I feel much more advanced because I've been at the clinic learning and just listening to the nurses and the doctors talk that language. I very much appreciate the opportunity," C. "Also, blood draws. A lot of people really struggled with blood draws. I had the opportunity to more or less practice on co-workers that it didn't bother them. They were ok getting poked because that's not an easy thing either, to get the vein," C.

APPENDIX J

CONSENT FORMS

Survey Consent

Thank you for your interest in participating in our survey. Your participation in this survey is voluntary and you may choose not to participate or opt out at any time. Participation will not impact your grades favorably or unfavorably. You must be 18 or older to participate in the study.

This is a survey about your experiences taking courses in the Medical Assisting program at Mercy College of Health Sciences and should take approximately 10-15 minutes to complete.

Please reflect only on your experiences during your time at Mercy College as you respond. Survey results will be stored in strict confidence and will only be accessible to the researcher. The primary investigator is a doctoral student at Arizona State University and an administrator at Mercy College of Health Sciences. The results of this study may be used in reports, presentations, or publications but is entirely anonymous and contains no questions that will require you to identify yourself. Results will only be shared in the aggregate form. De-identified data collected as a part of current study will not be shared with others for future research purposes or other uses.

If you have any questions about your rights as a participant in this research, or if you feel you have been placed at risk, you can contact the principal investigator, Elisabeth Gee at (602) 543-6343 or the Chair of Human Subjects Institutional Review Board through the ASU Office of Research Integrity and Assurance at (480) 965-6788. Additionally, you may also contact the principal researcher, Matt Romkey, at matthew.romkey@commonspirit.org or the Mercy College of Health Sciences Institutional Review Board at IRB@mchs.edu.

Thank you for assisting in this important research.

Your participation is greatly appreciated.

Interview Consent

Dear Student:
My name is Matt Romkey and I am a doctoral student in the Mary Lou Fulton Teachers College (MLFTC) at Arizona State University (ASU). I am working under the direction of Dr. Elisabeth Gee, a faculty member in MLFTC. We are conducting a research study on adult learners' perception of their medical assisting education at Mercy College of Health Sciences. The purpose of this interview is to understand your perceptions and of your learning experience and how it aided, or hindered, your academic success.

We are asking for your help, which will involve your participation in an interview concerning your experiences, attitudes, and beliefs about your learning experience. We anticipate this interview to take 30 minutes total. I would like to audio record this interview. The interview will

not be recorded without your permission. Audio recordings will be deleted from the original recording device upon transfer to the password-protected computer and then deleted from computer/could technologies once transcribed. Please let me know if you do not want the interview to be recorded; you also can change your mind after the interview starts, just let me know.

Your participation in this study is voluntary. If you choose not to participate or withdraw from the study at any time, there will be no penalty whatsoever. You must be 18 years of age or older to participate.

The benefit to your participation is the opportunity for you to reflect upon your learning experience so Mercy College can continue to improve its learning and teaching practices. Interview responses will also inform future iterations of the study and thus, there is potential to enhance the experiences of our colleagues and students. There are no foreseeable risks or discomforts to your participation.

Your responses will be confidential. Results from this study may be used in reports, presentations, or publications but your name will not be used. The interview recording will be labeled with a study ID rather than your name, transferred to a password-protected computer, and deleted from the original recording device.

If you have any questions concerning the research study, please contact the research team – Elisabeth Gee Smith at Elisabeth.Gee@asu.edu or Matt Romkey at mromkey@asu.edu or (563) 370-2309.

Thank you,

Matt Romkey,
Doctoral Student
Elisabeth Gee, Associate Dean and Professor

Please let me know if you wish to be part of the study and will let me audio record your responses by verbally indicating your consent. If you have any questions about your rights as a participant in this research, or if you feel you have been placed at risk, you can contact the Chair of Human Subjects Institutional Review Board through the ASU Office of Research Integrity and Assurance at (480) 965-6788.

APPENDIX K

ASU IRB APPROVAL

ASU Knowledge Enterprise Development

EXEMPTION GRANTED

Elisabeth Gee
MLFTC: Educational Leadership and Innovation, Division of
480/965-4284
Elisabeth.Gee@asu.edu

Dear Elisabeth Gee:

On 12/2/2022 the ASU IRB reviewed the following protocol:

Type of Review:	Modification / Update
Title:	Evaluating the Efficacy of Work-Based Learning Models for Adult Learners in Health Science Programs
Investigator:	Elisabeth Gee
IRB ID:	STUDY00016890
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	• Romkey Fully Executed IRB Authorization Agreement, Category: Other;

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (1) Educational settings, (2)(ii) Tests, surveys, interviews, or observation (low risk) on 12/2/2022.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

If any changes are made to the study, the IRB must be notified at research.integrity@asu.edu to determine if additional reviews/approvals are required. Changes may include but not limited to revisions to data collection, survey and/or interview questions, and vulnerable populations, etc.

APPENDIX L

SURVEY INSTITUTION IRB APPROVAL

November 7, 2022

RE: Evaluating the Efficacy of Work-Based Learning Models for Adult Learners in Health Science Programs —Expedited Approval of Facilitated Review

Study ID#: STUDY00016890

Dear Matthew Romkey,

On November 7, 2022 as IRB Chair, I reviewed your submission for facilitated review of the following study: Evaluating the Efficacy of Work-Based Learning Models for Adult Learners in Health Science Programs

This study has been reviewed and is approved to take place at [redacted] with Arizona State University acting as the IRB of record. This submission will be included on the Agenda for the December 7, 2022 meeting for notification to the full board.

Brief description of study: Work-based learning embeds learning and experience throughout a learner's educational journal. These alternative learning models are common in skilled trade industries, but not in healthcare. For adult learners, embedding learning with experience can strengthen andragogical principles that can increase persistence and application of learning.

The IRB of record is responsible for all subsequent reviews; however, the following must be submitted to the [redacted] IRB for Board notification:

- Annual progress report;
- Local protocol deviations;
- Local unanticipated problems/serious adverse events;
- Approval documentation for amendments approved by the IRB of record and any revised documents, e.g., Informed Consent, Protocols; and/or
- Study closure documentation.

Should you have any questions regarding this letter approving facilitated review of your study, please feel free to contact our office at [redacted]

This IRB operates in accordance with all local and federal applicable laws, regulations, and guidelines for research. Compliance is maintained with the FDA Code of Federal Regulations and Office for Human Rights Protections (OHRP). All documentation is maintained in the study file per FDA/DHHS Regulations and IRB Guidelines.

Sincerely,

Judith J Mower, DNP

IRB Chair

[redacted]

APPENDIX M

INTERVIEW A TRANSCRIPT

Interviewer: Can you start by telling me a little bit about yourself?

Respondent A: I made the decision to take the MA program after being a receptionist wasn't good enough for me and I wanted something else. I decided to find a good place to take my studies on, and I found the [institution]. I always like to challenge myself. I don't know what else about myself?

Respondent A: I notice you have an accent, are where are you originally from?

Respondent A: I'm Mexican.

Interviewer: Is your primary language Spanish, then?

Respondent A: Yes.

Interviewer: Was that difficult making the translations, especially like with the medical terminology and things like that?

Respondent A: No, because medical terminology, it's Latin. The roots are Spanish, it's Latin, so it tends to be similar in some ways. I also already know some Latin from taking etymologies classes before.

Interviewer: Do you have a healthcare background? You said you were serving as a receptionist. Have you done anything else like a CNA?

Respondent A: No. I am a graphic designer. I studied at a college for years and got my degree as a graphic designer. I am a painter. I do many things besides just being an MA.

Interviewer: You shared a little about wanting to challenge yourself. What else interested you about going through the medical assisting program?

Respondent A: Well, it was, a little bit boring in some ways to be just a receptionist. I felt like I wasn't helping the patients enough when they would say, 'Hey, I need this. Can you tell the doctor this.' No, I'm a receptionist. I don't know what to do. I know how to help you. And yeah, it was something totally out of my league. Today we were talking over the nurses meeting, and my manager, was reviewing resumes and she said, I'm not even touching this one, they have no experience in the medical field at all. And I told her, I had no experience when I started this and I'm it. I feel like I'm confidently doing it correctly. I wanted to just make her rest sure

that even when these people have may have no experience, a CNA, or anything else, there is still capacity for it.

Interviewer: That's a really good perspective. You have graduated right?

Respondent A: Yeah.

Interviewer: And you sat for licensing, to become a CMA?

Respondent A: Yes, I'm a CMA and I graduated with honors!

Interviewer: How well did you think the courses prepared you to take the CMA exam?

Respondent A: Some, but not enough.

Interviewer: What about the courses was not enough?

Respondent A: Well… Some people ask me if it will be easy to take this course and I'm like well, yeah, but you have to learn by yourself. It's not like the classes will teach you. No one will say, yeah, that's correct, or no one will tell you, no, because of this. No one is teaching. They're just telling you what to learn then you have to learn somehow at your own piece. I don't feel like there is a feedback to say why. Or, if I want to ask, what's the difference between bacteria and a virus? There's no conversation. There's no feedback. There is a lot of that lacking in the course, I feel, and I think that's important for anyone to learn.

Interviewer: When you were in the program, were you a Student Medical Assistant?

Respondent A: Yes. I got hired by [healthcare system] and my first my first three months I was a receptionist, which I already had a little experience there. Then I was moved to the lab and was trained as a phlebotomist and I was trying to use the machines and disinfect the instruments, and all the other stuff… But then, after those three months, I was more capable, and they transfer me to help other nurses for another two months. I was assigned for like two weeks to this nurse, to help this doctor. Then the other nurse to [help] this other doctor and also support urgent care coverage. By the last three months, I was rooming a doctor all by myself. I was assigned to this doctor. I graduated. I continue with that doctor. So it was good.

Interviewer: You said there were some things in the program that you thought could be improved. Did you think that working in a clinic while you were in the program that you had other people you could go to who would help answer some of those questions you had?

Respondent A: That was really helpful, for sure. I felt like I learned more being in the clinic than being in the class. And because it's online, it's not the same. It's not that easy to get in that feedback from a teacher online?

Interviewer: Have you had you taken other online courses previously?

Respondent A: It was my first.

Interviewer: What areas of the program were easy for you?

Respondent A: Maybe the diseases and the anatomy. Those were very interesting, and not easy, but interesting to remember.

Interviewer: Were there areas that were very difficult for you?

Respondent A: The coding was difficult to remember that many numbers, and you know what they mean. Yeah.

Interviewer: During the program did you experience any challenges or barriers to keeping enrolled? Did you have any personal challenges? Anything that came up during your program that we did like you had to consider, maybe this isn't the right time for me? Things in your life such as family kids, etc.?

Respondent A: No, it was good. I was working full time and then I was doing the classes in the evenings or weekend. I think the tutors they are supposed to help, they should be reading their emails. Every time I was in need of any help with a system or a question, no one was available.

Interviewer: You reached out to the tutors, and they were hard to get in touch with?

Respondent A: Never, heard never back today!

Interviewer: What motivated you? You kind of mentioned your desire just to want to do more, to see yourself in a better position. What else motivated you?

Respondent A: One of my motivations is my family, to help my parents. In some ways, just to do better. Also, my mother-in-law, she is an RN. She inspired me to be on this medical field. I love it. We both like curing wounds and dressing ones, and cleaning them, we enjoy that. So, she told me, 'Well, you may be a good nurse,' she said. Then I started thinking, maybe I can do this!

Interviewer: Do you think you'll go on to get your RN at some point?

Respondent A: No. I want to specialize in wound care. People ask me that though… Are you going to be an RN, or get your BSN or all those things and I'm like no… Because if I continue doing that I'll want to go on and be a doctor, or be a surgeon, and it will never be enough. So, at some point I have to just extend to the sides and not up, up, up… Because I will never reach the top. I will always feel like wo, when are you going to get your masters? I love the interpreting. Since I'm Spanish, I would like to do that and cure wounds.

Interviewer: That's a really good perspective of that. You mentioned family, do you have kids, are you married?

Respondent A: I'm married, but no kids.

Interviewer: How old are you?

Respondent A: 35

Interviewer: Very good. Anything else you'd like to share with me about your experience in the medical assisting program at Mercy College?

Respondent A: No, no…

Interviewer: Well, you've given me a ton of awesome information. I'm so grateful for your time, and appreciate everything you have shared. Have a good rest of your day.

Respondent A: You're welcome.

APPENDIX N

INTERVIEW B TRANSCRIPT

Interviewer: Can you start by telling me a little about yourself?

Respondent B: I've worked in the medical setting for over 20 years, primarily in the lab doing phlebotomy and some point of care testing. I've been with [health system] since 2013 when we moved out to [city].

Interviewer: Tell me a little bit about your personal life. Do you have a family, are you married, etc.?

Respondent B: I'm married, going on 21 years is July. I have two kids, my son will be 21 in April. He's currently at UNI studying education. My daughter, is 17 and going to [high school].

Interviewer: What interested you in the medical assisting program?

Respondent B: I felt like I needed to get out of the lab. I wanted to expand my horizons and just have more options available to me. The only way to get out of the lab was either to do some additional education, or maybe to go in a hospital setting, and I really did not want to go back into the hospital setting.

Interviewer: Did [employer] pay for your education then?

Respondent B: Yes.

Interviewer: Tell me a little bit about that process, how are you recruited? Or how did you find out about the program?

Respondent B: I originally went to the state fair or something, and I expressed interest with the [employer] that I wanted to do something more. Then I spoke with one of the counselors and she mentioned that there is a possible program coming up that is SMA where they pay for the education and everything, just call HR. It all kind of happened and all coincided together.

Interviewer: What is your current status in the program?

Respondent B: I had graduated last April, so I'm no longer in the program.

Interviewer: Did you pass your licensure exam?

Respondent B: I passed it. I took the I took the test as soon as the program was over, while it was all still fresh in my memory.

Interviewer: Good. Yeah, that's the way to do it. You said, you didn't want to go back to the hospital setting. Tell me kind of like your whole like career background.

Respondent B: I started in healthcare, when I was 21, maybe 22. I started at the plasma center. I worked in the front doing prescreening blood pressure, checks and everything, and I wanted to do more so I went to the back to do the phlebotomy portion of it, helping donors get hooked up to the machines. Then I wanted to do more so I learned how to process the samples and ship them out. Then life happens, I got married, had a child, and the hours we're working for me, so I went to [medical employer]. From there I worked in the Patient Service Center, and then I transitioned to a hospital site, and then I transitioned after that to doing the nursing home draws, and then I transitioned back to the outpatient site.

Interviewer: And when you were in the program, especially since you have such a heavily healthcare background, what was easy for you and what was hard for you?

Respondent B: A lot of the admin, I think, was a little difficult just with the billing part of it and then, remembering all the codes. Even though I had done that because working on the patient service side, we had to bill the insurance and everything. But then also, the first semester was the most difficult, you know, with anatomy and physiology, but then it was nice how the program continued with the admin part of it, it all kind of coincided together.

Interviewer: What did you find came easy to you?

Respondent B: The clinical part of it. I was nervous at first because I was… Being in the SMA program and being in a paid position, I was in the lab almost the entire process, until I push my supervisor that the boot camp is coming up in the next term. I need to start learning how to do this stuff, because I didn't do any of the front desk, part of it, or registration, or anything just got like an hour refresher course of it. I really had to push to get out there so I could start learning and be, you know, know what I was doing once the camp came.

Interviewer: Was this the first time you've taken online courses at the college level? Or have you taken online courses previously?

Respondent B: I had taken online courses previously. I received an associate in arts, but I wanted to go into accounting or some sort of finance

right before we moved out here at [community college]. But I just ended up staying after my degree in the medical field because I didn't have the two-year experience you needed, or and I didn't want to start all over at minimum wage or anything. I don't know, I just stayed in the medical field.

Interviewer: How do you feel your role in the clinic prepared you to be a CMA versus the online coursework?

Respondent B: It helped me because of people I had training me, [name]. She's an amazing trainer over at the clinic. Very patient, she doesn't force you to do it, but she makes sure that you go out and you do it hands on so then you get familiar with it. Also, [name], who is no longer with [healthcare organization]. Just doing it over and over, and having training with the two trainers that I had, really helped a lot.

Interviewer: Would you say that being able to learn and then apply, that was really impactful for you in terms of applying the learning from your coursework.

Respondent B: Correct. Just because I know in boot camp, we had some people that just did the schooling and not the clinical part of it. They weren't familiar, and you know they never saw it, and they didn't do it in person prior to the boot camp, so I know that helped a lot.

Interviewer: Did you observe non-SMAs having a hard time in the skills workshops?

Respondent B: It seemed like maybe one or two of them did, just because they weren't in the clinical setting, and they were doing it on their own time and weren't working at the time.

Interviewer: Did you have any barriers that you face during the program that you maybe you thought you'd have to drop out, or anything that you faced or anything that might have prevented you from completing the program?

Respondent B: That first semester was the most difficult to where it did reach out to [human resources] and asked to either be transferred to a different site or reduce my hours, just because mentally I couldn't do it working the hours that I was working at being the only phlebotomist in the large clinic that I was in, and being stuck in the lab. It was just mentally draining staying up till midnight, reading

everything that I needed to do in my coursework. It was a lot, and I was even willing to just repay everything that was paid upfront, because I just I wasn't able to do it. It was too much.

Interviewer: What motivated you to keep going?

Respondent B: My family, and then just wanting to do more, and I don't know, just my co-workers were a big help. Another person that I work with [name] was in the same program. We worked in the same clinic and I reached out to him, and I asked, are you struggling too? And he's like, 'Yes, I am,' because it didn't come off as if he was. But you know we talked, and we both, you know, had the same mindset at the same time, so it kind of helped, knowing that I wasn't the only one having difficulty.

Interviewer: It's good to know you're not alone, that peer mentorship is really important. What do you think was the thing that best prepared you to pass your licensing exam? Was it the online coursework, or serving as an SMA?

Respondent B: Serving as an SMA, but then also too, the preparation testing that they had on the actual AAMA website. That helped a lot. Also just having support from my team, my co-workers, and that because I know that the some of the books that they told us to get during the class to help prepare for the testing, those really did not do any good. I ended up paying additional for the for the actual AAMA website to do the testing there to get some more studies there.

Interviewer: Is there anything else you'd be interested in sharing about your experience in the medical assisting program or the role of the SMA and how that either helped or hindered your academic experience?

Respondent B: I don't know, I mean, it was a very good program. I know we were like the pilot program when we first started, the first year that it started so, it was a little stressful in the beginning, just because everything was thrown together. We didn't know what we needed to get as far as textbooks or uniforms, or any of that, just because it was all kind of last minute. I think one thing that would help probably future SMA candidates might be to, I know we're paid employees, but to have them do what they're doing in the workplace what they're currently doing in their studies, because that makes a big difference. Because I had brought it up with my manager, and because I was a paid employee, I was put where I was needed most, and unfortunately, we're so short in the lab, I

couldn't get the training until I really pushed to get on the clinical part of it. I really didn't get much of the registration or any of that training that I needed… I don't know. I mean, I passed, and I did the program, but I think that was, a little stressful for me.

Interviewer: Yeah, it sounds like your skills, were utilized in a lot of different areas, whereas, that is how the program is designed to work, which it sounds like influenced your experience in the SMA program. Do you mind me asking how old you are?

Respondent B: I'm 46.

APPENDIX O

INTERVIEW C TRANSCRIPT

Interviewer: Can you start off by telling me a little bit about yourself personally and also some of your professional background.

Respondent C: Okay, I'm in my fifties, married, we have a total of 4 children. My previous career position was a legal arbitrator for an insurance company. I went to school received a BS in communication, a 1 billion years ago. I've always wanted to go into nursing, my first year of college was at [college], which was an all-girls nursing college, but I didn't want to settle down and do the math. When the pandemic hit, the insurance company put across the board thousands of us on, paid for furlough. I looked at it as an opportunity to maybe go back to school and do what I really want it to do, because I was already very drained and not happy. When they realized the pandemic wasn't going to end, they offered us either a settlement or to be reassigned. I took the settlement and decided to go into the medical field. I started with CNA and then decided I wanted more hands on and went into the MA program.

Interviewer: How long did you work as a CNA?

Respondent C: It was probably about a year and then I decided I wanted to be more personable, do more of the care, patient care aspect of it. That's what I felt that I wanted to do so I decided to go back to school.

Interviewer: Were you familiar with the medical assistant role? Or how did you learn about the position?

Respondent C: It was all a big gamble. Going back to school again, which I knew was going to be difficult. I heard the program was very difficult. I heard that [college] was a difficult college, challenging, but it was a very good college. I read about it online, talked to some of the people in the admissions, and decided, you know, after discussing with my family, this was the right option for me. Then the student position, I'm not sure if I read about it or clicked on something that came to my attention, but somehow it came to my attention and I thought, I'm more of a hands-on learn and I thought this might be a better avenue to be doing this program along with learning in the clinic. I applied for it, and obviously was given the position after the interviews.

Interviewer: Where are you currently in the program. Have you graduated?

Respondent C: No, I've got about three more weeks. May 17 or 18 is our last official course date. So we're almost done.

Interviewer: Then you're in your practicum, tell me what that has been like for you.

Respondent C: I'm actually working at the clinic full time as a [health system] employee, but a Student Medical Assistant at the [city] family medicine clinic. What we do, is I'm side by side with my RN there, and I also work side by side with other nurses, but she's mainly my preceptor, and then, during the practicum, we just kind of designated two to three days that I have to sign into this other program that [health system] allocated to while we're in the program. There it's asking more questions, it's shadowing the whole time, it's fine tuning all my skills, and just really more digging into it to ensure that I am doing it correctly versus picking up bad habits.

Interviewer: You have a lot going on with your family, kids, work, and school. Tell me, did you ever have a time when you didn't think you were going to finish?

Respondent C: Yeah, in the beginning. The balance has been really challenging, I'll say that. And you know, I guess feedback on that end, maybe allowing like… Being full time working, studying it's kind of a 15-week course condensed into 10, and then family, normal life. My family is very supportive, very understanding, but it's still balance. To allow, maybe a day a week that the students can leave like at two or something, just to have that time. Like me, I'd go to either a library or a coffee shop, and just no family. No work. Just have that option weekly, and that's all you do. I mean, that's what I would do and hopefully people wouldn't take advantage of that time, but I think that would be helpful. Or you know, having a teacher Thursday night from 7 to 9 that's there to answer our questions, because sometimes reading, you just don't get it, but if someone says it out loud… and I understand we chose online, but every once in a while we need that teacher interaction more.

Interviewer: Was this the first program you've done online, or have you taken college courses online before?

Respondent C: I did do for my CNA, the first round of it was in person, and then the ACNA is when COVID was starting to hit and so they pushed

us to online, which we had to do clinicals online, too, which was very hard.

Interviewer: Were there particular areas that you struggled with in the program?

Respondent C: The ICD coding, the procedural was very hard, and I think it's just because we're so computer oriented that it's not something hands on that we really have to do so that was difficult. The math. I mean, I got now, but I do remember that was very difficult to do the conversions and everything. I think it's really those administrative skills, because back in the clinic we don't do that. We don't do insurance. We don't do not do accounts receivable. So that was difficult, and that's not something that's strong with me. Even now, figuring out how to study for the board exam trying to figure out how to best prepare for that.

Interviewer: On the flip side of that, were there things that were easy for you?

Respondent C: Yeah, a lot [was easy]. I mean, it's very beneficial to be a student working in the clinic and taking the courses. Giving vaccinations, understanding vaccinations. The patient care, how history of their medications is so essential when talking to a patient. Even though we don't diagnose, but just having that understanding, so you can relay it back to the doctor what's going on, is very beneficial. Learning, even the computer system that [health system] has, that took forever. So I already had that heads up because I learned that system. It's been very helpful, I wouldn't have it any other way, that's for sure.

Interviewer: Good and you led perfectly into my next question. How did working as an SMA enhance what you were learning in the online components?

Respondent C: If I had a question, or if I needed a clarification of what we were reading in the coursework, I could ask my nurse. I had a lot of oh, that's what that is! I'd read about it, and then it would come up the next couple of days at work. And I'd be like, okay, okay, okay… The light turned on many times because I was working at the clinic. Just learning the correct way to even give just a vaccine, a shot, and all the different where they go. That's all more hands on. Taking blood pressure and vitals, trying to find someone's pulse. That's not just something you can read about. I feel much more advanced because I've been at the clinic learning and just listening

to the nurses and the doctors talk that language. I very much appreciate the opportunity.

Interviewer: Yeah, you're immersed in it. You can't avoid it.

Respondent C: That's the discussion for the days that you're there. It's medical, all medical.

Interviewer: Did you notice in the boot camps when students came together, and there were non-SMAs that they struggled more than other students?

Respondent C: Absolutely. I remember I struggled in the beginning with blood pressure. There were so many times I could not hear the first pulse. I just couldn't hear it and I noticed people struggling at the skills. A couple of them in basic skills one, that boot camp, they had to stay after class so they could have a little bit more practice on the importance and how to actually find that pulse when it's kind of a hidden, quiet pulse. Also, blood draws. A lot of people really struggled with blood draws. I had the opportunity to more or less practice on co-workers that it didn't bother them. They were ok getting poked because that's not an easy thing either, to get the vein. So that was very much appreciated. So I saw that, yeah, a lot of things.

Interviewer: If you had to say, which prepared you best to be a successful MA. Working in the clinic or the online coursework?

Respondent C: The clinic [prepared me better to be a successful MA]. You need the coursework, because you have to know, and they're not teaching you education, I mean they are… They kind of go hand in hand, but I guess the clinic working was overall, the advantage, but you definitely have to have the course work, by all means.

Interviewer: Do you feel like there's a difference being an adult and a professional, and what you saw and needed out of this course versus maybe somebody who was more of a traditional student?

Respondent C: I do definitely because this is what I want to do. I'm more mature, knowing that I have to do this because I know what the future holds. Sometimes, when you're first going to school in your early twenties, you don't have that rationale. To you the future is just a 100 years away, and as an adult you realize this is what you chose

to do. You like it. And so you just kind of learn it, even if it's difficult material.

Interviewer: What motivates you?

Respondent C: When I do things right and having the support at work. I have a great team that I work with. I really love learning about medicine, and I always knew I had to drive for it, but I really love it. I love patient care. I love knowing that I help to that person, even educating them a little bit. Those that have at home blood pressure cuffs, showing them on ours. This is the proper way to do it. Make sure you're doing this, and they're like, 'Oh okay, thank you. I was doing that wrong.' That makes me feel really good because I help the patient. It's just that satisfaction that I'm doing something to help others.

Interviewer: I can feel your energy and enthusiasm coming through. That completes the list of formal questions I have for you, do you have any other comments you would like to share about your experience about the coursework, about being an SMA?

Respondent C: Just what I've already mentioned that in the future maybe if they had an instructor on a Thursday night that can get on there just so if something's not clicking by reading, they can say it out loud. It was a great experience, I'm very, very, very thankful that I was hired. I'm glad that I went for it. I think that's done amazing work for me, and made me more happy about the choice that I decided to go in and the path that I'm going down. But it was a great program, so I hope [health system] does keep that up for other students, it's very viable.

Interviewer: Do you think you would have been successful without the SMA portion of the program?

Respondent C: I want to say yes, I'm a very strong person. I just think it would have been harder. Even studying for the board would have been more difficult and just because I did see struggles from other people in the boot camp. I mean, obviously you can do it. Other people have done it. I just think for me, because I'm a hands on learner because they're very sociable, it just kind of worked better for me. I would have been in class if I could afford to not work right now, that's just my learning style but obviously other people can do online with no problem.

Interviewer: You brought up an interesting point about being able to work and go to school simultaneously. Would have been able to stop working and focus only on your studies?

Respondent C: We could have, and it was an option, it just would have been a strain. It was an option for me to do it, but this way I can still financially benefit the family, while I'm doing what I want to do. Otherwise, I'd feel guilty from my own self, not from my spouse, that I'm achieving this goal and I'm participating in the financial needs of our family. It's just better this way for me. That's better for everybody. But a whole year I don't know…

Interviewer: Good luck in your last few weeks and please let me know when you pass the AAMA!

APPENDIX P

INTERVIEW D TRANSCRIPT

Interviewer: Can you start off by telling me a little about yourself?

Respondent D: I grew up in a small town and moved to [city] to go to school. I always wanted to be a nurse but I didn't really know how I was going to accomplish that, though, because my parents didn't help with anything. I didn't really expect them to help with anything, but that made it more difficult. Especially to do the studying that going to school to be a nurse would entail. I was just taking some classes at [community college] and I had some different things throwing around, still wanted to be a nurse in the back of my mind. So, I got a job downtown working in behavioral health. I knew that definitely wasn't what my end goal was, but I didn't know what it was, so I just kept taking classes, and I was working downtown. And then one day in the news briefs that come out every week, it was about this new program that they were starting, the Student Medical Assistant program. I got in contact with someone and then, yeah, here we are. I interviewed, got into the Student Medical Assistant position. I started classes, started working at the clinic that I work at and did the year of school and graduated in October, and then I took my test in early January and passed, and now, I am in school for my bachelor's in healthcare, administration through [institution] as well.

Interviewer: Great – that's wonderful to hear! Tell me about your personal life, do you have a spouse? How old are you?

Respondent D: I will be 23 in April. I went to [community college] for a couple of years, and then went to [institution], and then all graduate from [institution] with my bachelor's in healthcare administration in December of this year. In December we got engaged, so I am recently still recently engaged, and we just bought a house in January. We have a dog and a cat together.

Interviewer: Can you share what interested you in the medical assisting program in particular? You know there's a lot of healthcare occupations out there from CNA to LPN to nursing, what interested you about becoming an MA?

Respondent D: One thing that I really liked is the hours in the clinic. In the hospital, you're taking care of someone and unless you're in like labor and delivery, or something like that, usually you're taking care of someone in like a crisis situation and I just knew that I definitely didn't want to be in that standpoint. I wanted to be at somewhere else, where it was a little happier environment. That

interested me about the Student Medical Assistant program. Another thing was is working Monday through Friday 9 or, you know, 7:30 to 5, and not working holidays weekends, unless, like I just chose to do urgent care, or anything. That brought me into the program as well.

Interviewer: What about the Student Medical Assistant position. Why did you think that was a good fit for you when you saw that?

Respondent D: The hands-on training was something… I'm not very confident in myself, like I know a lot, I know that I am intelligent, and I can do things, but I'm not really like confident in myself so I knew that, doing that, and learning alongside someone and having someone answer all my questions along the way of me learning in the clinical then in the coursework as well, would help me become more confident. And then obviously, they pay for the tuition. So that was a big thing for me, because, although I don't get like anything from financial aid, and I was going to have to take out like $10,000 worth of money to be able to pay for the class, so that was something that really, obviously was a factor in my decision of choosing [institution].

Interviewer: What was easy for you in the program?

Respondent D: I'd say that the program is pretty easy. It helps that I was already doing the work hands on every day. I got my CNA when I was 17, I had been a tech, so I knew a lot of what I was already doing so, a lot of it came pretty easy to me.

Interviewer: Tell me a little bit more, you got your CNA when you were 17 and you were working in the behavioral health unit, where were you working as a CNA?

Respondent D: I worked as a CNA in a nursing home when I was in high school, and then once I started going to college, I got the I started at [hospital] in May of 2019. I had just been in college, finish up my second semester, when I got my job at [hospital] downtown in behavioral health. I worked as a mental health tech is what they call this, but it was like a CNA.

Interviewer: On the flip side of that, what was what was not so easy for you in the program? What did you struggle with?

Respondent D: Sometimes I struggled a little bit with like getting everything done on time just because of regular, you know, life, events, or things that had come up. But one of the things I did struggle with, and I still do struggle with is the EKGs for some reason. Then another thing that was hard was, although I was doing it every day in school, there's only the two boot camps, and there were definitely people that were struggling a lot worse off than I was at those boot camps. I feel like I ended up helping people as well learn things in the boot camps, because there were people that had never even like taken a blood pressure before, and might be in our classes, so I knew that was a little better off than them. But it was kind of also hard at the same time, because you only do meet two times, and those two times you just bust out a ton of skills, and then you go home.

Interviewer: Did you notice a trend in students who were struggling? Were they SMAs too or were they just doing the online coursework and not able to apply the coursework like you mentioned? Did you notice anything particular about that group?

Respondent D: Yeah, the people who were struggling in the courses were the people who weren't in the Student Medical Assistant program. And then also, I think there was like very few of us that were younger. There was a lot of people in their late twenties or early thirties that we're doing the program so that was hard for them to balance everything. A lot of the people were coming from all kind of different, like walks of life, into the medical assisting world.

Interviewer: Did you face any personal or professional barriers throughout the program that you thought I don’t know if I’m going to be able to complete the program due to something personal or professional that occurred?

Respondent D: Right before I started the program, I had shoulder surgery, and I was still recovering for about three months into the program. I had to do physical therapy and stuff like that. And then at first, when I know when we were talking about surgery in late summer of 2021, I was kind of nervous that it would interrupt even more but it really didn't, cause I started classes, and then I started in the clinic, and I think I was in a sling for just a couple of weeks, and then I got out of the sling, but I still had to finish the physical therapy for a couple of more months. I was a little nervous about that, but it didn't end up affecting anything.

Interviewer: That must have been overwhelming when you're starting something and going through that as well. What motivated you during the program?

Respondent D: Well, a lot of what motivated me was… So my parents are together, but they're not married and they've been together for over 30 years, and all through that all through my lifetime. I've watched my mom, she's not good with money, and she really struggles with like money management and so I knew that I had to keep going to get an education, because both of my parents actually work in factories. My dad also has a business and farms on the side, but my parents don't share any financials whatsoever. I knew that I didn't want to struggle like I've watched my mom all of my life, and obviously that makes me better with money management, but also it pushes me to do more and get an education so that I can work hard. Not saying that she hasn't worked hard, but work hard to make more money, and so that I don't struggle the way that she has.

Interviewer: What do you think best prepared you for the licensing exam? Was it the SMA role, your coursework, what really set you up for success?

Respondent D: I don't know. I definitely don't think that there was probably anything on that exam that I ever learned in school. What I did was I bought the practice questions on the AAMA website and I studied those like every single day. Any free time I had, I was reading those, and I don't really know if even any of those questions were on my test. You just kind of have to use process of elimination, and you definitely know they're trying to trick you. You definitely have to go in there with like a very like concentrated mindset, and so that you can have confidence to pass. And throughout the exam, I think there's like three breaks throughout the exam, and like during one of the breaks I was like, there's no way I'm passing this, so I got up and went to the bathroom and kind of like got a drink, and like kind of recollected my thoughts. Then I went back in, and it was like, okay, I can do this. And then at the end of the exam it doesn't tell you if you passed or failed right away, it makes you do like two or three surveys so that anticipation was killing me!

Interviewer: Do you think the SMA work helped you in preparing for your exam?

Respondent D: No, nothing that I've ever learned was on that. I mean, I defiantly think that it helps being in the SMA program, it helps me every single day, and, like my work as a CMA now, but no, there was like nothing in that I'd ever learned on that exam.

Interviewer: You think it helped you be more proficient as an MA, but maybe not for the exam.

Respondent D: Correct, yes.

Interviewer: Why do you think it made you a better MA?

Respondent D: Just because, like, I learned a lot being a Student Medical Assistant, and you know the way that they go about it, like first you learn the clerical part of it, and so sometimes when some of my other co-workers get frustrated with our front staff, I'm like, okay well, that's because they have to do this or like, oh, they forgot to do this. I understand more on that aspect. And then throughout the program, it's hard to learn from online to do something that is so hands-on so it was nice to have that hands-on aspect of what I was involved with versus like other people who didn't have that.

Interviewer: Had you taken online courses before?

Respondent D: I had taken online courses before several, and then during COVID, when they push like absolutely everything online, I was a part of that as well.

Interviewer: Is there anything else you'd be interested in sharing in terms of your experience in the coursework or as an SMA that you think would be helpful for me to know?

Respondent D: I know that, I was kind of thrown with a doctor that was very difficult to work with, so she didn't have like any staff so I think that's why they kind of through a student in there. But I don't work for her anymore. And I work for a different doctor, which I'm much happier about. I think that there was a definitely a lot of like unknowns, because I think I was like the second class of the SMA program so there was still a lot of like unknown things. During my time as an SMA and now… It's kind of cool because the manager of my clinical she's actually a CMA, but she doesn't like obviously practice as a CMA anymore, and I think she'll let her license go and everything. But she obtained being the manager of like our

clinic, and then, like another clinic, so sometimes she wasn't there for you, to ask questions so that was kind of frustrating. But then during my time I don't really know what happened to the Professor [name]. But then, like Dr. [name] stepped in and he was like nothing but amazing. He also taught our A&P class and then he ended up teaching like two classes of [professor] as well, he took over for her and during the time, in like my A&P class I turned in… He wanted a… I don't remember what it was, but I turned in the paper, and I think it was like a source analysis, or something like that and so then he called me like one night at like 6:30 on a Sunday, and was like, 'Hey, you didn't turn in the right thing. What's great? You have your paper done, but if you want to fix that like, obviously I'll still give you credit.' And so that was really nice that it felt like… Because I was kind of nervous from going from a community college to like [institution], that is private. I still felt that it was more personable than [community college]. I never ever had, any of the professors at [community college] be so…

Interviewer: I'm glad you had a good experience and that you're continuing on with your bachelor's degree.

APPENDIX Q

TOTAL ENROLLMENT AND MATRICULATION BY COHORT

MA total enrollment: Cohort 1

	Fall 2020	Winter 2021	Spring 2021	Summer 2021	Fall 2021
Quarter 1	10				
Quarter 2		7			
Quarter 3			6		
Quarter 4				3	
Quarter 5					0
Total MA Students	10	7	6	3	0

MA total enrollment: Cohort 2

	Spring 2021	Summer 2021	Fall 2021	Winter 2022	Spring 2022
Quarter 1	30				
Quarter 2		26			
Quarter 3			24		
Quarter 4				22	
Quarter 5					3
Total MA Students	30	26	24	22	3

MA total enrollment: Cohort 3

	Fall 2021	Winter 2022	Spring 2022	Summer 2022	Fall 2022
Quarter 1	37				
Quarter 2		32			
Quarter 3			29		
Quarter 4				29	
Quarter 5					1
Total MA Students	37	32	29	29	1

MA total enrollment: Cohort 4

	Spring 2022	Summer 2022	Fall 2022	Winter 2023	Spring 2023
Quarter 1	51				
Quarter 2		48			
Quarter 3			43		

Quarter 4				41	
Quarter 5					-
Total MA Students	51	48	43	0	-

MA total enrollment: Cohort 5

	Fall 2022	Winter 2023	Spring 2023	Summer 2023	Fall 2023
Quarter 1	49				
Quarter 2		41			
Quarter 3			-		
Quarter 4				-	
Quarter 5					-
Total MA Students	49	0	0	0	-

APPENDIX R

RETENTION ANALYSIS

Quarter over Quarter retention for MA WBL students (percentage)

	Cohort 1	Cohort 2	Cohort 3	Cohort 4	Cohort 5	Total
Quarter 1	-	-	-	-	-	
Quarter 2	100%	92.9%	95.0%	100.0%	89.3%	94.9%
Quarter 3	100%	92.9%	90.0%	91.2%	-	91.4%
Quarter 4	100%	92.9%	90.0%	88.2%	-	90.0%

Quarter over Quarter retention for MA sponsored students (absolute numbers)

	Cohort 1	Cohort 2	Cohort 3	Cohort 4	Cohort 5	Total
Quarter 1	-	-	-	-	-	
Quarter 2	2/2	13/14	19/20	34/34	25/28	93/98
Quarter 3	2/2	13/14	18/20	31/34	-	64/70
Quarter 4	2/2	13/14	18/20	30/34	-	63/70

Quarter over Quarter retention for MA non-sponsored students

	Cohort 1	Cohort 2	Cohort 3	Cohort 4	Cohort 5	Total
Quarter 1	-	-	-	-	-	-
Quarter 2	62.5%	75.0%	76.5%	82.2%	76.2%	85.5%
Quarter 3	50.0%	62.5%	64.7%	70.6%	-	77.1%
Quarter 4	12.5%	50.0%	64.7%	64.7%	-	64.6%

Quarter over Quarter retention for traditional students (absolute numbers)

	Cohort 1	Cohort 2	Cohort 3	Cohort 4	Cohort 5	Total
Quarter 1	-	-	-	-	-	-
Quarter 2	5/8	12/16	13/17	14/17	16/21	59/69
Quarter 3	4/8	10/16	11/17	12/17	-	37/48
Quarter 4	1/8	8/16	11/17	11/17	-	31/48

APPENDIX S

INDEPENDENT *T* TEST FOR NO ADULT LEARNER CHARACTERISTICS

Independent samples test: No adult learner characteristics

How often are/were the following items barriers to completing the Medical Assisting program?		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Personal Factors Outside of Classwork	Equal variances assumed	3.621	.063	-3.549	52	<.001	<.001	-2.902	.818	-4.543	-1.261
	Equal variances not assumed			-14.765	50.000	<.001	<.001	-2.902	.197	-3.297	-2.507
Ability to Access Student Support (Tutoring, Writing, Library, etc.)	Equal variances assumed	8.001	.007	-1.919	52	.030	.061	-1.941	1.012	-3.971	.089
	Equal variances not assumed			-7.982	50.000	<.001	<.001	-1.941	.243	-2.430	-1.453

Not feeling like my input was valued.	Equal variances assumed	5.373	.024	-1.412	52	.082	.164	-1.333	.944	-3.228	.561
	Equal variances not assumed			-5.875	50.000	<.001	<.001	-1.333	.227	-1.789	-.878
Not understanding why the content is relevant.	Equal variances assumed	7.883	.007	-1.680	52	.050	.099	-1.569	.934	-3.443	.305
	Equal variances not assumed			-6.987	50.000	<.001	<.001	-1.569	.224	-2.020	-1.118
Being told what material the class was going to cover.	Equal variances assumed	7.013	.011	1.105	52	.137	.274	.471	.426	-.384	1.325
	Equal variances not assumed			4.598	50.000	<.001	<.001	.471	.102	.265	.676

Feeling motivated to do my best.	Equal variances assumed	9.560	.003	1.117	52	.135	.269	.392	.351	-.312	1.097
	Equal variances not assumed			4.647	50.000	<.001	<.001	.392	.084	.223	.562
Knowing I had a guaranteed job as a Medical Assistant after graduation.	Equal variances assumed	5.906	.029	.904	14	.191	.381	.500	.553	-.687	1.687
	Equal variances not assumed			2.463	13.000	.014	.029	.500	.203	.061	.939
Learning more about the job and career I am interested in.	Equal variances assumed	19.687	<.001	.986	14	.170	.341	.357	.362	-.420	1.134
	Equal variances not assumed			2.687	13.000	.009	.019	.357	.133	.070	.644

APPENDIX T

INDEPENDENT *T* TEST FOR ADULT LEARNER DOMAIN

Independent samples test: Adult learner characteristics domain

How often are/were the following items barriers to completing the Medical Assisting program?		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Understanding Course Content	Equal variances assumed	.210	.648	.169	52	.433	.867	.076	.449	-.824	.976
	Equal variances not assumed			.168	28.019	.434	.868	.076	.450	-.847	.998
Covering the Cost of Tuition	Equal variances assumed	6.051	.017	-2.725	52	.004	.009	-1.539	.565	-2.673	-.406
	Equal variances not assumed			-3.015	35.940	.002	.005	-1.539	.511	-2.575	-.504
Applying Course Theories	Equal variances assumed	.412	.524	.651	52	.259	.518	.319	.490	-.665	1.303

	Equal variances not assumed			.634	26.676	.266	.532	.319	.504	-.715	1.353
Personal Factors Outside of Classwork	Equal variances assumed	.044	.835	1.151	52	.127	.255	.520	.451	-.386	1.426
	Equal variances not assumed			1.178	29.775	.124	.248	.520	.441	-.381	1.421
Ability to Access Student Support (Tutoring, Writing, Library, etc.)	Equal variances assumed	.168	.684	-.282	52	.390	.779	-.148	.525	-1.201	.905
	Equal variances not assumed			-.275	26.663	.393	.786	-.148	.539	-1.255	.959
Meeting the Course Requirements	Equal variances assumed	.095	.760	.761	52	.225	.450	.408	.536	-.667	1.483
	Equal variances not assumed			.778	29.652	.221	.443	.408	.524	-.664	1.479
Access to Services Offered	Equal variances assumed	3.898	.054	.297	52	.384	.768	.148	.499	-.853	1.149

Outside Regular Business Hours	Equal variances not assumed			.331	36.666	.371	.743	.148	.447	-.759	1.055
Faculty Feedback or Participation	Equal variances assumed	1.142	.290	-.191	52	.425	.849	-.099	.517	-1.137	.940
	Equal variances not assumed			-.198	30.713	.422	.844	-.099	.499	-1.116	.919
Access to Technology (Computer, Internet, etc.)	Equal variances assumed	2.423	.126	.920	52	.181	.362	.503	.547	-.594	1.601
	Equal variances not assumed			.985	33.159	.166	.332	.503	.511	-.536	1.542
Learning in an Online Environment	Equal variances assumed	.015	.904	-.614	52	.271	.542	-.319	.520	-1.362	.724
	Equal variances not assumed			-.615	28.348	.272	.544	-.319	.519	-1.382	.744
Work Commitments	Equal variances assumed	.001	.979	.490	52	.313	.626	.257	.524	-.794	1.308

	Equal variances not assumed			.486	27.714	.316	.631	.257	.528	-.826	1.339
Factors Relating to Having Dependent(s)	Equal variances assumed	1.182	.286	-.277	29	.392	.784	-.148	.533	-1.238	.943
	Equal variances not assumed			-.309	23.631	.380	.760	-.148	.478	-1.134	.839
Not having your prior life and work experience recognized.	Equal variances assumed	.159	.692	1.200	52	.118	.235	.589	.491	-.396	1.573
	Equal variances not assumed			1.263	31.757	.108	.216	.589	.466	-.361	1.539
Not feeling like my input was valued.	Equal variances assumed	.653	.423	.581	52	.282	.564	.280	.481	-.686	1.245
	Equal variances not assumed			.620	32.864	.270	.539	.280	.451	-.638	1.197
Not understanding why the	Equal variances assumed	20.843	<.001	2.480	52	.008	.016	1.128	.455	.215	2.041

content is relevant.	Equal variances not assumed			3.373	51.967	<.001	.001	1.128	.334	.457	1.799
Being able to apply the concepts immediately in life/work.	Equal variances assumed	1.690	.199	-1.172	52	.123	.246	-.628	.536	-1.704	.447
	Equal variances not assumed			-1.234	31.787	.113	.226	-.628	.509	-1.666	.409
Staying motivated.	Equal variances assumed	1.393	.243	.476	52	.318	.636	.230	.483	-.740	1.200
	Equal variances not assumed			.515	33.905	.305	.610	.230	.447	-.679	1.139

APPENDIX U

INDEPENDENT *T* TEST FOR ANDRAGOGICAL DOMAIN

Independent samples test: Andragogical principles domain

Please rank the importance of the following items to your learning experience.		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Having the flexibility to design my learning experience (activities, assignments, etc.).	Equal variances assumed	.001	.973	1.910	49	.031	.062	.556	.291	-.029	1.141
	Equal variances not assumed			1.928	23.918	.033	.066	.556	.288	-.039	1.151
Having my input valued.	Equal variances assumed	.844	.363	1.742	49	.044	.088	.519	.298	-.080	1.118
	Equal variances not assumed			1.600	20.166	.063	.125	.519	.325	-.158	1.196

Having responsible for my learning in the program.	Equal variances assumed	3.793	.057	-.353	49	.363	.726	-.077	.219	-.517	.363
	Equal variances not assumed			-.418	34.525	.339	.679	-.077	.185	-.453	.298
Having my prior life and work experiences helped my learning.	Equal variances assumed	.004	.949	1.527	49	.067	.133	.388	.254	-.122	.899
	Equal variances not assumed			1.408	20.286	.087	.174	.388	.276	-.186	.962
Having my life and work experiences valued in this program.	Equal variances assumed	1.697	.199	1.586	49	.060	.119	.423	.267	-.113	.958
	Equal variances not assumed			1.611	24.214	.060	.120	.423	.262	-.119	.964
Having faculty help me relate my prior life and work experiences to the coursework.	Equal variances assumed	.442	.509	.291	49	.386	.772	.114	.391	-.672	.899
	Equal variances not assumed			.287	22.774	.388	.777	.114	.397	-.708	.936

Knowing why the coursework is relevant for a medical assistant.	Equal variances assumed	.002	.961	.437	49	.332	.664	.112	.256	-.402	.626
	Equal variances not assumed			.426	22.296	.337	.674	.112	.263	-.433	.657
Providing input on the coursework and learning objectives.	Equal variances assumed	.010	.922	.677	49	.251	.502	.224	.331	-.441	.889
	Equal variances not assumed			.688	24.257	.249	.498	.224	.326	-.447	.895
Being told what material the class was going to cover.	Equal variances assumed	3.010	.089	-.678	49	.250	.501	-.156	.231	-.620	.307
	Equal variances not assumed			-.835	37.988	.205	.409	-.156	.187	-.536	.223
Applying the knowledge I gained immediately in my life/work.	Equal variances assumed	.061	.806	.190	49	.425	.850	.041	.214	-.389	.470
	Equal variances not assumed			.195	24.838	.423	.847	.041	.208	-.387	.468

Having instructor(s) show me how the class material applies to my job.	Equal variances assumed	.003	.960	1.204	49	.117	.234	.369	.306	-.247	.984
	Equal variances not assumed			1.188	22.871	.124	.247	.369	.310	-.274	1.011
Feeling that the coursework will benefit my life/work.	Equal variances assumed	.566	.455	1.082	49	.142	.284	.245	.227	-.210	.700
	Equal variances not assumed			1.104	24.434	.140	.280	.245	.222	-.213	.703
Feeling part of the Medical Assisting program.	Equal variances assumed	.036	.851	.562	49	.288	.577	.147	.261	-.378	.671
	Equal variances not assumed			.565	23.724	.289	.578	.147	.260	-.390	.683
Feeling motivated to do my best.	Equal variances assumed	.000	.992	1.316	49	.097	.194	.247	.188	-.130	.624
	Equal variances not assumed			1.440	28.477	.080	.161	.247	.172	-.104	.598

Desire for a Better Quality of Life After Graduation	Equal variances assumed	.737	.395	-.316	49	.377	.754	-.056	.177	-.412	.300
	Equal variances not assumed			-.370	33.564	.357	.714	-.056	.151	-.364	.252
Potential to Earn a Higher Salary	Equal variances assumed	.021	.886	.097	49	.462	.923	.023	.239	-.456	.503
	Equal variances not assumed			.090	20.548	.465	.929	.023	.257	-.512	.558
Personal Satisfaction	Equal variances assumed	.134	.716	.307	49	.380	.760	.060	.195	-.332	.452
	Equal variances not assumed			.303	22.964	.382	.764	.060	.197	-.348	.468
Dissatisfaction with Current Work	Equal variances assumed	.676	.415	-.444	49	.329	.659	-.205	.461	-1.130	.721
	Equal variances not assumed			-.498	30.176	.311	.622	-.205	.411	-1.043	.634

Increased Self-Esteem	Equal variances assumed	3.003	.089	2.245	49	.015	.029	.595	.265	.062	1.127
	Equal variances not assumed			1.954	18.571	.033	.066	.595	.304	-.043	1.233
Recognition from Other People	Equal variances assumed	.661	.420	1.139	49	.130	.260	.490	.430	-.375	1.355
	Equal variances not assumed			1.221	27.141	.116	.233	.490	.402	-.334	1.314
Becoming More Knowledgeable	Equal variances assumed	2.320	.134	1.243	49	.110	.220	.195	.157	-.120	.510
	Equal variances not assumed			1.247	23.635	.112	.225	.195	.156	-.128	.518
Societal Pressure to Attend College	Equal variances assumed	.033	.856	1.009	49	.159	.318	.558	.553	-.553	1.669
	Equal variances not assumed			.990	22.624	.166	.333	.558	.564	-.609	1.725

APPENDIX V

INDEPENDENT *T* TEST FOR MEASURES OF LEARNING DOMAIN

Independent samples test: Measures of learning domain

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Ability to regularly apply the coursework in a clinic or hospital setting.	Equal variances assumed	9.050	.004	-1.384	49	.086	.173	-.236	.170	-.578	.107
	Equal variances not assumed			-1.711	38.426	.048	.095	-.236	.138	-.514	.043
Working in a clinic or hospital environment while I completed the online coursework.	Equal variances assumed	3.750	.059	1.654	49	.052	.104	.425	.257	-.091	.941
	Equal variances not assumed			1.418	18.175	.087	.173	.425	.299	-.204	1.053

Receiving pay near the starting wage of a Certified Medical Assistant while in the program.	Equal variances assumed	8.000	.007	2.417	49	.010	.019	.718	.297	.121	1.315
	Equal variances not assumed			1.793	15.316	.046	.093	.718	.400	-.134	1.570
Flexibility to work and attend school at the same time.	Equal variances assumed	.222	.640	-.316	49	.377	.754	-.056	.177	-.412	.300
	Equal variances not assumed			-.311	22.809	.379	.759	-.056	.180	-.429	.317
Receiving free tuition.	Equal variances assumed	25.936	<.001	3.281	49	<.001	.002	1.131	.345	.438	1.824
	Equal variances not assumed			2.261	14.306	.020	.040	1.131	.500	.060	2.202
Knowing I had a job after graduation.	Equal variances assumed	.904	.346	.924	49	.180	.360	.230	.249	-.270	.730
	Equal variances not assumed			.948	24.766	.176	.352	.230	.242	-.269	.729

Learning more about the job and career I am interested in.	Equal variances assumed	.002	.965	.428	49	.335	.671	.087	.203	-.321	.495
	Equal variances not assumed			.496	32.752	.312	.623	.087	.175	-.269	.443
Working in a clinic or hospital setting will/did better prepare me to pass the licensure exam.	Equal variances assumed	2.418	.126	.955	49	.172	.344	.230	.241	-.254	.713
	Equal variances not assumed			.832	18.609	.208	.416	.230	.276	-.349	.808
Working in a clinic or hospital setting kept me motivated to complete my coursework.	Equal variances assumed	.634	.430	.651	49	.259	.518	.149	.228	-.310	.607
	Equal variances not assumed			.585	19.478	.283	.565	.149	.254	-.382	.679

APPENDIX W

ANDRAGOGICAL PRINCIPLE DOMAIN DESCRIPTIVE STATISTICS

Andragogical principle domain: Descriptive statistics

Domain	Category	N	Min.	Max.	Mean	Std. Deviation	Variance
Intrinsic Motivation	Becoming More Knowledgeable	51	4	6	5.78	0.503	0.253
Intrinsic Motivation	Desire for a Better Quality of Life After Graduation	51	4	6	5.75	0.56	0.314
Intrinsic Motivation	Personal Satisfaction	51	4	6	5.69	0.616	0.38
Extrinsic Motivation	Potential to Earn a Higher Salary	51	3	6	5.59	0.753	0.567
Orientation to Learning	Applying the knowledge I gained immediately in my life/work.	51	4	6	5.53	0.674	0.454
Readiness to Learn	Being told what material the class was going to cover.	51	3	6	5.53	0.731	0.534
Readiness to Learn	Knowing why the coursework is relevant for a medical assistant.	51	3	6	5.51	0.809	0.655
Intrinsic Motivation	Increased Self-Esteem	51	3	6	5.43	0.878	0.77
Orientation to Learning	Feeling that the coursework will benefit my life/work.	51	4	6	5.39	0.723	0.523
Self-Concept	Having responsible for my learning in the program.	51	4	6	5.37	0.692	0.478
Experience	Having my prior life and work experiences helped my learning.	51	3	6	5.35	0.82	0.673
Experience	Having my life and work experiences valued in this program.	51	3	6	5.24	0.862	0.744

Orientation to Learning	Having instructor(s) show me how the class material applies to my job.	51	2	6	5.2	0.98	0.961
Self-Concept	Having the flexibility to design my learning experience (activities, assignments, etc.).	51	2	6	5.12	0.952	0.906
Readiness to Learn	Providing input on the coursework and learning objectives.	51	2	6	5.02	1.049	1.1
Self-Concept	Having my input valued.	51	3	6	5.02	0.969	0.94
Extrinsic Motivation	Recognition from Other People	51	1	6	4.78	1.376	1.893
Experience	Having faculty help me relate my prior life and work experiences to the coursework.	51	1	6	4.73	1.234	1.523
Extrinsic Motivation	Dissatisfaction with Current Work	51	1	6	4.14	1.456	2.121
Extrinsic Motivation	Societal Pressure to Attend College	51	1	6	3.33	1.763	3.107
Valid N (listwise)		51					

APPENDIX X

MOTIVATION DESCRIPTIVE STATISTICS

Descriptive statistics for motivation

What keeps you motivated in your coursework?	N	Min.	Max.	Mean	Std. Deviation
I_Becoming More Knowledgeable	51	4	6	5.78	0.503
I_Desire for a Better Quality of Life After Graduation	51	4	6	5.75	0.56
I_Personal Satisfaction	51	4	6	5.69	0.616
E_Potential to Earn a Higher Salary	51	3	6	5.59	0.753
I_Increased Self-Esteem	51	3	6	5.43	0.878
E_Recognition from Other People	51	1	6	4.78	1.376
E_Dissatisfaction with Current Work	51	1	6	4.14	1.456
E_Societal Pressure to Attend College	51	1	6	3.33	1.763
Valid N (listwise)	51				

APPENDIX Y

ANDRAGOGICAL PRINCIPLES CONSTRUCT INDEPENDENT SAMPLE T-TESTS

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p			Lower	Upper
Having the flexibility to design my learning experience (activities, assignments, etc.).	Equal variances assumed	.001	.973	1.910	49	.031	.062	.556	.291	-.029	1.141
	Equal variances not assumed			1.928	23.918	.033	.066	.556	.288	-.039	1.151
Having my input valued.	Equal variances assumed	.844	.363	1.742	49	.044	.088	.519	.298	-.080	1.118
	Equal variances not assumed			1.600	20.166	.063	.125	.519	.325	-.158	1.196

Having responsible for my learning in the program.	Equal variances assumed	3.793	.057	-.353	49	.363	.726	-.077	.219	-.517	.363
	Equal variances not assumed			-.418	34.525	.339	.679	-.077	.185	-.453	.298
Having my prior life and work experiences helped my learning.	Equal variances assumed	.004	.949	1.527	49	.067	.133	.388	.254	-.122	.899
	Equal variances not assumed			1.408	20.286	.087	.174	.388	.276	-.186	.962
Having my life and work experiences valued in this program.	Equal variances assumed	1.697	.199	1.586	49	.060	.119	.423	.267	-.113	.958
	Equal variances not assumed			1.611	24.214	.060	.120	.423	.262	-.119	.964
Having faculty help me relate	Equal variances assumed	.442	.509	.291	49	.386	.772	.114	.391	-.672	.899

my prior life and work experiences to the coursework.	Equal variances not assumed			.287	22.774	.388	.777	.114	.397	-.708	.936
Knowing why the coursework is relevant for a medical assistant.	Equal variances assumed	.002	.961	.437	49	.332	.664	.112	.256	-.402	.626
	Equal variances not assumed			.426	22.296	.337	.674	.112	.263	-.433	.657
Providing input on the coursework and learning objectives.	Equal variances assumed	.010	.922	.677	49	.251	.502	.224	.331	-.441	.889
	Equal variances not assumed			.688	24.257	.249	.498	.224	.326	-.447	.895
Being told what material the class was going to cover.	Equal variances assumed	3.010	.089	-.678	49	.250	.501	-.156	.231	-.620	.307
	Equal variances not assumed			-.835	37.988	.205	.409	-.156	.187	-.536	.223

Applying the knowledge I gained immediately in my life/work.	Equal variances assumed	.061	.806	.190	49	.425	.850	.041	.214	-.389	.470
	Equal variances not assumed			.195	24.838	.423	.847	.041	.208	-.387	.468
Having instructor(s) show me how the class material applies to my job.	Equal variances assumed	.003	.960	1.204	49	.117	.234	.369	.306	-.247	.984
	Equal variances not assumed			1.188	22.871	.124	.247	.369	.310	-.274	1.011
Feeling that the coursework will benefit my life/work.	Equal variances assumed	.566	.455	1.082	49	.142	.284	.245	.227	-.210	.700
	Equal variances not assumed			1.104	24.434	.140	.280	.245	.222	-.213	.703
Desire for a Better Quality of	Equal variances assumed	.737	.395	-.316	49	.377	.754	-.056	.177	-.412	.300

Life After Graduation	Equal variances not assumed			-.370	33.564	.357	.714	-.056	.151	-.364	.252
Potential to Earn a Higher Salary	Equal variances assumed	.021	.886	.097	49	.462	.923	.023	.239	-.456	.503
	Equal variances not assumed			.090	20.548	.465	.929	.023	.257	-.512	.558
Personal Satisfaction	Equal variances assumed	.134	.716	.307	49	.380	.760	.060	.195	-.332	.452
	Equal variances not assumed			.303	22.964	.382	.764	.060	.197	-.348	.468
Dissatisfaction with Current Work	Equal variances assumed	.676	.415	-.444	49	.329	.659	-.205	.461	-1.130	.721
	Equal variances not assumed			-.498	30.176	.311	.622	-.205	.411	-1.043	.634

Increased Self-Esteem	Equal variances assumed	3.003	.089	2.245	49	.015	.029	.595	.265	.062	1.127
	Equal variances not assumed			1.954	18.571	.033	.066	.595	.304	-.043	1.233
Recognition from Other People	Equal variances assumed	.661	.420	1.139	49	.130	.260	.490	.430	-.375	1.355
	Equal variances not assumed			1.221	27.141	.116	.233	.490	.402	-.334	1.314
Becoming More Knowledgeable	Equal variances assumed	2.320	.134	1.243	49	.110	.220	.195	.157	-.120	.510
	Equal variances not assumed			1.247	23.635	.112	.225	.195	.156	-.128	.518
Societal Pressure to	Equal variances assumed	.033	.856	1.009	49	.159	.318	.558	.553	-.553	1.669

Attend College	Equal variances not assumed	.990	22.624	.166	.333	.558	.564	-.609	1.725

APPENDIX Z

COMPLETE DEDICATION

"You're just going be a teacher doctor, right?
And if you don't like it, you're just going to be a dad?
I hope you don't like it."
Owen Romkey, January 2023

It is with great pride that I dedicate this dissertation to the memory of my loving mother, Carol Cerny Romkey, and my father, Michael G. Romkey. Your love and constant encouragement instilled a drive and desire inside me to never give up and to chase anything I wanted. To my older brother, Ryan, and younger brother, Drew. Our frequent mental and physical sparing throughout the years has given us each the fortitude and boundless energy to accomplish anything we set our minds and hearts on. To all my family for your understanding, support, patience, and encouragement through this journey and always.

Especially, to my children, Charlie, Owen, and Max. I hope you dream big and never let anything hold you back. May the challenges you face be an inspiration to create something new and better. Your limitations in life are only bound by your own volition. I cannot wait to watch you grow up and I hope I serve as an inspiration of what you can accomplish when set your sight on something and let nothing stand in your way. Having the opportunity to watch you discover the world around you is the greatest joy of my life.

To my wife, Hilary, for which none of this could be possible. Your caring heart and patient perspective gave me the space to chase this dream. Your love for me and our family kept all of us going when I could not. There is no one else I would rather be on this rollercoaster with than you. These five long chapters close another milestone and turn a new page on our story together, I love you.

To countless friends, classmates, mentors, and faculty. Thank you for continuously checking in with thoughtful texts and calls. Knowing you believed in me kept me going.

To the numerous colleagues, community leaders, and students I have encountered along the way, thank you for blessing me with the gift of your time. You may not know it, but you have been formative in my thinking and our encounters have influenced my understanding of the world around me.

To the three students in the work-based learning track who averaged 137 semester hours (more than enough for a bachelor's degree) and were seeking an entry-level credential, higher education has failed you. This innovation was designed to support students just like you. If I could make it so just one student did not have to lose nearly a decade of financial, social, and cultural capital navigating higher education only to be prepared for entry-level work, then this research will not be in vain.

Now… What's next?!