Shift Happens: Micro-credential's Effect on Student Achievement and Engagement

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Ryan White

Ed.S., Kennesaw State University, 2017
M.Ed., University of West Georgia, 2011
B.A., University of West Georgia, 2007

This dissertation, "Shift Happens: Micro-credential's effect on Student Achievement and Engagement," by Ryan White, is approved by:

Dissertation Committee Chair

E-Ling Hsiao, Ph.D.
Professor of Leadership, Technology, & Workforce Development

Dissertation Committee Research Member

Rudo E. Tsemunhu, Ph.D.
Professor of Educational Administration and Foundations

Committee Member

DocuSigned by:
6504589163EE430...

Jiyoon Jung, Ph.D.
Assistant Professor of Leadership, Technology, & Workforce Development

Committee Member

DocuSigned by:
E7092B2079CD46E...

John D. Lairsey, Ed.D.
Assistant Professor of Leadership, Technology, & Workforce Development

Associate Provost for Graduate Studies and Research

Becky K. da Cruz, Ph.D., J.D.
Professor of Criminal Justice

Defense Date

04/11/2023

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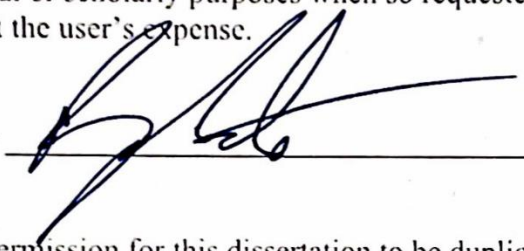
Signature 

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ABSTRACT

Education administrators expect teachers to participate in professional learning. Traditional professional learning for teachers comes in workshops, professional learning communities, meetings, conferences, self-guided professional development, coaching, and courses (Bill & Melinda Gates Foundation, 2014). Teachers are dissatisfied with this model and are moving towards innovative professional learning that is job-embedded, collaborative, authentic, supportive, highly contextualized, and allows for choice. Micro-credentials are one avenue that teachers are choosing to meet this growing demand. This study aimed to identify the strategies used by teachers with micro-credentials resulting in students improving achievement and engagement. Student achievement refers to the students' Measure of Academic Progress (MAP) test results. After interviews were recorded, transcribed, and coded, four major themes emerged: motivation, rigor, lifelong learner, and application to the classroom. The study's major findings revealed that micro-credential-based strategies positively increased student achievement and engagement. This study may contribute to the body of research that could help educators and policymakers better understand how to personalize learning for teachers, maximize professional development offerings, and increase student achievement and engagement.

TABLE OF CONTENTS

Chapter I 1

Overview 1

Statement of the Problem 2

Purpose 2

Research Questions 3

Significance of the Study 3

Conceptual Framework 4

Background 5

Concepts 5

Summary of Methodology 6

Limitations 7

Definition of Terms 8

Chapter Summary 9

Chapter II 11

Overview 11

Experiential Knowledge 11

The Shift in Professional Learning 13

Traditional Professional Learning 13

Innovative Technology Professional Learning 15

Micro-credentials 16

Overview 16

Concepts 16

Technology Vendor Micro-credential Programs 22

Impact of Professional Learning on Student Achievement 24

Student Attendance, Engagement, and Professional Learning 26

Multi-Tiered Systems of Supports 27

Positive Behavior Intervention Systems 28

Additional Strategies to Increase Student Attendance and Engagement 29

Student Attendance, Engagement, and Micro-credentials 30

Chapter Summary 30

Chapter III 32

Introduction 32

Research Design and Rationale 33

Narrative Inquiry 34

Setting 35

Role of the Researcher 35

Participant Selection 36

Data Collection 37

Data Analysis Procedures 40

Validity 42

Ethical Procedures 43

Chapter Summary 45

Chapter IV 46

Summary of Participant Profiles 46

Christie 47

Emily 52

Victoria 56

Penny 59

Brooklyn 63

Stephanie 66

Chapter Summary 68

Chapter V 69

Motivation 74

Rigor 79

Lifelong Learner 84

Application to the Classroom 90

Chapter Summary 95

Chapter VI 97

Research Questions: Summary Discussion 98

Limitations 109

Implications 112

Recommendations for Future Research 115

Conclusions 118

Researcher's Final Memo 122

References 124

APPENDIX A: Micro-credential Concepts Chart 136

APPENDIX B: Institutional Review Board Approval 138

APPENDIX C: School District Permission Letter 140

LIST OF TABLES

Table 1: *Participant Demographics and Characteristics* 70

Table 2: *Examples of Initial Codes Used and the Themes Noted* 72

Table 3: *Sample of Data from Themes* 73

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DEDICATION

This dissertation is dedicated to my family, friends, and co-workers for their support and encouragement. To Edelweiss and Adeline, it has been a joy watching the two of you grow up and become young ladies. To my friends, thank you for your support, encouragement, and understanding. To my co-workers, thank you for the day-to-day check-ins and advice. This dissertation is also dedicated to educators who are early adopters and innovators that practice a growth mindset to make a difference in the lives of students.

Chapter I

INTRODUCTION

Overview

This study focuses on teachers who have earned micro-credentials to augment their schools' inadequate traditional professional learning. Many teachers are dissatisfied with regular professional development for many reasons. Darling-Hammond et al. (2017) suggested that traditional learning models and environments are generic, lecture-based, single-episode events and "have no direct connection to teachers' classrooms and students" (p. v). Many teachers do not feel that traditional professional learning prepares them to use technology and digital learning tools (Bill and Melinda Gates Foundation, 2014; Garcia & Weiss, 2019). Traditional professional learning experiences include workshops, professional learning communities, meetings, conferences, self-guided professional development, coaching, and courses (Bill and Melinda Gates Foundation, 2014; Jones et al., 2018; Kelley, 2019).

Micro-credentials are "a way for teachers to demonstrate professional competencies and provide evidence of outcomes from professional learning" (ARCC, 2020, para. 4). Micro-credentials allow educators more autonomy and control over time, path, and pace. These elements make micro-credentials more teacher-centered than traditional professional learning (Erickson, 2019). I explored a thorough definition of micro-credentialing and its basis as a professional learning tool. Using a qualitative methodology with participants, I presented a rationale for micro-credentials as a model

for increasing student achievement and engagement.

Statement of the Problem

The New Teacher Project (2015) found that school districts spend 6-9% of their budgets on professional learning. A typical public school teacher spends 68 hours yearly on school districts' professional learning (Bill and Melinda Gates Foundation, 2014). This report further indicated that only 29% of teachers were delighted with current professional development offerings. Jones et al. (2018) and Kelley (2019) rendered the top-down professional learning approach ineffective. Furthermore, the Gates Foundation (2014) deemed current professional development offerings irrelevant, inadequate, and disconnected from students' learning. Porter et al. (2000) found that school districts and schools face several challenges in meeting the professional learning needs of teachers, including (1) balancing sustained professional learning for large numbers of teachers versus high-quality professional education for a few teachers, (2) implementing knowledge about high quality and effective professional learning, and (3) lacking the infrastructure to manage and implement high quality and effective professional learning.

Purpose

This study aims to identify the strategies used by teachers with micro-credentials in elementary schools in a Georgia school resulting in students improving their achievement and engagement. In this study, achievement refers to the students' Measure of Academic Progress (MAP) test results. The teacher's perspective focuses on applying strategies adopted by the teacher from the micro-credential program. Methods of inquiry include codes and themes from interview data with teachers and a review of the micro-credential programs completed.

Research Questions

The following research questions guided this study:

1. What were teachers' personal, social, and professional experiences with micro-credentials in elementary schools in a Georgia school district that took responsibility for improving student achievement and engagement?
2. What strategies did teachers with micro-credentials use in elementary schools in a Georgia school district to improve student achievement and engagement?

Significance of the Study

Teachers have a high level of dissatisfaction with current professional learning and seek out new opportunities in micro-credentials. I sought to understand the impact of strategies used by teachers with micro-credentials on student achievement and engagement. Focusing on teachers' use of micro-credentials to improve students' academic performance may provide local and district-level leaders with insight into improving their schools' performance. The information gained from this study may also benefit new and practicing teachers, district-level leadership, leader preparation programs, and state policymakers who seek to develop professional leadership practices and drive overall school improvement and student achievement. Effective classroom instruction is essential to the transformation of low-performing and failing schools. My primary contribution was evaluating the effectiveness of strategies used by teachers with micro-credentials in elementary schools in a Georgia school district, resulting in students improving their achievement and engagement. By understanding teachers' perspectives, K-12 school districts and educational technology companies will better understand micro-credential’s impact on student achievement and engagement.

K-12 schools and school districts offer professional learning opportunities throughout the year, and educators have various options for independent professional learning (Garcia & Weiss, 2019). The results from this study may inform future micro-credential programs. Leaders may be able to match teachers to appropriate, specific, and meaningful micro-credential professional learning. This study will also add to the body of research on motivations for educators independently earning micro-credentials. The positive social change implications include increasing implementation of professional learning strategies, becoming subject matter experts in their chosen field, community understanding of professional learning in K-12 education, innovative instructional strategies, student achievement and engagement, educational technology usage, and micro-credential adoption. This study will build upon current research by adding an in-depth perspective on micro-credentialed teachers and how that professional learning experience improves student achievement and engagement.

Conceptual Framework

The conceptual framework for this study creates a model of ideas and includes my background, theories that apply to micro-credentials, and research on micro-credential concepts. These form a conception or model of understanding the problem under investigation. Micro-credentials include the concepts of self-efficacy (Erickson, 2019), motivation (Kelley, 2019), rewards (Finkelstein et al., 2013), and gamification (Dolanowski, 2020). Appendix A demonstrates how integrating these micro-credential concepts influence student achievement and engagement.

Background

Maxwell (2013) encouraged researchers to include "the actual ideas and beliefs that you hold about the phenomena studied" (p. 39) as part of the conceptual framework. I have a background in creating micro-credential programs for instructional technology professional learning. I had witnessed varying degrees of teacher adoption and completion of micro-credentials, and I wanted to deeply understand the classroom experiences of educators earning micro-credentials.

Concepts

Self-efficacy affects educators because efficacy beliefs guide their decisions and actions. Bandura (1997) defined self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3). High self-efficacy promotes "diligence and resolve with which groups chose to pursue goals" (Goddard et al., 2004, p. 8). Research by Hattie (2016) concluded that efficacy significantly impacts student learning, collective efficacy positively affects student achievement, and professional learning that leads to increased efficacy should be maximized.

Teacher motivation has positive effects on professionals. There is a direct correlation between intrinsic motivation and teacher retention, so "the teacher who is intrinsically motivated by learning new and innovative ideas experiences longevity within education" (Taylor et al., 2014, p. 7). Researchers found that highly motivated teachers were unsatisfied with professional stagnation and purposefully sought professional opportunities to grow and gain a sense of renewal (Greene et al., 2020).

The reward in a micro-credential program is earning the micro-credential, which affirms and validates the practical achievement of the teacher (Finkelstein et al., 2013). This reward allows teachers to stand out in a way others can understand. It also creates an environment where teachers are rewarded for furthering their expertise to support students (CTQDP, 2016). The micro-credentialed teacher could also lead micro-credential cohorts and mentor teachers earning a micro-credential (CTQDP, 2016).

Gamification is not a game but a technique whereby game mechanics are integrated into non-game settings to increase motivation (Boudadi & Gutiérrez-Colón, 2020; Fulton, 2019). Gamification of educator professional learning involves ranking the order of educators using points or leaderboards to display educator achievements, which can increase competition as educators vie for first place or the top spot (Kelley, 2019). Leaderboards do not motivate all participants to compete for top-tier placement. Still, it allows groups of friends and colleagues to compete with one another (Dolanowski, 2020).

Summary of Methodology

Roberts and Hyatt (2019) recommended that researchers choose a research methodology based on the research question, the purpose of the study, the theory base, and the nature of the data. A qualitative approach is best suited for this study's inductive nature, as I seek to make meaning from the participants' experiences and perceptions of professional development. Roberts and Hyatt (2019) remarked that qualitative researchers are "interested in the meanings people attach to the activities and events in their world and are open to whatever emerges" (p. 143). Specifically, narrative inquiry is best suited to explore educators' instructional strategies. It can be used as an intentional reflexive process for teacher participants to reflect on their learning (Kim, 2016). Connelly and

Clandinin (2006) viewed education as the "construction and reconstruction of personal and social stories of teachers and learners" (p. 2). I focused on the participants' personal, social, and professional experiences to clearly understand how micro-credentials affect instructional strategies. Narrative inquiry is the most adept at exploring the stories of the experiences of educators that earn a micro-credential. I purposefully selected six participants with the most experience using micro-credentials in the teaching profession. I proposed to use Seidman's (2013) three-interview series to collect descriptive and in-depth data from teacher participants achieving micro-credentials.

Furthermore, I also used documents and memos to collect data. Data analysis includes various strategies such as coding, categorizing, and reflective writing. I took precautions to ensure the validity of the findings, including collecting detailed, thick descriptions, triangulation of data; identifying researcher bias and reactivity; and increasing the result's generalizability.

Limitations

This study is not without research limitations. It focuses on teachers in several elementary schools in one school district to provide data using a qualitative approach with the narrative inquiry. Transferability is limited. I used only a small K-5 sample. Because of this study's small sample size, it may be potentially challenging to transfer, generalize, or extrapolate findings to all educators. I identified themes related to educators and micro-credentials based on participants' experiences and interviews. Participants self-reported the data from the research study during interviews, which may have inaccurate answers. Another limitation arises because participation was voluntary since they already had an interest and passion for personalized learning, which could

have influenced the results. I am the central researcher in this study and am a district Chief Technology Officer who had teachers from a school district as participants. Also, these participants could naturally be inclined to support this study to gain favor for future leadership or technology positions.

Although this study occurred while students and teachers were in school, COVID-19 shut down this school system during the Spring of 2020. Parents also had the option for distance learning for students during the 2020-2021 school year. The Georgia Department of Education (GADOE) did not move forward with Milestones testing in the Spring of 2020, the Milestones tests accounted for .01% of a student's grade in 2020-2021, and distance learners took the MAP test from home during this period. All stakeholders experienced the effects of social distancing and social-emotional issues during this period. COVID-19 limited the study because teachers and students faced various in and out-of-school challenges related to COVID-19. These factors could have affected micro-credentialing opportunities, student achievement, and engagement.

Definition of Terms

Achievement. “The degree in which a learner, instructor or organization have accomplished their short-term or long-term learning objectives” (Mushtaq et al., 2019, p. 71). In this study, achievement refers to the students’ Measure of Academic Progress (MAP) test results.

Badge. The reward for completing a micro-credential (Bajor, 2019).

Micro-credential. "A way for teachers to demonstrate professional competencies and provide evidence of outcomes from professional learning" (ARCC, 2020, para. 4).

Personal Experiences. “Anything remembered, perceived, felt or encountered”

(Millard, 2020, p. 184).

Professional Experiences. “The experience that occurred through full-time employment in an education-related field or in a field in which the person intends to be licensed” (Indiana State Board of Education, 2014, p. 4)

Social Experiences. “Acts, actions, or practices of two or more people mutually oriented towards each other's selves, that is, any behavior that tries to affect or take account of each other's subjective experiences or intentions” (Hales-Mabry, 2003, p. 133).

Strategies. "Instructional strategies are techniques teachers use to help students become independent, strategic learners" (Alberta Learning, 2002).

Traditional professional learning. Experiences include workshops, professional learning communities, meetings, conferences, self-guided professional development, coaching, and courses (Bill & Melinda Gates Foundation, 2014; Jones et al., 2018; Kelley, 2019).

Chapter Summary

Schools and school districts faced several challenges in meeting the professional education needs of their teachers, and teachers were becoming dissatisfied with current school and district-level professional education. Using a qualitative methodology with the narrative inquiry for this study, I proposed using Seidman's (2013) three-interview series to collect descriptive and in-depth data from micro-credentialed teachers to explore student achievement and engagement. Student achievement refers to students’ MAP test results. The results of this study may help build micro-credential professional learning by identifying effective attributes of micro-credential program design, effectively matching

educators to micro-credential based professional education, and increasing overall educator satisfaction with professional knowledge. By comparing the available literature with this proposed study, I may create theories or concepts on the relationship between micro-credentials and their effect on student achievement and engagement. K-12 school districts, teacher professional learning, and private companies considering designing a K-12 education micro-credential program could benefit by using these theories or concepts.

Chapter II

LITERATURE REVIEW

Overview

Teachers have a wide variety of opportunities for professional learning (Darling-Hammond et al., 2017). However, teachers are frustrated with current offerings despite schools and school districts investing time and financial resources in professional learning (Bill and Melinda Gates Foundation, 2014). Considering this situation, it is valuable to explore why teachers do not engage in traditional professional learning and ascertain which opportunities are more effective. Specifically, micro-credentials are reviewed and investigated for their effects on student achievement and engagement.

The literature review for this study includes my experiential knowledge, the shift in professional learning, concepts, and theories that apply to micro-credentials, and current research on student achievement and engagement. These factors form a "conception or model of what is out there that you plan to study, and of what is going on with these things and why" (Maxwell, 2013, p. 39). Appendix A demonstrates how integrating these micro-credential theories and concepts influences achievement and engagement.

Experiential Knowledge

My interest in micro-credentials began when my former school district began to purchase Chromebooks for classrooms. I was one of the few teachers given a classroom set of devices for student use, and I was motivated to learn more about Google and

instructional technology to better meet my students' needs. The school district recommended that I earn my Google Level I Certification. I studied for the test, passed it, and proudly added the badge to my email signature. Earning the micro-credential for the Google Level I Certification put me ahead of other teachers because the experience proved I could use technology innovatively. Then, I accepted a position as an instructional technologist. Professional learning for instructional technology was tied to this new role. I wanted to find an engaging professional learning model instead of step-by-step training because I wanted students and teachers to be creators instead of content consumers.

I partnered with a colleague in my professional network to visit the Richland School District Two during the South Carolina Midlands Summit and learned about their Level Up program. The Level Up program combined micro-credentials, personalized learning, and gamification to create challenges based on the substitute, augmentation, modification, and redefinition (SAMR) model. Teachers at Richland Two used Level Up to help "teachers create personalized, authentic, and collaborative learning environments" (Richland School District 2, 2015). We talked with several teachers, instructional technologists, and leaders about the program, and we were excited to bring it back to our school district. The instructional technology team and I built a similar program that included micro-credentials and aspects of gamification. Teachers could complete challenges for points, and we awarded badges based on tiers of points accrued. We had thousands of challenges met and were excited about the successes we experienced and teachers using technology effectively.

My initial focus for this study was motivation, choice, and recognition of micro-credentials. However, this focus only validated my current view that choice and recognition increased teacher participation and that gamification increased motivation. These aspects had already been studied in available research and would not benefit available literature. Considering the rise in micro-credentials in K-12 education, I wanted to study them in greater depth and understand the varying degrees of teacher adoption and completion of micro-credentials that I and other school districts had witnessed.

After discussing my research study's focus with professors and colleagues and reflecting on myself, I wanted to deeply understand the experiences of educators earning micro-credentials linked to professional learning. Based on my experience, some educators would participate each year, independently acquire micro-credentials outside of the school district's offerings, or were inconsistent with earning micro-credentials. I have talked with instructional technologists and directors in multiple systems about these varying results and have seen similar outcomes. Understanding that teachers in various school systems exhibit similar behaviors, I wanted to explore micro-credentialed teachers' experiences in the classroom.

The Shift in Professional Learning

Traditional Professional Learning

The Center for Teaching Quality and Digital Promise (CTQDP) (2016) documented that educators' professional learning was embedded into state rules and regulations. Traditional professional learning experiences fulfilled this requirement through workshops, professional learning communities, meetings, conferences, self-guided professional development, coaching, and courses (Bill & Melinda Gates

Foundation, 2014; Jones et al., 2018; Kelley, 2019). Darling-Hammond et al. (2017) suggested that traditional learning models and environments are generic, lecture-based, single-episode events and "have no direct connection to teachers' classrooms and students" (p. v). According to Jones et al. (2018) and Kelley (2019), the top-down professional learning approach has little meaning or relevance to teachers. It has "too many current professional development offerings that are not relevant, not effective, and most important of all, not connected to their core work of helping students learn" (Bill and Melinda Gates Foundation, 2014, p. 3). Many teachers do not feel that traditional professional learning prepares them to use technology and digital learning tools (Bill and Melinda Gates Foundation, 2014; Garcia & Weiss, 2019).

Teachers are dissatisfied with traditional professional learning (Bill and Melinda Gates Foundation, 2014; Cator et al., 2014; CTQDP, 2016; Erickson, 2019; Jones et al., 2018; Kelley, 2019). A three-series study by Porter et al. (2000) found that school districts and schools face several challenges in meeting the professional learning needs of teachers, including: (1) balancing sustained professional learning for large numbers of teachers versus high-quality professional learning for a few teachers, (2) implementing knowledge about high quality and effective professional learning, and (3) lacking the infrastructure to manage and implement high quality and effective professional learning. To curtail these gaps, "micro-credentials present a unique opportunity to shift the conversation around professional learning away from seat time and toward competency" (CTQDP, 2016, p. 18).

Innovative Technology Professional Learning

School districts can adopt innovative professional learning practices instead of relying on traditional professional learning models. The Bill and Melinda Gates Foundation (2014) released a report detailing teachers' perspectives on professional learning, which found a high level of satisfaction when teachers choose their professional learning. Teachers "who choose all or most of their professional learning opportunities are more than twice as satisfied with professional development as those with fewer options" (Bill and Melinda Gates Foundation, 2014, p. 10). Teachers prefer authentic and job-embedded professional learning that is energizing, supportive, collaborative, ongoing, and highly contextualized (Bill and Melinda Gates Foundation, 2014; Darling-Hammond et al., 2017).

Schools and school districts are creating micro-credential programs for educators and finding success (CTQDP, 2016). In addition, Apple, Google, and Microsoft have made micro-credential professional learning programs that offer teacher autonomy to choose skills to develop and culminate with earning a digital badge based on completed actual world artifacts and assessments (Apple, 2020; Google, 2020; Microsoft, 2020). Although school systems do not award professional learning units or hours for these programs, the micro-credential programs provide an opportunity for recognition, relevance, and incentive to participate (Erickson, 2019; Ganzglass & Good, 2015; Jones et al., 2018; Kelly, 2019).

Micro-credentials

Overview

Micro-credentials are also known as badges. Teachers use them for formal and informal learning (CTQDP, 2016). Fanfarelli and McDaniel (2015) defined a digital badge as a "visual marker of achievement that is awarded in response to the completion of pre-specified criteria and exists in a virtual space" (p. 404). Rosenberger (2019) added that micro-credentials could "serve a variety of purposes, including distinguishing personal academic or professional achievement" (p. 477). Erickson (2019) confirmed that micro-credentials are specific, competency-based, and dynamic. Micro-credentials allow educators to earn a symbol for their professional accomplishments (Kelley, 2019) and create a portfolio of artifacts, "effectively collecting a currency to support their professional identities" (CTQDP, 2016, p. 9). An organization, school district, or school can award them for completing courses, skills, academic achievements, artifact submission, and participation (Ady et al., 2015; CTQDP, 2016; Erickson, 2019; Kelley, 2019). Educators earn a micro-credential by identifying the micro-credential they want to earn based on their needs or interests, pursuing their learning, gathering and submitting evidence of their competence, and allowing qualified assessors to evaluate the evidence educators present.

Concepts

Educator Self-efficacy

Bandura (1997) defined self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3). Tschannen-Moran and Woolfolk-Hoy (2001) defined teacher self-efficacy as a "judgment

of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated" (p. 783). Thornton et al. (2020) conducted a research study. They found increases in completing tasks and enhanced self-efficacy beliefs while maintaining "the expectation that performance will be proficient in the future" (Tschannen-Moran et al., 1998, p. 211). There is a positive correlation that as "educators engage in professional learning experiences that provide more autonomy and satisfaction, they become more efficacious" (Erickson, 2019, p. 28). Cator et al. (2014) found that educators who earn micro-credentials have more autonomy and control of their learning time, path, and pace.

Efficacy affects educators because efficacy beliefs guide their decisions and actions. Efficacy in education promotes job satisfaction, more positive emotions related to work, being open to new ideas, experimenting with different teaching methods to meet the current needs of students, and demonstrating a more vital persistence and greater resilience amid a trial (Allinder, 1994; Erickson, 2019; Klassen & Chiu, 2010; Ross & Gray, 2007). High self-efficacy promotes "diligence and resolve with which groups chose to pursue goals" (Goddard et al., 2004, p. 8). Erickson's (2019) micro-credential efficacy research revealed that "if an educator or better yet a team of educators filters their realities through the belief that what they learn can and does impact student achievement, it is very likely that these beliefs will manifest in their instructional decisions and practice" (p. 5). Research by Hattie (2016) concluded that efficacy significantly impacts student learning, collective efficacy positively affects student achievement, and professional learning that leads to increased efficacy should be maximized.

Motivation

Greene et al. (2020) conducted a research study on motivation and professional development. They found that teachers with high motivation levels were not satisfied with professional stagnation, and learning opportunities allowed for professional growth and a sense of renewal. Greene (2020) found that new teachers engaged in professional learning to meet their immediate needs, while experienced teachers with advanced degrees were challenged, rejuvenated, and prepared for advanced educator roles. However, due to its static nature, traditional credentialing by earning degrees, certificates, and licenses does not meet employers' needs. It falls "short of fully capturing previous learning and poorly communicates detailed information about graduates" (Erickson, 2019, p. 17). Increasing motivation is essential for all educators because Hargreaves and Fullan (2012) found that teachers struggle with staying motivated as they get closer to the midpoint and end of their careers. Educator motivation is critical because there is a direct correlation between intrinsic motivation and teacher retention, so "the teacher who is intrinsically motivated by learning new and innovative ideas experiences longevity within education" (Taylor et al., 2014, p. 7).

Teachers use micro-credentials as a motivational strategy "to promote engagement and learning since they typically require focused goals to be accomplished via challenging tasks" (Kelley, 2019, p. 60). Researchers also supported micro-credentials for transforming professional learning due to offering personalized learning opportunities driven by an educator’s motivations (Abramovich et al., 2013; Ady et al., 2015; Erickson, 2019; Kelley, 2019). Micro-credentials can fill in the gaps that current credentialing and degrees can not meet by identifying, recognizing, and rewarding

educators for areas, skills, and accomplishments currently not credited (Finkelstein et al., 2013). Porter et al. (2000) found that teacher choice of professional learning "contributes to the coherence of the teachers' personal goals for professional development, allows teachers to choose the activities that best match their individual needs, and increases teachers' investment in their professional development program" (p. 15). Micro-credential creators weave the element of choice to explore personal and professional goals into the components and features of a micro-credential program to increase motivation, as the badge itself is not the primary motivator (Ady et al., 2015; Finkelstein et al., 2013; Ganzglass & Good, 2015; Rosenberger, 2019; Shields & Chugh, 2017). Micro-credentials provide tangible and achievable milestones for educators to reduce educator attrition and enhanced motivation, mainly when the activity is competency-based, collaborative, and has an attainable reward (Finkelstein et al., 2013).

Rewards

For the most part, educators choose their profession for the intrinsic characteristics of the career and not the extrinsic reasons (Taylor et al., 2014). Educators feel most rewarded in "making a difference in the lives of their students, building relationships, working within a fulfilling occupation, being a lifelong learner, and working within a dynamic work environment" (Taylor et al., 2014, p. 5). When an educator completes a micro-credential program, their reward is a badge to affirm and validate the concrete and practical achievement (Finkelstein et al., 2013; Grant, 2014; Kelley, 2019). The badges become valuable for professional resumes and job applications (Finkelstein et al., 2013).

Micro-credential programs can have badges as milestones and stackable credentials toward larger goals (Erickson, 2019; Finkelstein et al., 2013). Google (2020) is an example of stackable and tiered badging. It offers Google for Education certifications that build upon one another, with the Level 1 Certification leading to the Level 2 Certification. Educators who complete these two programs can pursue the Google Trainer or Google Innovator programs.

Micro-credential programs offer the opportunity for educators to stand out in a way that stakeholders value and "sets the stage for incentives that encourage and reward teachers who develop and demonstrate particular kinds of expertise to meet student and system needs" (CTQDP, 2016, p. 12). Due to the flat nature of the teaching profession for those who do not pursue administration, a new professional reward is rising for teachers leading micro-credential cohorts and mentoring teachers earning a micro-credential (CTQDP, 2016).

Gamification

Gamification is not a game but a technique whereby game mechanics are integrated into non-game settings to increase motivation (Boudadi & Gutiérrez-Colón, 2020; Fulton, 2019). Applying this idea to adult education began in the private sector and has seen a steady rise in popularity in education to motivate learners (Boudadi & Gutiérrez-Colón, 2020; Fulton, 2019; Kelley, 2019). Participants in gamified professional learning programs have provided feedback that the experience was predominantly positive (Boudadi & Gutiérrez-Colón, 2020; Hung, 2017).

Gamification of educator professional learning involves ranking the order of educators using points or leaderboards to display educator achievements, which can

increase competition as educators vie for first place or the top spot (Kelley, 2019). Leaderboards only motivate some participants to compete for top-tier placement. Still, it allows groups of friends and colleagues to compete with one another (Dolanowski, 2020). Hung (2017) warned against using gamification for tracking points or challenges completed. This gamification approach exploits game design, narrows gamification to pontification, and does not promote real learning.

Earning a badge for micro-credential program completion is an example of professional learning taking advantage of gamification strategies and one of the most widely adopted elements of gamification (Dolanowski, 2020). Educators who earn a badge work towards a goal that helps increase engagement and learning (Rimland & Raish, 2019). Micro-credentials should be designed as competency-based challenges or programs. Educators who earn a badge in a gamified micro-credential program for a trivial challenge are less motivated than a meaningful, accurate, and valuable challenge (Hung, 2017; Dolanowski, 2020; Rimland & Raish, 2019). The effectiveness of gamification is like other educational innovations because its design and use rely on proper instructional design (Hung, 2017; Shields & Chugh, 2017).

Micro-credentials are available to educators from a variety of sources. Educators can earn a micro-credential from within or outside a learning management system (LMS), a school or school district, or an outside organization (Rimland & Raish, 2019). Apple, Google, and Microsoft have created micro-credential programs where educators can earn a badge (Apple, 2020; Google, 2020; Microsoft, 2020). The GADOE (2020) also recently released micro-credential programs in response to the transition to distance learning

during COVID-19 to support school districts in standardizing and providing best practices for teachers.

Technology Vendor Micro-credential Programs

Apple

Apple is known for iPhones, iPods, iPads, and a line of MacBook laptops. Apple has designed a micro-credential program called Apple Teacher for educational use of its hardware and software, "designed to support and celebrate educators" using Apple products for teaching and learning (Apple, 2020, p. 1). Apple integrated micro-credential concepts by incorporating applicable classroom skills, recognizing educators for completing the program, and rewarding educators for their work. Educators get a badge when they complete the Apple Teacher micro-credential program. Educators holding this credential are then eligible to apply for the Apple Distinguished Educator (ADE) title, which requires providing evidence of innovative Apple technology use and is recommended by an Apple employee. Educators selected to be an ADE must attend a training institute, become part of an online community for the group, publish resources for other educators, and participate in annual meetings. As of November 2020, there are 2,947 ADEs in 45 countries (Apple, 2020).

Google for Education

Google is known for its search engine, but it has branched out into other applicable markets, including an online suite of digital tools called Google Workspace for Education and the Chromebook, a Google Chrome-based laptop designed for education (Google, 2020). As part of Google's support for Google-based educational technology, Google developed the Teacher Center to support educators in learning about using

specific Google products in the classroom, connecting with Google communities, learning about the products and professional training, and earning Google certifications (Google, 2020).

Google developed several two-tiered Google Workspace for Education certifications for educators. The first group comprises the Google Certified Level I Educator micro-credential and Google Certified Level II Educator micro-credential. This initial group of credentials required completion of coursework, followed by a certification exam to demonstrate proficiency, get recognition, and directly impact instructional technology usage in the classroom (Google, 2020). The second group was only achievable if a participant completed the first certification group. It consisted of the Google Certified Trainer, Google Certified Coach, and Google Certified Innovator (Google, 2020). These credentials allowed educators to train other educators in Google tools, transform how schools use technology, and pursue a passion project to solve education challenges (Google, 2020).

Microsoft

Microsoft is known for its Windows operating system, Office Suite of software, and Internet Explorer web browser. It has also developed micro-credential programs for teachers to demonstrate their effective use of educational technology. The programs that Microsoft offers include Microsoft Innovative Educator (MIE), Microsoft Innovative Educator Trainer (MIE Trainer), and Microsoft Innovative Educator Expert (MIE Expert) (Microsoft, 2020). An MIE credential takes two hours of training and is a match for educators that "use Microsoft tools in the classroom and have learned the fundamentals of some of these tools" (Microsoft, 2020, p. 1). The MIE Trainer program requires training

100 educators annually, joining the MIE Trainer LinkedIn group, and completing an instructor-led Trainer Academy or the MIE Trainer learning path designed for educators who train other educators and school leaders. MIE Experts must already be MIE, complete two hours of training, and complete a self-nomination form to apply for the program. MIE Experts work with Microsoft to further innovation in education and collaborate with a world professional learning community on promoting innovation in teaching and learning.

Impact of Professional Learning on Student Achievement

Teachers perceived that professional learning improved classroom instruction and student achievement (Medina, 2020). Mizell (2010) and Srinivasacharlu (2019) linked deliberate and thoughtful professional learning to improvements in student achievement. "Effective professional development practices allowed teachers to update and equip themselves with the new skills and knowledge required to improve student learning" (Medina, 2020, p. 88). Teachers who participate in effective professional learning see increases in student achievement (Mizell, 2010). Mizell (2010) researched professional learning's effect on student achievement and found that teachers noted: "an increase in grades, test scores, student engagement, and positive behaviors" (p. 88).

Effective professional learning has several characteristics. Mizell (2010) noted that time for instructional planning, small group focus by content area, and scheduled time for reflective feedback are essential. The Bill and Melinda Gates Foundation (2014) found a high level of satisfaction when teachers choose their professional learning. Erickson's (2019) research affirmed that teachers become more successful as teacher autonomy and satisfaction increase. Teachers prefer authentic and job-embedded

professional learning that is energizing, supportive, collaborative, ongoing, and highly contextualized (The Bill and Melinda Gates Foundation, 2014; Darling-Hammond et al., 2017). Designing professional learning programs with autonomy, competence, and collaboration in mind enhances intrinsic and extrinsic motivation (Ryan & Deci, 2017, 2000).

Micro-credentialing has helped large districts, such as Chapel Hill-Carrboro City, guide professional learning and balance "learning of topics related to district goals with the personalized learning interests of staff" (Erickson, 2019, p. 2). The most basic purpose of a micro-credential is to catalog professional learning experiences. Still, practitioners include feedback, professional learning based on criteria instead of participation, standardizing documentation and reporting infrastructure, and incentives to increase engagement and effectiveness (Carey & Stefaniak, 2019). Micro-credentials allow educators more autonomy and control over time, path, and pace. These elements make micro-credentials more teacher-centered than traditional professional learning (Erickson, 2019). Erickson (2019) also recommended further research on the link between student learning outcomes and the performance of educators completing micro-credentials.

Measure of Academic Progress

The school district in this study administers the Measure of Academic Progress (MAP) Growth assessment three times yearly to monitor student learning. "MAP measures what students know and what they're ready to learn next. By dynamically adjusting to each student's performance, MAP Growth creates a personalized assessment experience that accurately measures performance—whether a student performs on,

above, or below grade level" (NWEA, 2019, p. 1). Each student's performance is then measured against national norms of millions of students (NWEA, 2019). Teachers then use the raw data and MAP Growth reports to "differentiate instruction and pinpoint individual student needs. Higher-level reports give administrators the context to drive improvement across entire schools and systems" (NWEA, 2019, p. 1).

NWEA is the nonprofit organization that school districts can partner with for the MAP Growth assessment. NWEA conducted a case study in Georgia in Floyd County Schools in 2021. At the time, Barbara Smith was the acting principal and found that teachers were discussing "the data we were getting, the growth we were seeing, and whether our kids were grouped appropriately and getting the right interventions" (NWEA, 2021, p. 2). NWEA elaborated further on the MAP data:

> The MAP data were used to inform their goal-setting activities, support students with test-taking strategies, and develop new materials to shore up some of the school's instructional weak points. The work paid off: During Barbara's year at the school, it showed the most growth in reading and math of any school in the district. (NWEA, 2021, p. 2)

Although this case study focused on the professional learning component of MAP Growth, effective MAP Growth data had a lasting impact on Floyd County Schools.

Student Attendance, Engagement, and Professional Learning

Student attendance is vital to success, graduation rates, and student achievement (Sprick & Berg, 2019). Student attendance is a common indicator of capturing student engagement in professional learning. High levels of student attendance help "students perform better on standardized achievement tests, decrease the likelihood of students

dropping out of school, and reduce the likelihood that students use tobacco, alcohol, or illegal drugs" (Sheldon, 2007, p. 273). Only 75% of chronically absent students graduate on time, while 91% that are not chronically absent graduate on time (Oregon Department of Education, 2015). The Oregon findings were consistent with those published by the GADOE, which found that 6th through 9th-grade attendance was a better predictor for dropout than test scores (GADOE, 2021a). Furthermore, "students who have higher attendance rates are far more likely to meet state academic standards, particularly in math" (Oregon Department of Education, 2015, p. 2). GADOE (2021a) found that student achievement was negatively affected by low student attendance and students starting to develop negative attitudes about school. Thus, school districts need to have various strategies to increase student attendance, such as teachers' professional learning and instructional strategies.

Multi-Tiered Systems of Supports

Researchers have found that punitive and reactive approaches cannot improve attendance (Sprick & Berg, 2019). One constructive approach to increasing student attendance is using the Multi-Tiered System of Supports (MTSS). In 2015, the Every Student Succeeds Act was signed into law and defined MTSS as "a comprehensive continuum of evidence-based, systemic practices to support a rapid response to students' needs, with regular observation to facilitate data-based instructional decision-making" (Congress.gov, 2015, Sec. 8002(33)). The GADOE established three tiers for grouping students for distinct levels of support (Coffey, 2019). Tier 1 is for the majority of students and consists of a researched-based curriculum, implementation fidelity, data-based differentiation, and ongoing teacher professional learning (Coffey, 2019). Sprick and

Sprick (2019) added that Tier 1 consists of "universal schoolwide and classroom systems that prevent absenteeism problems" (pp. 4-5). Tier 2 targets small-group and individual interventions, while Tier 3 targets intensive function-based interventions (Coffey, 2019; Sprick & Sprick, 2019).

Coffey (2019) found that MTSS was most successful when researchers analyzed data at all three levels, from grade to state. MTSS programs had established routines and procedures. The GADOE set rules for explicit decision-making for assessing student progress and used data to "compare and contrast the adequacy of the core curriculum and the effectiveness of different instructional and behavioral strategies" (Coffey, 2019). The MTSS model can then be applied to address attendance and tardiness issues in school (Sprick & Sprick, 2019). These actions include monitoring and identifying inequities based on data, encouraging family and community involvement, advocating for students, and ensuring that the school's attendance team works with intervention and prevention systems (Sprick & Sprick, 2019). To tailor the needs of MTSS to the local school or school district, administrators and teachers undergo MTSS professional learning locally and from the GADOE to create local procedures and supports (Coffey, 2019). However, applying the MTSS framework to student attendance is not a one size fits all solution.

Positive Behavior Intervention Systems

School districts and schools have implemented Positive Behavior Intervention Systems (PBIS) with students. PBIS began with a 1997 amendment to the Individuals with Disabilities Act and was “created as an evidence-based behavior intervention system for students with disabilities” (McGarrah, 2019, p. 22). PBIS relies upon four key domains: outcomes, data, systems, and practices to support students (Freeman et al.,

2019). These domains are "informed by contextual considerations which help support successful implementation and sustainability" (Freeman et al., 2019, p. 1). In addition to focusing on behavior and achievement, administrators that used PBIS in their schools found links between PBIS and student attendance, work completion, and student behavior (McGarrah, 2019).

A comparative study in Texas found that PBIS programs implemented with fidelity saw increased attendance outcomes (Bradshaw et al., 2015). To create an environment where students wanted to attend school, schools used their PBIS programs to set attendance expectations and created incentives for students to meet those expectations (Molina et al., 2020). School districts and schools that implemented PBIS with high fidelity found increases in high school student attendance and decreased tardiness (Bradshaw et al., 2015). The GADOE provides online training for professional learning for administrators and teachers for PBIS via webinars, strategic planning, and resources for each tier of PBIS implementation (Byars, 2021).

Additional Strategies to Increase Student Attendance and Engagement

School districts, schools, and teachers have a variety of other strategies to increase student attendance and engagement. Chen et al. (2020) and Bond (2020) found that flipped classroom pedagogical methods improved attendance and engagement. Teachers that use the flipped classroom method implement an instructional strategy that uses "interactive group learning activities inside the classroom, and direct computer-based individual instruction outside the classroom" (Chen et al., 2020, p. 13). Wilder et al. (2001) investigated the effect of randomized extra credit quizzes on student attendance and found the positive reinforcement-based approach increased student attendance by

10%. Student feedback on randomized additional credit quizzes was positive, with students reporting that they attended class more because of the chance to earn points from the quizzes (Wilder et al., 2001). Sheldon (2007) compared schools with a robust school, family, and community partnership program to similar schools that did not conduct these activities. Findings from this study indicated that schools with such programs "reported a significant increase in the percentage of students attending class" (Sheldon, 2007, p. 273).

Student Attendance, Engagement, and Micro-credentials

Although MTSS, PBIS, and additional strategies can increase student attendance and engagement, professional learning programs that use micro-credentials to train teachers on these concepts are severely limited or new to K-12 education. Georgia Virtual and the Utah State Board of Education (USBE) offer statewide micro-credentials on MTSS, but only the USBE offers a PBIS micro-credential (Georgia Virtual Learning, 2021; Utah State Board of Education, 2021). In addition, micro-credentials research on student attendance and engagement is severely limited since most micro-credentials focus on educational technology tools, re-licensure, motivation, and personalized professional learning for teachers (Carey & Stefaniak, 2019; Cator et al., 2014; Erickson, 2019). Carey and Stefaniak (2019) recommended further research to explore the long-term impacts of micro-credentials in specific contexts.

Chapter Summary

The literature review for this study includes my experiential knowledge, the shift in professional learning, concepts, and theories that apply to micro-credentials, and current research on student achievement and engagement. My experiential knowledge as a former teacher, former instructional technologist, and current Chief Technology Officer

is pertinent to this study. The shift in professional learning from uniform, lecture-based training to increased choice and personalization is critical for understanding the rise in micro-credential adoption in K-12 education.

Chapter III

METHODOLOGY

Introduction

Despite significant investments of money and time, teachers are dissatisfied with current professional learning opportunities. Teachers are unhappy with the ineffectiveness of the top-down learning approach (Jones et al., 2018; Kelley, 2019), the disconnectedness of offerings to the classroom (Bill and Melinda Gates Foundation, 2014), and the challenges of sustainability, putting knowledge into practice, and lack of infrastructure (Porter et al., 2000). This study aims to explore the strategies used by teachers with micro-credentials in elementary schools in a Georgia school district resulting in students improving their achievement and engagement.

Roberts and Hyatt (2019) recommended that researchers choose a research method based on the research question, the purpose of the study, the theory base, and the nature of the data. Qualitative researchers "are interested in the meanings people attach to the activities and events in their world and are open to whatever emerges" (Roberts & Hyatt, 2019, p. 143). Since this study focuses on participants' experiences from their perspectives, qualitative methods are better suited to the deep and rich data needed for this study to understand how student achievement and engagement are affected by micro-credentialed teachers.

Kim (2016) highlighted how educators used narrative inquiry as a curricular and pedagogical strategy and an intentional reflexive process to reflect on their learning.

Connelly and Clandinin (2006) concurred with this perspective on narrative inquiry and viewed education as the "construction and reconstruction of personal and social stories of teachers and learners" (p. 2). Micro-credentialed educators' total personal, social, and professional experiences were important in understanding the effects on student achievement and engagement. I deemed a qualitative approach appropriate as I sought to understand this paradigm. The following research questions guided this study:

1. What were teachers' personal, social, and professional experiences with micro-credentials in elementary schools in a Georgia school district that took responsibility for improving student achievement and engagement?
2. What strategies did teachers with micro-credentials use in elementary schools in a Georgia school district to improve student achievement and engagement?

Research Design and Rationale

Researchers use qualitative methods to investigate real-world issues and settings, the meaning people attach to the activities and events, and the character of a research topic. "Practical applications of qualitative methods emerge from the power of observation, openness to what the world has to teach, and inductive analysis to make sense of the world's lessons" (Patton & Patton, 2002, p. 237). Qualitative research is better suited to this study in several ways because it allows me to (1) collect data at the site, where the participants are experiencing issues or problems, (2) use multiple forms of data, such as interviews, classroom observations, personal documents, and professional artifacts, rather than rely on a single data source, and (3) leverage communication as the primary tool to build trust on the researcher and the obtained information due to it being

raw and unadulterated. I used the qualitative research method to understand complex issues by breaking them into meaningful, easily readable, and understandable inferences.

Qualitative research methods allow for in-depth and further probing and questioning of participants based on their responses, where the researcher also tries to understand their motivation and feelings. Understanding how teachers make decisions can help derive conclusions in micro-credential research. I used Kim's (2016) understanding of narrative inquiry and Seidman's (2013) three-interview series. Using both strategies, participants were given detailed descriptions of the places, settings, lived experiences, perceptions, effects of events, and meanings.

Narrative Inquiry

Narrative inquiry uses stories to "understand the meaning of human actions and experiences, the changes and challenges of life events, and the differences and complexity of people's actions" (Kim, 2016, p. 11). Narrative inquiry began in the 1980s with the publication of *On Narrative* by Thomas Mitchell in 1981. Kim (2016) included essays by leading thinkers from social, human, and natural sciences. Narrative inquiry is less rigid than other designs, allowing for increased flexibility and openness to multiple interpretations due to "its distinctive nature and significance" (Kim, 2016, p. 6). Connelly and Clandinin (2006) viewed narrative inquiry as embodying educational experiences as lived and told stories and specifically viewed education as the "construction and reconstruction of personal and social stories of teachers and learners" (p. 2).

According to Kim (2016), narrative inquiry has transformed teacher education, the basis for professional learning micro-credentials. Connelly and Clandinin (1990) advocated for narrative inquiry in education due to it embodying the "construction and

reconstruction of personal and social stories; learners, teachers, and researchers are storytellers and characters in their own and other's stories" (p. 2). Educators used narrative inquiry as a curricular and pedagogical strategy in addition to a reflective process to refine their teaching and learning (Kim, 2016).

Setting

I conducted this research in a top-performing school district in Northeast Georgia. This school district's scores are at or above 90 on the overall category of the CCRPI. The district's student population consisted of 8,258 students in 11 schools, 17.3% economically disadvantaged, and 12.6% students with a disability (GADOE, 2021b). The school district was 78.3% White, 7.4% Hispanic, 6.1% Asian, 4.6% Black, and 3.5% multiracial (GADOE, 2021b). Maxwell (2013) documented access to participants as a concern for qualitative researchers, and these sites are perfect for their proximity, convenience, and accessibility. However, my primary focus is to understand the effects of micro-credentialed teachers on student achievement and engagement in a high-performing school district.

Role of the Researcher

Merriam (2002) specified that the researcher is the primary instrument in qualitative research for collecting and analyzing data. In this study, I took an observational role. I worked for the school district but away from the research schools on a different campus. Nor did I have a supervisory role or collaborate on micro-credentials with any participants, making it challenging to build relationships with participants for this study. Loose connections with the research subjects reduced research bias.

Since the researcher is the main instrument for data collection, there may be personal theories, preconceived ideas, and researcher bias (Maxwell, 2013). I could not completely disconnect from the study because of my experiential knowledge, teaching tenure, experience earning micro-credentials, professional learning history, and literature related to this topic. Maxwell (2013) recommended developing and implementing strategies to minimize bias and threats to this study's validity. I included Maxwell's (2013) suggested a validity test checklist. The test consists of intense and long-term involvement, rich data, respondent validation, intervention, triangulation, and comparison.

Using the three-interview series approach by Seidman (2013), I developed intense and long-term involvement with the research participants. I then transcribed the interviews and reviewed the interview transcripts to assist with researcher error or bias (Maxwell, 2013). Participant interview transcript review also rules out any misunderstandings or misinterpretations of the participant's actions or answers. I intended to interview six participants from the elementary level and rely on feedback from my committee and others outside the study. I used feedback to identify weaknesses, personal biases, and assumptions. I examined what influenced my conclusions by documenting and reviewing the feedback, opinions, and research methods.

Participant Selection

I used purposeful sampling procedures to select participants who could best inform the research questions and enhance understanding of the phenomenon under study. I recruited a sample that best told important facets and perspectives on the micro-credentials under study. I chose participants who met specific criteria relevant to my

research questions. Thus, all participants must have the following: (1) earned at least one micro-credential, (2) be an elementary educator with a minimum of two years teaching at the school site, (3) a minimum of five years of teaching in their careers, and (4) administered MAP testing with his or her students. I selected no more than six participants for this study for the three-interview series, which lasted up to one hour each (Creswell & Creswell, 2018; Seidman, 2013). I formalized participation by asking subjects to complete a contact form. The contact form includes the previous requirements, contact information, and the option to interview face-to-face or virtually using Google Meet. Pseudonyms were used for each participant to maintain confidentiality. I standardized participant characteristics to generalize my results to similar individuals. Weiss (1994) referred to this as a sample chosen to maximize range, and Maxwell (2013) called it purposeful selection. Creswell and Creswell (2018) stated that purposeful selection "will best help the researcher understand the problem and research sampling" (p. 185).

Data Collection

This study centers on the effects of micro-credentialed educators on student achievement and engagement. Data collection is an essential step in the research process. Because I used narrative inquiry and conversation to capture participants' stories, interviewing was the primary tool for data collection. I was the researcher for this study and collected data using the three-interview series described by Seidman (2013). In addition to interviews, I used tools consistent with the data I planned on gathering. The following are the best methods for this study: interviews, observation sheets, documents catalog, research diaries, and memos.

Interview was the most appropriate method for collecting substantive data from participants because interview allowed me to "collect rich data, data that are detailed and varied enough that they provide a full and revealing picture of what is going on" (Becker, 1970, pp. 51-62). According to Patton and Patton (2002), "qualitative interviewing begins with the assumption that the perspective of others is meaningful, knowable, and able to be explicit. We interview to find out what is in and on someone else's mind, to gather their stories" (p. 341).

The interviews aimed for the participants to use their own words to describe their experiences. The interviews consisted of open-ended questions for emerging themes based on what the participants shared. During the first interview, I collected data on the participants' experiences with micro-credentials and their life history up to that current moment, as Seidman (2013) recommended. The questions focused on the participants' educational and professional experiences during the second interview. The third interview allowed participants to reflect on their experiences and make meaning. I included the role of technology in both the first and second interviews. Once I had completed the interviews, I transcribed interview recordings into computer files for further data analysis.

Roberts and Hyatt (2019) recommended collecting data when participants have the best opportunity to collect data successfully. Due to my participants being in education, I scheduled the interviews outside testing windows, holidays, and back to school. I interviewed participants using their preferred method from the contact form. I recorded face-to-face interviews using two recording devices with the Voice Memo App. This recording allowed for future transcription of the interviews in MAXQDA. Before

data analysis, I shared completed interview transcripts with participants to increase the study's credibility and improve their narratives' accuracy.

I used observation sheets for this study for both participant and non-participant observations. Maxwell (2013) recommended that these documents discuss setting, attitude and demeanor, and content of each interview. I used observation sheets to capture the field setting's time, place, and date where the observation occurred. Although these documents are relatively simple, they assisted in providing a tool for descriptive documentation of the participants, dialogue, description of the physical setting, accounts of events, activities, and my thoughts.

A large assortment of literature must be accessible and documented for this study. I used MAXQDA to collect, organize, analyze, and visualize this information. This tool helped organize documents into categories, manage memos, and assist with coding, recoding, and data analysis. A productivity advantage to using MAXQDA was my ability to house, query, and organize research documents in a central location.

It is essential to document items related to the research process. Thus, I maintained a personal research diary to assist me in writing ideas, research, reactions, and short memos. I used the memo manager tool in MAXQDA to manage my research diary. Each entry included the date in addition to the word(s), idea(s), or reflection on reading. Diary entries allowed for further development of emerging themes and reflection on the research study in an organized manner.

I used memos before, during, and after the interviews transcribed in MAXQDA for further data analysis. Maxwell (2013) stated that "writing memos creates additional rich data because reactions and initial theories and/or conclusions are documented before

the actual analysis of the data" (p. 195). Memos "assist the researcher in making conceptual leaps from raw data to those abstractions that explain research phenomena in the context in which it is examined" (Birks et al., 2008). I used memos to document reactions, body language, key points from the interview, and feelings. I also used memos to record data in a research diary to catalog my thoughts, activities, and feelings throughout the research process.

Data Analysis Procedures

Once data collection is complete, the process has yielded interview recordings and transcripts, memos, information on each participant, and other raw artifacts for systematic review. Roberts and Hyatt (2019) recommended: "display[ing] the data and identify[ing] the coding processes used to convert the raw data into themes or categories for analysis" (p. 153). This coding method includes detailed descriptions of data management, software, notes, memos, and other processes to help the reader understand how the large volume of data was reduced and analyzed (Roberts & Hyatt, 2019).

Creswell and Creswell (2018) defined five sequential steps for qualitative data analysis appropriate for this study. The first step was organizing and preparing the data for analysis. Next, I wrote memos, reviewed notes, transcribed interviews, and managed data by type. I followed up by checking the collected data. This variety of data allowed me to gather a general idea of the data and reflect on the overall meaning. Next, I reduced the data by identifying meaningful areas by identifying general ideas from participants, tone of the ideas, and evaluating the overall depth, credibility, and use of the information. I used the MAXQDA software package to organize notes, memos, artifacts, sources,

media, literature, and interviews during the qualitative data analysis process. I began the third step of coding the data after organizing and reading the data.

Coding is a process of organizing collected data by chunks and identifying terms that align with the specified data (Creswell & Creswell, 2018). Researchers base these terms on the language of the participant. I coded each interview data separately. I coded the data a second time using focused coding "to develop categories without distracted attention at this time to their properties and dimensions" (Saldana, 2016, p. 240). I continued writing memos and refining my codes while rereading my notes, memos, transcripts, and codes. Once I had completed the coding process, I organized and grouped codes similar to a collection called categories that share common characteristics and lead to patterns. I distinguished these characteristics with a word or phrase that describes something explicitly (Saldana, 2016).

According to Creswell and Creswell (2018), the next step in the data analysis process is to generate descriptions and themes. I based narratives on coding, and this practice aligns with the narrative inquiry. I returned for the second cycle of coding if commonalities developed during the description step. Saldana (2016) viewed coding as a cyclical act and recommended several cycles of coding the data because researchers rarely attempt the process during the first cycle. These additional cycles of recoding "further manages, filters, highlights, and focuses the salient features of the qualitative data record for generating categories, themes, and concepts, grasping the meaning, and/or building theory" (Saldana, 2016, p. 9). Themes are the patterns, trends, and concepts from a research study characterized by a phrase or sentence describing a process (Saldana,

2016). Themes must "display multiple perspectives from individuals and supported by diverse quotations and specific evidence" (Creswell & Creswell, 2018, p. 194).

Creswell and Creswell's (2018) final step in the data analysis process represents the description and themes in a narrative passage. I identified connections among themes and included identified themes in the findings section of my dissertation. I organized this narrative by theme, reflected on what I learned from conducting the research study, elaborated on the data analysis process that led to the data-based themes, and identified the overall meaning of the research study. I conveyed my understanding of K-12 educators' experiences of earning a micro-credential and applying this knowledge to the classroom from their voices and my own. I also shared new knowledge from this study and whether the results would be compatible or incompatible with previous research.

Validity

I have developed a personal theory, preconceived ideas, and researcher bias about the effects of micro-credentialed educators on student achievement and engagement (Maxwell, 2013). I based this understanding on my experiential knowledge, experience earning micro-credentials, teaching experience, history creating micro-credential professional learning, conferences, EdCamps, and literature related to this topic. My bias influenced this study, including the research questions, data collection, data analysis and interpretation, and conclusions generated by this study.

It is impossible to eliminate my own bias, but Maxwell (2013) stated that qualitative research is concerned with how bias "may have influenced the conduct and conclusions of the study and avoiding the negative consequences of these" (p. 124). Maxwell (2013) recommended that researchers develop and implement strategies to

minimize bias and other validity threats, not including my bias. Another approach to counter threats to validity is for a researcher to use triangulation for "collecting information from a diverse range of individuals and settings, using a variety of methods" (Maxwell, 2013, p. 127). I used a validity test checklist for this study: intense and long-term involvement, rich data, respondent validation, intervention, triangulation, and comparison (Maxwell, 2013).

Using the three-interview series approach by Seidman (2013) helped me develop intense and long-term involvement with the research participants. This strategy allowed for rich and descriptive data from participants. I then transcribed and reviewed the interview transcripts to assist with researcher error or bias (Maxwell, 2013). Participant interview transcript review also rules out any misunderstandings or misinterpretations of the participant's actions or answers. I followed Maxwell's (2013) recommendation to use feedback on response validation as additional evidence and the initial response to increase the research study's validity.

I interviewed six elementary-level teachers and relied on feedback from my committee and others outside the study. I used this feedback to identify weaknesses, personal biases, and assumptions. I checked what influenced my conclusions by documenting and reviewing the feedback, opinions, and research methods. Identifying and acknowledging my own biases allowed me to counter threats to validity.

Ethical Procedures

I ensured this study complies with the Institutional Review Board (IRB) requirements of Valdosta State University, as seen in Appendix B. I completed the school district's Application to Conduct Research to access the research site and interviewed

select teachers with the school system at a specific site. A letter of approval can be found in Appendix C. This application also included the research purpose, procedures, and expected results upon approval by the school system and principal, and I scheduled interviews with selected participants. I first contacted the Chief Academic Officer for the school system to explain the study's purpose and participant selection. I also shared this information with the schools' principals and the eligible participants for the study. I emphasized that all communications with the school district, school, and participants are voluntary, confidential, and abide by Valdosta State University's IRB guidelines.

Participant privacy was a priority during this research process. I avoided deceiving participants by reminding them of the purpose of the student (Creswell & Creswell, 2018). I adopted the following interview practices from Creswell and Creswell (2018) by:

> Considering how the interview will improve the human situation, how a sensitive interview interaction may be stressful for the participants, whether participants have a say in how their statements are interpreted, how critically the interviewees might be questioned, and what the consequences of the interview for the interviewees and the groups to which they belong might be. (p. 94)

I avoided exploiting participants by considering rewards and appreciation to demonstrate reciprocity for providing valuable data for the research study (Creswell & Creswell, 2018). Finally, I avoided collecting and disclosing harmful information by protecting sensitive information shared by all participants (Creswell & Creswell, 2018).

Data security was systemic during this study. I stored raw data in Google Drive with two-step authentication to prevent leakage. In addition, I reviewed all participant

files and folders to avoid sharing with unintended users. Data transmitted via email were in a passworded Adobe PDF file or Microsoft Word document to protect participant identities.

Chapter Summary

Using a qualitative methodology with a narrative inquiry for this study, I proposed using Seidman's (2013) three-interview series to collect descriptive and in-depth data from micro-credentialed educators. Research exists on educators completing institutional-based micro-credentials. The data analysis from this study added to this body of knowledge by focusing on the effects of micro-credentialed educators on student achievement and engagement. The results of this study helped future micro-credential professional learning by identifying common effective attributes, more productively matching educators to micro-credential-based professional learning, and increasing overall educator satisfaction with professional learning. By comparing the available literature with this proposed study, I may create theories or concepts on micro-credential creation and implementation for educators. K-12 school districts, adult education, and private companies that serve K-12 education could benefit by using these theories or concepts. Include a summary of the methodology used in this study.

Chapter IV

PARTICIPANT PROFILES

Micro-credentials allow educators more autonomy and control over the time, path, and pace of professional learning. They allow "teachers to demonstrate professional competencies and provide evidence of outcomes from professional learning" (ARCC, 2020, para. 4). This study identified teachers' strategies with micro-credentials resulting in students improving achievement and engagement. Focusing on teachers' use of micro-credentials to enhance students' academic performance may provide local and district-level leaders with insight into improving their schools' performance. The information gained from this study may also benefit new and practicing teachers, district-level leadership, leader preparation programs, and state policymakers who seek to develop professional leadership practices and drive overall school improvement and student achievement. Using qualitative methods, I made meaning from the participants' experiences and perceptions of professional development.

Summary of Participant Profiles

Six elementary teachers who earned micro-credentials were purposefully chosen for this study. I interviewed each participant three times between January and May 2022. The participants discussed their life experiences and perceptions before and during their time as educators in public elementary schools in a Northeast Georgia school. This chapter consists of a series of participant profiles to deeply understand each participant's collective experiences. Seidman (2013) recommended participant profiles for their

usefulness in data interpretation by presenting each participant in the context of process, time, and intentions. I created coherent participant narratives based on the interview recordings and observation memos.

Christie

Christie is a female Caucasian teacher with 16 years of teaching experience. She currently teaches at a predominantly White school with the following student demographics: 84% White, 6% Hispanic, 4% Asian, and 3% Black. I interviewed Christie in her classroom with groups of student desks facing a smartboard and the teacher desk in the front corner. Her desk had her laptop and family pictures. One wall had students work on a bulletin board, while another had cubical organizers containing manipulatives that she used for instruction. The bulletin board displayed school events, student work, and birthdays. I sat in a student chair near a group of desks while Christie sat behind her teacher desk. During the interview series, Christie was very expressive with her hands and became more comfortable as the interview progressed.

Christie grew up in a large metropolitan district in Georgia as the oldest of four children and one of the oldest of her cousins. Because there is an 11-year difference between her and the youngest sibling, she "had experience bossing people around." Her mom ran a daycare, and both parents supported her learning at a young age, supplied books for her to read, and allowed her to attend pre-k. The school was easy for her, and her report cards indicated high academic achievement. She, however, ranked high for needing to control talking because she would continuously say things like 'yes, and' or 'I have three things that I want to share instead of one.' She confessed to being very talkative as a student.

Christie knew that she wanted to be a teacher in third grade. Ms. Sorrells was Christie's Kindergarten teacher, and she had her again in third grade when Ms. Sorrells was transferred from kindergarten to third. Ms. Sorrells made the extra effort to attend student extracurriculars, especially dance recitals for Christie. Christie observed Ms. Sorrells's evolution as a teacher from when Christie had her as a Kindergarten student to a third-grade student.

Christie's homeroom teacher in middle school made a lifelong impression on her. The teacher kept a crayfish pond in the classroom and allowed Christie to be the one student to enjoy the experience before school. She noticed the extra effort that the teacher made and how it made her feel special. She noted that her teacher's long-lasting influence carried over into her adulthood. She said:

> Good teachers tend to take the time to do something that they didn't[don't] have to. That's something that I try to remember and do as a teacher. Students do pick up on things like that. They know generally what your job description is, and they know when you put more effort into something or not.

Christie elaborated further in subsequent interviews about being a lifelong learner and modeling this behavior for students.

Christie experienced her first school-related academic challenges in middle school. She was very social, and it began to affect her grades. She brought home her first bad grade in math and mortified her parents because Christie's parents had been too busy focusing on her sister. "I remember my parents being like, well, this is new. You know, you were the one that we didn't really have to think about or were worried about; you're

fine." At first, she did not see any issues with her grades, but she realized the need to become more studious. She reflected, "It started to catch up with me. I can't just show up and make an A. Around thirteen, I started realizing that other people had more study skills than I had and made better grades all of a sudden."

Christie set her sights on a large and competitive university as her top pick for college, but her grades were not good enough. She adopted a more serious attitude toward her schoolwork during her junior and senior high school years. She opted to attend a smaller college instead, where the total population of the campus was less than her high school graduating class. Small class sizes and knowing everyone at the college left an impression on Christie. She and her husband chose to settle outside the busy metropolitan areas to ensure their children grew up in a small, close-knit community.

While attending the smaller college that was only a two-year school year at the time, Christie had the vantage view of teachers in four surrounding school districts. She captured this experience in the following anecdote:

> The kids are pretty similar, behavior everywhere, high academic achievement everywhere, people with needs everywhere. What was interesting to me was the flexibility between classrooms, and some teachers were on islands. I also got to see what it was like planning together versus planning on your own. I like the flexibility, but I think that we teach best when we are organically bouncing ideas off of each other.

After two years at the small college, Christie transferred to her dream university to finish her bachelor's degree.

Christie's first teaching position was in a neighboring school system following a long-term tenure as a substitute for two teachers. She stayed there for ten years before moving to her current school and school system. She has taught second and fourth grade in both schools. She earned her master's degree, specialist degree, and gifted certification during this time. She and her husband earned their specialist degrees at the same time while also having their first child amid graduate coursework. Christie continued her professional learning through blogs, Twitter, and books. She closely followed several individuals related to education and instructional technology on Twitter. She has also presented at several conferences across the state and earned her National Geographic Educator micro-credential.

Christie attended the Georgia STEM / STEAM Forum and learned about the National Geographic Educator micro-credential at that event. She had just started at her current school and switched from teaching all subjects to humanities only. She said:

> I felt pretty confident in writing and reading, but the social studies part of humanities that we don't test over is so important. When I was at the conference, I chose this particular session to go to. They were talking about attending one of these sessions as the first step. I just saw it as something that I could do that would help me in an area where we don't get as much professional development because it's not one of those like reading, writing, or math focus areas. There aren't a whole lot of them in social studies like that, and that's what kind of piqued my interest with it.

As Christie began her journey toward the National Geographic Educator micro-credential, she discovered that it gave her access to "forums that were worldwide and to

different resources that you could listen to people speak, and they would be all over the world." In addition to new materials, Christie and her students were exposed to people and cultures worldwide. She said, "I feel like it's the broadest kind of thing where I could hear from people from all different parts of the world." Christie was interested in the interdisciplinary nature of the National Geographic Educator micro-credential, and she could apply the new materials and the reflective and feedback exercises in her classroom.

Christie is a lifelong learner intrigued with the dynamic nature of education. She stated, "What I really like about being a teacher is the ability to keep learning and improving yourself. And I kind of feel like education is one of those things that is always changing." She seeks out opportunities to learn more about engaging students. Christie expressed her enduring love for teaching. She said, "I'm here, and I'm doing my job, and I'm decent at it. I care about them, and I care about bringing my best to them, so I continue to try to grow and improve and have these different things that I can bring to the table for them." Pursuing the National Geographic Educator micro-credential program gave her access to a large group of peers for collaboration and access to interdisciplinary activities. Christie thinks that earning a micro-credential allows her to model lifelong learning for her students. She appreciates being a role model for her students. She said, "I think it pays off as far as being a good model for what we say we want kids to be. We want them to be lifelong learners, but what does that really look like? You know? And so, it's a good way for me to show them that kind of thing." Christie emphasized her role as a lifelong learner and model for others.

Emily

Emily is a female Caucasian teacher with 15 years of teaching experience. She currently teaches at a predominantly white school with the following student demographics: 84% White, 6% Hispanic, 4% Asian, and 3% Black. The initial interview was conducted in a courtyard, while the subsequent interviews were conducted in Emily's classroom. The room had student work on one wall, a bulletin board with LED lights glowing behind it on a second wall, an organizer and storage on another wall, and the teacher desk and smartboard at the front of the room. When interviewing in her classroom, Emily and I sat at a kidney-shaped table together for the second interview and at student desks for the third interview. Due to a classroom addition at the school and new room assignments, Emily packed most of her room in boxes, and her walls were bare during the third interview. Emily was at ease during the entire interview series due to her familiarity with her husband, who is also working on his doctorate.

Emily had wanted to be a teacher since she was five. Her father is a retired teacher, and she always wanted to be like him. She elaborated further on the influence of her father's career as an educator:

> I would go to every pre-planning and post-planning day and would help him in his classroom cleaning up. I would help all the other teachers anytime they would throw out textbooks or teacher's additions because I would hoard them, so I could teach my stuffed animals. My stuffed animals had report cards and the whole nine yards.

She described her dad as the cool teacher everyone knew as he was the soccer coach, assistant band director, and a biology, physics, and physical science teacher. Her dad

warned her that teaching had become more than teaching; he even warned her that he would not pay for college if she continued to want to be a teacher. She continued to want to teach, and her dad eventually accepted that she wanted to be a teacher and did help fund her post-secondary education.

Emily described her younger self as an overachiever, loving school, and as a teacher's pet, which was also the title of her senior superlative. "I loved reading. I loved writing. I loved learning." She grew up in a small town. The school she attended was also small, with two teachers per grade level, and "each class was maybe 15 kids, so everybody knew everybody. It was small." Her fifth-grade teacher impacted her by taking an invested interest in students by attending student events outside of school hours. Emily kept all her fifth-grade projects and used them as examples to show her current students.

Her middle school was fed from five other elementary schools and had a much larger student population, so it required quite an adjustment for Emily. She described herself as nerdy and always having a book in her nose. The *Fear Street* book series by RL Stein was her favorite, and "there must have been 30 or 35 books, and I had all of those. I'm one of those that will reread a book 4, 5, or 6 times." She really enjoyed having elective classes to explore experiences like woodshop, where she built a birdhouse. She was also in a band where she played flute, which allowed for a support system for upper-level students in high school.

Emily loved high school. "I loved the classes. I loved the teachers. I loved the choice." She continues to be in touch with her advanced placement literature teacher. "She and I still are in touch all the time. We email, we send Christmas cards, we visit whenever I get to the lake to go see her, and we'll go have tea." During her senior year,

she had completed all her credits, so she registered for a class that allowed her to make copies for teachers, be the only student to make off-campus errands for the school, and be allowed in the teacher's lounge.

Emily's older brother was incredibly bright, but he struggled with his grades in college and almost flunked out. Because Emily had to work harder for her grades, she was concerned about academics in college. She opted to attend a smaller two-year school, then transferred to a larger university and graduated with her bachelor's. Although she was a recent graduate, she became the university's pre-k teacher and summer camp director because she was the only one certified due to others being promoted. Even though she had started this position fresh out of college, Emily took on her first student teacher as a first-year teacher. As of this study, she had 28 student teachers in 15 years.

Emily then took a teaching position at a local school district in the upper elementary grades because she felt her heart was not for the lower grades. She was enjoying her job, but her current teaching position became vacant. She took the new job since it cut her commute from 45 minutes to three minutes, and the position was at her daughter's school. During this job transition, she earned her master's degree, but she was waiting to pursue her specialist in curriculum and instruction until her husband finished his doctorate.

Emily continued to learn professionally on her own. She used Instagram to follow teachers and loves "taking their ideas or trying this really cool lesson. And then I like to take their ideas and kind of level it down to where my kids will understand in fifth grade." She attended conferences and trainings, but she was also interested in the

Holocaust program provided by a local university. She enjoyed Edpuzzle and earned the Edpuzzle Coach micro-credential.

Her journey with Edpuzzle began when the company contacted her directly and inquired about her completing the available micro-credential professional learning. She then investigated the program and found that "I basically already do this because I've been coaching other people and showing them this cool tool." As Emily began working with other teachers, Edpuzzle contacted her again as usage at her school increased. "They were like; it looks like you're kind of spearheading your school community. Would you like to be the liaison for your school and be a teacher leader?" She was ecstatic about the opportunity and agreed to the opportunity. After earning her Edpuzzle Coach micro-credential, Edpuzzle reached out again for assistance aligning their tool with the curriculum. She further explained this opportunity:

> They're creating their own curriculum now. I helped create the civil rights Edpuzzle that they have for fifth grade. Lots of phone calls and online communication. My kids tried out a few things, and they gave them feedback on what they liked and what they didn't. And so now whenever I show those in class, I'm like, 'I made this.' And they're like, 'what?' I'm like, 'I know.' Then, I've offered to help Edpuzzle with the ELA, but so far I've just been kind of a liaison for history.

Emily cited the Edpuzzle micro-credential program as making "me a better teacher in the fact that I'm not stagnant." Being a lifelong learner and applicability are the most significant characteristics that Emily commonly discussed during the interview series.

Victoria

Victoria is a female Caucasian teacher with 17 years of teaching experience. She currently teaches at a predominantly White school with the following student demographics: 87% White, 6.9% Hispanic, 2.4% Black, 1.3% Asian, and 2.4% other. The interviews were conducted in Victoria's classroom. The room had groups of student desks facing a smart board with the teacher desk situated on the side of the room. Although there was storage for manipulatives for the classrooms, there were also lots of science artifacts on display, such as animal skulls, snake vertebrates, antlers, and a long python snakeskin that went from floor to ceiling. I sat at a student desk while Victoria sat behind her teacher desk. Victoria was comfortable during the first interview, was eager to share her experiences, and elaborated on several questions.

Victoria grew up in a large metropolitan district in Georgia and attended two different elementary schools as her district rezoned due to growth. "Elementary was really fun. Teachers were really involved. They did everything they could to make education really fun and hands-on, and they did a lot of really cool field trips." One of her memorable moments from elementary school was getting put into a trailer for her class, but it had the only markerboard in the school as the rest of the school had chalkboards.

Victoria's fifth-grade teacher had a lifelong impact on her. The teacher was a distant cousin of former President Bill Clinton, and Victoria's class was able to watch the 1996 Presidential Inauguration on the television with their teacher in the background of the swearing-in ceremony. "She would get down in the dirt with the kids. She just made learning so exciting." She was also the first teacher to have computers in the school.

Mrs. Reese was Victoria's seventh-grade teacher, and she had a menagerie of animals in her classrooms that included over twenty-five different animals. These included snakes, ferrets, birds, and hamsters. The students learned about science by taking care of the animals, and they were able to look after the animals over long breaks from school. Victoria had Mrs. Reese as a teacher when her father went without a job, which allowed her to focus on school "because it was easier to not dwell on what was difficult that year at home. Yeah, she wasn't even my homeroom teacher. She was my science ELA teacher. She made that year not just bearable but very memorable."

Victoria's high school was the smallest in her school district, and her graduating class was under 300 students. She continues to stay in touch with her high school German and economics teachers to this day. She was very busy in high school, not due to pressure but due to enjoying a myriad of different things. She played violin, was part of the literary magazine, was a member of the National Honor Society and German National Honor Society, placed first at the state science fair as a freshman, attended all state chorus twice, and attended the Governor's Honors Program for German.

Victoria attended a competitive and large university for four years. She earned a double major in psychology and sociology. After graduation, she discovered that her only career option was to work in a research lab, so one of her roommates advised her to work for a local school system. She worked as a paraprofessional with a student whose IEP required one-on-one support. She further expanded on this experience:

> I did that, and the first day I was like, 'I really need to go get an education degree. This is really fun.' I liked the energy and the class. I liked the lead teacher in the

homeroom. I liked the woman who was my mentor in the resource room, and I just started asking how do I pursue this?

She then enrolled in a local college to earn her master's degree in early childhood education. This program was filled with people entering education as a second career. While working on her master's program, she worked at the Georgia Governor's Honors Program in the summers while being a paraprofessional during the school to allow her to attend night classes for her master's. After earning her first teaching position, the housing market turned down in 2007, which began several years of her being transferred between six different schools in three different school systems. While bouncing among multiple schools, she earned her specialist degree in education.

Victoria dreams of having a bigger impact on education. "I kind of feel like everything's a big question mark, but also knowing that, like I have credentials, I have experience, and I have the desire to do something more, something bigger than what I'm doing." She would like to work for the state, writing policy, or curriculum writing. She also explored the idea of earning her Doctorate of Education. She was also interested in learning more about science, technology, engineering, and mathematics (STEM) and science, technology, engineering, art, and mathematics (STEAM). She's also open to other positions involving science education, such as an invitation to interview for a position out of country.

Victoria was unaware of micro-credentials in K-12 education until she attended the Georgia STEM / STEAM Forum during the fall of 2019. She learned about the Edpuzzle, Google, and National Geographic micro-credential programs." I didn't even realize that everybody had a badge. We can refine skills on whatever we're already

working on." At the time, Victoria's duties consisted of being a half-time STEM teacher and a half-time gifted teacher, so she was interested in the possibilities that these programs represented. Then, the COVID-19 pandemic shut down school systems across the nation during the spring of 2020. While she was home doing online teaching, she earned her Google Educator Level 1 Certification during the shutdown. She pursued this micro-credential because:

> It's applicable to everything that you do in the classroom. And it felt like something that if a teammate was like, 'I don't know how to do X, Y, or Z with Google' then I'd be like, 'let me show you. Don't waste your time going and asking or going to sign up for PD for that. I can show you.

Now that she earned her first micro-credential, she plans on continuing her professional growth by pursuing the National Geographic Certified Educator micro-credential. Being a lifelong learner and applicability are the most significant characteristics that Victoria commonly discussed during the interview series.

Penny

Penny is a female Caucasian teacher with ten years of teaching experience. She currently teaches at a predominantly white school with the following student demographics: 87% White, 6.9% Hispanic, 2.4% Black, 1.3% Asian, and 2.4% other. The interviews were conducted in Penny's classroom. The room had groups of student desks facing a smartboard, with the teacher desk situated on the side of the room. The room was very organized. I sat at a student desk while Penny sat behind her teacher desk. Penny was at ease during the first interview, volunteered her personal experiences, and provided ample detail on interview questions.

Penny grew up in the northwestern part of South Carolina. One of her core memories from elementary school was learning cursive. Her second-grade teacher previewed cursive at the end of the school year, and she enjoyed it. Then, her third-grade teacher took an exciting activity for Penny and made it terrible for her. This memory centered on her third-grade teacher marking her papers with a red pen. "Now I don't even grade with a red pen because you hear that it has a negative connotation, and it's always graded with something that's like purple, blue, or green." Middle school and high school also presented challenges in the form of navigating multiple buildings, social dynamics, and her parent's divorce. However, she had supportive teachers and administrators during this time.

Penny attended a local university that has since grown to be nationally recognizable. She continued working for a local dentist, the same job she had as a high school senior. Instead of starting her undergraduate program in January after her graduation as planned, she chose to take a full-time position at the dentist's office. She did not continue with college at that time due to the time demands of raising a family and work. "I think it made me a more empathetic teacher because I'd been a parent first, so I was a little bit more conscientious of how I handled the classroom and how it definitely affected the students and the parents at home."

When Penny's youngest started kindergarten, she made a change in her career. She enrolled in college and worked full-time as a media center's assistant for the same school district as her children. The school district collapsed the position, but Penny continued in the technology department while continuing to go back to school at night. Although she had to stop this position when she began student teaching, the job allowed

her to network and visit every school in the district. This experience allowed her to build relationships across the district, and she credited her first teaching position due to this opportunity.

Penny began her first teaching position as a kindergarten teacher. It was "the only grade that I did not want to teach, but you do what you have to. Then about halfway through that first year, the principal wanted me to move to a testing grade, so I went to third grade. I stayed there for a couple of years, then moved to fourth grade and stayed there for several years." After working in her South Carolina district, she moved to Georgia with her family to her current school district.

Although she is not as familiar with her present community as much as her South Carolina community, she says that "it's been a great experience because I've had to make my own way in this district. It's been a really good experience, a growing experience for sure." She continues to "branch out and get to know other people here and be active in the school." She currently teaches third-grade reading and writing, and she explained the importance of positive relationships with students:

> I try to make positive connections with my kids every day. I spend more time with them than some of their parents do, so it's important for me to get to know them because I don't feel like I can teach them until I know them, and they don't trust me if I don't seem interested.

One of her passions was determining learning gaps in her classroom, grade level, and school. She strives to be an "active team member for my grade level and the whole school in general." She was part of the interview committee, district-wide ELA action team, positive behavior intervention system (PBIS) committee, and media center committee.

Penny also had several methods for staying up to date professionally. "I love professional development. I think it makes me a better teacher, and it makes me more empathetic student because I'm a learner as well." She says that "it's so time-consuming, I chase rabbits." She reads blogs by teachers and then vets the author by determining what they are doing and teaching lessons because "you have to reteach and relearn every year." She also read professional development books because "I enjoy reading those as well because to review strategies that I've done before, keep abreast on all of the latest strategies, and how to do it the best and meaningful way because your students are different each year." She was also working on her gifted endorsement through the school district as well.

One of her initial reasons for pursuing a micro-credential was that she wanted to earn the badge to attach to her email. She chose the Google Certified Level I Educator micro-credential because:

> It is not just knowing how to do the different elements of it. It's learning how it can be utilized. It's not just the functionality of it, but how it can be utilized in the classroom and in your everyday life. I love all the Google applications.

Penny further elaborated that her students are in third grade, so their technology skills are not as proficient as others may think, so programs like the Google Certified Level I Educator micro-credential helped to maximize available instructional time.

Penny was a learner. "I just love learning and professional development. It's fun and makes me feel like I'm more worldly." She admitted that this was due to her competitive nature and her desire to increase her instructional effectiveness to better serve her students. Additionally, applicability was crucial for Penny when it came to

micro-credential programs. She did not gravitate toward other micro-credential programs because they did not fit her students' abilities or needs. "I feel like those things are good, but sometimes I feel like they are not as effective in how they're used, or I think that they're overused, and they slow things down a little bit. I sprinkle it in because sometimes getting students logged into their computer takes forever or they can't remember their passwords." Penny also commented on how technology can be used to increase engagement:

> I think it increases their engagement, and then just kind of mixing it up, helps them to stay engaged, not only through the application itself, but just implementing something new, which peaks their interests more. I think that's the one key thing that you have to do is not be so static in what you're doing in the classroom. Not necessarily through technology alone, but also through direct instruction as well. I think it's helped with their engagement, especially kids who have attention issues.

Being a lifelong learner, applicability, and engagement are the most significant characteristics that Penny commonly discussed during the interview series.

Brooklyn

Brooklyn is a female Caucasian teacher with 12 years of teaching experience. She currently teaches at a predominantly white school with the following student demographics: 74.2% white, 14.7% Asian, 6.6% Hispanic, 2.1% black, 0.2% American Indian, and 2.1% other. The interviews were conducted in Brooklyn's classroom. The room had rows of student desks facing a smartboard, with the teacher desk situated in the corner of the room. I sat at a student desk while Brooklyn sat behind her teacher desk.

Brooklyn was at ease during the first interview, volunteered her personal experiences, and provided ample detail on interview questions.

Brooklyn grew up and attended school in the district in which she now works. "I think that's when I really wanted to become a teacher was because of whom I had in elementary school. I just loved them. It was just very compassionate and caring, and felt safe and well-loved in that environment." Her third-grade teacher made an impression on her, and Brooklyn remembered the teacher as caring, kind, there for students, and passionate about her work.

She attended a local two-year college because she wanted a smaller classroom setting. She then moved on to a university to earn her bachelor's degree and another university for her master's degree in education. After earning her diplomas, she began looking for a teaching position, but it was the middle of the Great Recession, and it was difficult to find an opening due to hiring freezes. She eventually found work and began as a paraprofessional in a local school district.

As paraprofessional and teacher jobs became increasingly difficult to come by, Brooklyn's brother was on active duty in the military and was injured by an improvised explosive device in Afghanistan. She took nine months off to help him recuperate. She then came back into education as an interventionist, which she enjoyed because she was able to visit multiple classrooms and see a variety of instructional strategies. She then became a fourth-grade teacher the year after.

Outside of education, she worked at David's Bridal. She credits her various experiences before being a teacher with helping make her a better teacher and person. "I think it helps you just deal with people like just having different interactions with

different types of people, and I'm not a very like huge outgoing person, so I don't seek out like stranger interactions." These roles helped to push her out of her comfort zone.

Brooklyn continued to seek professional learning opportunities as well. She read several blogs, attended the Georgia Educational Technology Conference, participated in school district trainings, attended the Google Southern Summit, and read several related books. These experiences helped her to discover new instructional technology tools, such as Pear Deck; follow educational technology leaders, such as Jesse Lubinsky; and learn how to use technology in the classroom versus starting from scratch.

Brooklyn's interest in micro-credentials began with encouragement from instructional technologists and using social media. She decided to take the Google Level I Educator Certification. She wanted to "learn more about it and how to better use it in my classroom. I know the basics, but just finding out better ways to use it and even making it more independent for the kids." During the 2021-2022 school year, she continued to explore the Brian Pop and Pear Deck micro-credentials after hearing about them at a pre-COVID conference, but she had a full schedule because she was managing her regular in-person teaching position and took on extra duties to teach online students as well. She found that Brain Pop "was used a lot with online learners. When we had to write curriculum and trying[tried] to help students through, it was kind of hard. Having that extra bit of knowledge helped and plus it's fun to learn new things." She enjoyed using Pear Deck with students because students were active and engaged in those lessons, and she wanted to use a different instructional tool other than a whiteboard.

Brooklyn is also a lifelong learner. She said that "the curiosity of learning more about it, how to better use it for myself and for my kids, and being able to explain to them

how to use it" are what drove her to learn more about micro-credentials. She also highlighted how micro-credentials have allowed her to differentiate for her students by meeting students "where they're ready to learn, and it makes it more equitable." She sought out micro-credentials relevant to her educational technology environment and allowed for innovative instructional strategies for her students. Being a lifelong learner, differentiation, applicability, and engagement are the most significant characteristics that Brooklyn commonly discussed during the interview series.

Stephanie

Stephanie is a female Caucasian teacher with five years of teaching experience. She currently teaches at a predominantly white school with the following student demographics: 74.2% white, 14.7% Asian, 6.6% Hispanic, 2.1% black, 0.2% American Indian, and 2.1% other. The interviews were conducted in Stephanie's classroom. The room had rows of student desks facing a smartboard, with the teacher desk situated in the corner of the room. I sat at a student desk while Stephanie sat behind her teacher desk. Stephanie was at ease during the first interview, volunteered her personal experiences, and provided ample detail on interview questions.

Since Stephanie was in the gifted program at her school, she was put into self-contained classes through fifth grade. In fifth grade, she began switching classes for different content areas. As part of the gifted program, she and the other gifted students were bused to a different school one day a week for enrichment classes that were interest-based. She recalled some of these opportunities included options such as a Japanese gardening class and engineering. Her earliest memory was also from elementary school

where a bee stung a friend, and an ambulance rushed him away due to a bad reaction. She had thought that incident was the end for her friend, but he recovered from the bee sting.

Her middle school social studies teacher was very engaging. She told history like a story, was funny, and would write student's names as city names on maps. Besides academics, Stephanie also learned about herself from altercations at school, especially with frequent fights in seventh grade. "I was like a very sheltered, innocent person. I would see a fight happen. I would take all my books, and I would legit just turn around, face the wall, and wait for it to be over." At the end of eight grade, her parents told her that she would be moving to a different high school in a different district. She had already missed auditions for the new high school's marching band, so her mom emailed the band director, who let her join the marching band before being fully enrolled.

Stephanie planned to go into pharmacy and took thirteen advanced placement courses in high school, which gave her a year and half of college credit. She was part of work-based learning in high school where she worked in a pharmacy lab that would eventually offer her a paid position after high school. This was a unique experience for a college freshman, and it exposed her to the pharmaceutical world.

While in the pharmacy lab, she was exposed to the PhD students who were working on their dissertations. Her main job in the lab was making bacteria and measuring. "There's no way that this is what I'm going to do. I saw how stressed they were about how critical the pharmacy world was of their PhD programs and their projects. I don't know if this is for me." Due to this experience, she branched off and spent the summer before her freshmen year tutoring, coaching, and working with kids.

After a few months in college, she decided to change her major to education, which was met with a mixed reception. A friend's parent was a Dean at the College of Education and recommended, "let me take you to the academic advisor right now and go ahead and get your classes scheduled." Her pharmacy professor "went dad mode," and he explained that she had a future in pharmacy and recalled stories of people wanting to leave education. Stephanie appreciated his sincerity because "he was real, and it was personal, and he truly cared about my future." Stephanie would go on to major in education and was a mid-year graduate. She also timed her graduation perfectly with the introduction of a new master's degree program at the same college and was able to finish both degrees in under four years.

Stephanie was still at the beginning of her career and not interested in administration due to not wanting to deal with student behavior issues and parents. She has investigated specialist of education programs, but she has not decided on a specific program. She was very interested in educational technology and staying up to date in her content area.

Chapter Summary

This chapter included profiles of participants selected for this study based on three interviews and observations. The participants shared their individual experiences on the study's research questions. The participants were interviewed in their classrooms and other school spaces. The participants shared thoughts on their life experiences, student achievement and engagement, their experiences as a student and a teacher, micro-credentials, and the educational field, among other discussion items.

Chapter V

DISCUSSION OF THEMES

Jones et al. (2018) and Kelley (2019) agreed that top-down professional learning programs were ineffective. This was despite typical public school teachers spending 68 hours yearly on school districts' professional learning (Bill and Melinda Gates Foundation, 2014). This report further indicated that only 29% of teachers were delighted with current professional development offerings. Furthermore, the Gates Foundation (2014) deemed current professional development offerings irrelevant, inadequate, and disconnected from students' learning. Porter et al. (2000) found that school districts and schools face several challenges in meeting the professional learning needs of teachers, including (1) balancing sustained professional learning for large numbers of teachers versus high-quality professional education for a few teachers, (2) implementing knowledge about high quality and effective professional learning, and (3) lacking the infrastructure to manage and implement high quality and effective professional learning.

Participants in this research described their experiences earning micro-credentials. I purposefully selected participants based on the following criterion: making micro-credentials, being an elementary educator, administering the MAP test to students, and their years of experience at the school site. I interviewed six educators who met these criteria. The group of educators consisted of six female teachers. I displayed the demographic information for each participant in Table 1 on the next page. The age of participants ranged from 25 to 39, and all of them had between 5 and 17 years of

classroom teaching experience. These individuals were appropriate for this research because of their ability to provide rich data to answer the research questions based on their experiences.

Table 1

Participant Demographics and Characteristics

Participant Name	Age	Race	Years in Education	Years at Research Site	Micro-credential
Victoria	39	Caucasian	17	5	Google Certification National Geographic
Christie	38	Caucasian	16	6	National Geographic
Emily	37	Caucasian	15	7	Edpuzzle Google Certification
Penny	37	Caucasian	10	3	Google Certification
Brooklyn	29	Caucasian	12	12	Google Certification Pear Deck
Stephanie	25	Caucasian	5	3	Pear Deck

My research data comprised multiple sources, including interviews, observations, and documents. The bulk of the data was in the form of interview transcripts that focused on teachers' experiences. I interviewed six participants three times each over the course of three months. I uploaded all data to MAXQDA Professional Software for Qualitative and Mixed Methods Research for data analysis.

During the qualitative data analysis process, I used the MAXQDA software package to organize notes, memos, artifacts, media, pertinent literature, and transcripts. Data analysis involved three cycles of coding. First, I identified meaningful patterns in

the data and evaluated the overall depth, credibility, and use of the information. Second, I used focused coding to develop categories without distracted attention to their properties and dimensions (Saldana, 2016). These can be found in Table 2 on the nest page. Next, I organized related codes into categories that shared common characteristics and generated themes. Themes must "display multiple perspectives from individuals and supported by diverse quotations and specific evidence" (Creswell & Creswell, 2018, p. 194).

Creswell and Creswell's (2018) final step in the data analysis process was representing the description and themes in a narrative passage. I identified connections among themes and will include identified themes in the findings section of my dissertation. I organized this narrative by theme, reflected on what I learned from conducting the research study, the data analysis process that led to the data-based themes, and the overall meaning of the research study. During this cycle, I used the MAXQDA program to display the data for analytic purposes and identify emergent themes. I also shared new knowledge from this study and whether the results were compatible or incompatible with previous research.

In this chapter, I discussed four themes that emerged from a thorough analysis of interviews, observations, and documents. The themes discussed in this chapter are Motivation, Rigor, Lifelong Learner, and Application to the Classroom. The themes and corresponding sample data chunks are listed in Table 3.

Table 2

Examples of Initial Codes Used and the Themes Noted

	Motivation
EX	Extrinsic Motivation – the participant attributed extrinsic motivators for earning a micro-credential
IN	Intrinsic Motivation – the participant attributed intrinsic motivators for earning a micro-credential
PR	Professional Goals – the participant described how a micro-credential was a professional goal or had a professional benefit
SA	Student Achievement – the participant discussed how micro-credentials influenced student achievement
SE	Student Engagement – the participant described how instructional strategies from micro-credentials influenced student engagement
	Rigor
CH	Choice – the participant described the importance of student choice in representing content mastery
FB	Feedback – the participant gave examples of new methods for giving timely and in-depth feedback
FT	Familiarity with Technology – the participant gave real-world examples of how familiarity with technology helps students
VI	Video – the participant detailed how video was used in the classroom
WC	Writing Conferences – the participant described a new workflow for writing conferences inspired by a micro-credential experience
	Lifelong Learner
EE	Excitement and Energy – the participant described the excitement and energy related to continually learning
GM	Growth Mindset – the participant discussed the relationship between continually learning and a growth mindset
LL	Love of Learning – the participant described their love of learning
ST	Stagnation – the participant described the urge to fight stagnation and repeat the same lessons

Application to the Classroom

EP	Edpuzzle – the participant described how the Edpuzzle micro-credential was applied to the classroom
GG	Google – the participant described how the Google Certified Level I Educator micro-credential was applied to the classroom
NG	National Geographic – the participant described how the National Geographic micro-credential was applied to the classroom
PD	Pear Deck – the participant described how the Pear Deck micro-credential was applied to the classroom

Table 3

Sample of Data from Themes

Theme	Sample Chunks of Data
Motivations	I really appreciate when professional learning is differentiated. (Christie)
	I feel like everybody in this building should have the Google certification level one as a basic requirement. (Victoria)
Rigor	Higher engagement has led to higher achievement. (Christie)
	I think that we're able to get more information to them quicker and they can learn on their pace, which leads to an increase in MAP scores. (Brooklyn)
Lifelong Learner	I love learning. (Emily)
	The way kids think, and the way kids learn also morphs over time. (Victoria)
Application to the classroom	It influences everything that I do and really how the kids are learning. (Emily)
	They seemed to really like it and that platform was really cool to apply to the classroom. (Stephanie)

Motivation

In the following theme, I focus on participants' intrinsic motivation driven by their desire for personal and professional development. Participants were self-motivated to pursue professional development in the form of micro-credentials outside of required opportunities at their schools. Their experiences suggested that the participants sought micro-credentials aligned with their professional goals despite the required time commitment. Participants expressed that they were motivated to earn a micro-credential to build their resumes, distinguish themselves from other teachers, refine skills, improve instructional strategies, increase student achievement, and increase student engagement. This is consistent with the findings by Green et al. (2020), whereby teacher motivation led to teachers purposefully seeking out professional learning to grow and gain a sense of renewal. Researchers also supported micro-credentials for transforming professional learning due to offering personalized learning opportunities driven by an educator's motivations (Abramovich et al., 2013; Ady et al., 2015; Erickson, 2019; Kelley, 2019). Micro-credentials can fill in the gaps that current credentialing and degrees cannot meet by identifying, recognizing, and rewarding educators for areas, skills, and accomplishments currently not credited (Finkelstein et al., 2013).

Micro-credentials allow educators to earn a symbol for their professional accomplishments (Kelley, 2019) and create a portfolio of artifacts, "effectively collecting a currency to support their professional identities" (CTQDP, 2016, p. 9). An organization, school district, or school can award them for completing courses, skills, academic achievements, artifact submission, and participation (Ady et al., 2015; CTQDP, 2016; Erickson, 2019; Kelley, 2019). Educators earn a micro-credential by identifying the

micro-credential they want based on their needs or interests, pursuing their learning, gathering and submitting evidence of their competence, and allowing qualified assessors to evaluate the evidence educators submit. Participants from this study earned a variety of micro-credentials, as illustrated in Table 1, and had common motivations for independently earning them.

The desire for professional development motivated all participants to earn a micro-credential. Stephanie equated earning a micro-credential to a resume builder. These participants wanted to set themselves apart from other teachers. They viewed micro-credentials as a badge of honor. Specifically, Stephanie believed that the Google Certified Level I Educator micro-credential offered to educators is a potential difference maker on an employment application. She also highlighted that the different micro-credentials have different reputations. She elaborated on these differences by explaining that:

> The Google certifications sound more respectable, but it is not that Pear Deck is not respectable. I think both are good to obtain. I think if you were a principal or administrator to see these two things, I feel like Google would be more valued if it is used in the school system.

Penny was first curious about micro-credentials after seeing a Google Certified Level I Educator micro-credential badge in another teacher's email signature. After investigating and earning her Google Certified Level I Educator micro-credential, she shared the same belief with Stephanie that the Google Certified Level I Educator micro-credential was more rigorous. Penny expanded on this reasoning about the:

> Rigor of being Google certified because it does not just know how to do the different elements of it. You really are completing tasks and practicing how they can be utilized. It's not just the functionality of it, but also how it can be utilized in the classroom and your everyday life.

Victoria also understood that micro-credentials could set apart those teachers that earned them. When she learned about the National Geographic micro-credential, she was nostalgic about it after growing up reading the magazines. Still, she believed it could help her professionally because few teachers have earned it. Victoria said, "Google level one made the most sense to me because it's applicable to everything you do in the classroom. I feel like everybody in this building should have the Google cert level one as a basic requirement." She began her micro-credential journey as she saw others earn their Google badges, so she began earning hers to refine her skills.

Participants had different beliefs about time as a factor in earning a micro-credential. While some participants found the time commitment worth earning the micro-credential, others believed that time was a motivation barrier to earning a micro-credential or chose a different micro-credential based on the time required. Those participants that viewed time as a negative expressed that teachers have little free time to complete micro-credentials. Stephanie earned the Pear Deck micro-credential "because I already had the skills, and I could have something to prove that I already had those skills without spending too much time to do it." Stephanie also pointed out that the time commitment for earning a micro-credential does not come with a pay increase, which she thought affected participation and motivation to earn a micro-credential. Penny was interested in exploring additional micro-credentials, but time was also a factor for her. "I

feel like I'm good. It's just the time and being able to dedicate that much time. When my gifted endorsement wraps up shortly into the summer, I'll have some time before school starts back to devote to that." Stephanie eloquently summarized the various time commitments and demands that teachers face when considering earning a micro-credential:

> Realize how much there is to do in a limited time. I think a lot of people feel like spending their time getting certifications on different things that they're not required to do is not the way that they want to spend their time when they have meetings to go to, the actual curriculum in their lessons that they need to plan for, and parents to call. I think on the list of responsibilities that it sometimes falls by the wayside, and it's one of those 'I'll get to it' unless it's explicitly required of me.

Emily earned her Edpuzzle micro-credential and was an Edpuzzle coach for training teachers in using Edpuzzle. She echoed Stephanie's comments on time being an issue. Emily said, "I have my badges for Edpuzzle, and I have my Edpuzzle coach badge. I really want to be Google educator certified. I think that's been on my professional learning goal for like three years now." Brooklyn began earning her BrainPop micro-credential, but she quickly stopped once gaining access to the platform. She said, "Brain pop was like a college course. They would have a platform where you logged in, and there were assignments and things you had to do throughout. Then there were like four courses to get certified as a BrainPop educator. It was overwhelming."

Improving instructional strategies was another powerful motivator for participants to earn a micro-credential. Brooklyn earned her Google and Pear Deck micro-credentials and began the BrainPop micro-credential. She pursued these opportunities because:

> I wanted to learn more about it and how to use it in my classroom better. I know the basics, but just finding better ways to use it and make it more independent for the kids. I wanted that extra bit of knowledge, and it's just fun to learn new things.

She also credited the ease of use of Pear Deck and its integration with increased student usage.

> It just naturally integrates with Google. I think it was easier for the kids not to open this than to do it and then do it. It was just very streamlined and user-friendly. They work really well together. You know, some programs you try to use with Google or Google tries to use it with that program, and it just doesn't communicate well. I think Pear Deck and Google did a good job figuring each other out and making it work well for teachers and kids.

Emily discovered the Edpuzzle micro-credential while she was browsing Pinterest. What she realized about Edpuzzle was that "a lot of the kids of this generation are very engaged with learning when it's more interactive. I loved that." Edpuzzle gave her the advantage by still having students engagingly answer questions and giving her data on rewatching and the number of correctly answered questions. Emily described an example of this scenario:

> I loved the idea of taking YouTube videos and essentially turning them into worksheets or recording myself and knowing for a fact, not only did they watch it

and I know exactly how much they watched, but having those questions of, are you listening? Are you thinking?

The company noticed Emily's heavy usage of Edpuzzle, and she was asked to continue with the Edpuzzle Coach micro-credential and help them align materials to Georgia's curriculum.

Participants were all motivated by their desire for professional development. Although their choice of preferred micro-credential varied, they moved forward despite the increased time commitment outside of regular contact hours if the micro-credential aligned with an individual's goals. Participants expressed that they believed these micro-credentials would give them an edge during the hiring process, allow them to use instructional technology effectively in the classroom, increase student engagement, and earn a micro-credential that would set them apart from teachers without a micro-credential.

Rigor

In the following theme, I focus on the strategies from micro-credentials used by participants to increase student achievement through rigor. Participants agreed that micro-credentials improved teaching and learning in the classroom, and that rigor was evident through challenging students to think creatively and curiously. Participants used a variety of strategies, including writing conferences, new processes for feedback, allowing students choice of representing content mastery, effective instructional use of videos, and familiarity with technology. These findings are consistent with research on maximizing professional learning to increase teacher self-efficacy, leading to increased student achievement. Achievement is "the degree to which a learner, instructor or organization

have accomplished their short-term or long-term learning objectives" (Mushtaq et al., 2019, p. 71). Hattie (2016) concluded that teacher self-efficacy significantly impacts student learning. Erickson's (2019) micro-credential efficacy research revealed that if educators believe "that what they learn can and does impact student achievement, it is very likely that these beliefs will manifest in their instructional decisions and practice" (p. 5). Medina (2020) and Mizell (2010) found that effective professional learning equipped teachers with new skills and knowledge, which improved student learning and achievement.

The Google Certified Level I Educator micro-credential program focused on various technology tools and strategies. This experience allowed Christie to "use tools in different ways and give quick feedback to students than I had before." She could use Google Forms for automatically graded quizzes, quick checks, and feedback. She even made a professional evaluative goal for better writing conferences and feedback.

> I set up a schedule for myself through Google classroom. These eight kids will get feedback today on their writing, then the next eight, and the next eight. They could comment back. That definitely improved writing scores through being able to have that constant contact in Google.

She also extended writing feedback to the students once "they've learned how to comment on each other's writing and give each other feedback. We did peer edit that way too." This method of writing feedback from Christie and student peers had increased as opposed to Christie's "sitting with my pencil and paper and trying to write little sticky notes about each kid's writing." By increasing the rigor of writing activities through strategies from her micro-credential experience, Christie was able to increase student

achievement in her classroom. Penny agreed with Christie's experience and found that the strategies she learned from the Google Certified Level I Educator micro-credential made "it much more efficient for me to check for understanding that way too."

Micro-credential programs also have armed teachers with various tools for students to demonstrate their mastery, which some students would not have had the opportunity to do otherwise. Brooklyn said:

> Micro-credentials have given me another outlet for students to represent their knowledge, which some kids do better with than with a summative assessment. For those kids that can create things electronically, that had a difference for their achievement if they had not done it like that.

For some students, Brooklyn said that they demonstrated their knowledge through "creating a presentation, or I've had them change the size of the page to be like eight and a half by 11 inches, so we can think about it as a poster." Emily agreed with Brooklyn, and she said that the strategies from micro-credential programs

> Gives them an opportunity to show what they know through different avenues, whether it is a quiz, an Edpuzzle, a worksheet, a task card, a game, or a Google form. Whatever it is, you show me in the best way that you can.

Victoria said that her micro-credential experience pushed her to get students to think about "how well can you present your information or show me what you have actually learned." Penny said that filling in student knowledge gaps takes purposefulness and intentionality to make the content fit her students. Christie stated, "I want it to be like the better way to do something than just something to do." Teachers learned how to

increase rigor in their micro-credential programs, and it was manifested in the students' choices of artifacts that represent their content mastery.

According to participants, the Google Certified Level I Educator and Edpuzzle micro-credentials also included strategies on video use in the classroom, with Edpuzzle being dominant in this area. Several participants mentioned that current students were into visual learning. Brooklyn said that she and her students thought that lectures at the elementary level did not work. The use of video in Brooklyn's classroom allowed students to "have the ability to go back and look at it later and digest more." Emily said that the advantage of videos for students is that if they "forget the information, they can go back to an Edpuzzle and listen to you teach it again. It is saved in my classroom. They know that it is always there, and they can go back to it."

The activities and tools themselves that micro-credentials introduced to teachers can also be used to engage and excite students. In Christie's class, "kids are excited about what we are doing and more connected to it has led to higher engagement despite different learning levels. In my classroom, higher engagement has led to higher achievement." Emily affirmed this and noted that technology had provided additional instructional strategies beyond:

> Taking notes from the board, and you have got to memorize information. That's not how to create a love of learning. If you can make learning fun and students are engaged, then you can throw in some of what they would consider boring, but they know that they are also going to get different technology integration tools to show what they can do. Students love it and are showing growth.

Emily had been in the school district long enough that her students were coming back to her with feedback after several years away. Several students commented that her class "wasn't boring, so I paid attention." Emily's focus on engagement and excitement for students "influences everything that I do and how the kids are learning."

This study focused on student achievement on the MAP test, administered continually despite COVID-19. Teachers have a variety of ways of preparing students for the MAP test, including meeting students at their level to maximize their growth. Computer literacy is also critical for students taking the MAP assessment. MAP is not taken using pencil and paper. It is administered using a laptop or Chromebook by the individual student. Although practice tests are available online for students to be comfortable with the MAP application, some issues arose even though teachers did their best to ensure student familiarity with MAP. Stephanie stated:

> We had a student this year who had been previously in private school and [had] never touched a Chromebook before she showed up here. At the beginning of the year, she was searching for keys far and wide. She did not know how to open a new tab on her own. Her first MAP test took her forever. You could tell that she was just overwhelmed by the piece of technology. Because she has used all these programs during the school year because she is increasingly comfortable with it [them], her scores have improved drastically.

Brooklyn found that the formatting of writing in Google Docs, covered in the Google Certified Level I Educator micro-credential, was a major influence on any online assessment, including MAP, because students "are not hunting and pecking as much as they would without that experience. They also struggle on the computer when there is

pressure, but if they have time to sit there and the activity is student-paced, it is better." Consistent application of strategies from micro-credential programs increased student computer literacy, which can positively affect student achievement, according to participants.

Participants expressed that micro-credential programs increased the rigor of their classrooms after learning and applying new instructional strategies. This rigor was demonstrated through the use of writing conferences, new processes for feedback, allowing students choice of representing content mastery, effective instructional use of videos, and familiarity with technology. Participants learned these strategies through micro-credential programs, and the strategies led to increased student achievement.

Lifelong Learner

Participants in this research believed that micro-credentials played an important role in enabling them as lifelong learners. Their pursuit of micro-credentials motivated them to commit to continuously learning and improving their knowledge, skills, and abilities in their careers. This section chronicles their efforts to seek new information, explore new ideas, and develop new skills to remain current and adaptable in an ever-changing world. As lifelong learners, they were open-minded, curious, and enthusiastic about learning. Christie wanted to bring her best to the classroom by continuously looking for ways to grow and improve. Brooklyn said that she was curious to always learn more. Several participants noted that they independently pursued learning opportunities, including micro-credentials, in the summer outside of school and district offerings. The data indicated that they understood that learning is a lifelong process and that there is always more to discover and understand. Christie neatly captured this

sentiment in the following anecdote: "What I really like about being a teacher is the ability to keep learning and improving yourself. I kind of feel like education is one of those things that is always changing."

Firstly, micro-credentials provided teachers with a structured way to pursue relevant professional development in a learn-at-your-own-pace environment. This allowed them to focus on the areas that they felt the need to develop further and acquire new skills or knowledge that they could apply in their classrooms. Despite continuing their professional learning and earning formal degrees, they sought micro-credentials to personalize their professional development. Some participants cited curiosity or fight stagnation, while others desired to implement innovative instructional strategies in the classroom. Taylor et al. (2014) found that being a lifelong learner is one of the areas where educators feel most rewarded. Participants also found it important to model learning for students to encourage and motivate them to continue learning.

Secondly, micro-credentials are often based on a competency-based approach, meaning that teachers must demonstrate their proficiency in a particular area before receiving the credential. This encourages teachers to engage in active learning and reflection, as they must demonstrate their knowledge and skills in practice. Brooklyn earned the Google Level I educator certification and saw her students become more independent in the classroom as she implemented the knowledge and skills from the micro-credential program. Mizell (2010) found that reflection was key for effective professional learning, and Christie even adapted the reflection exercises from the National Geographic micro-credential to her classroom.

All research participants expressed their love of learning which led to them being a lifelong learner. Brooklyn, Christie, and Stephanie all commented on their love of learning. Emily enjoyed learning to fight stagnation. Penny remarked about loving professional development. Victoria wanted to continue her learning to use new tools in the classroom. Lifelong learning is "systematic learning undertaken by adults who return to learning having concluded initial education or training" (Department of Education and Science, 2000). Participants in this study had already completed their degree programs and professional licensure. They independently continued their professional learning and pursued a micro-credential to satisfy their pedagogical goals, instructional strategies, or personal goals.

Participants expressed that their love of learning as lifelong learners was out of pedagogical interest. Christie said she enjoyed being on the cutting edge of instruction and seeing "what's out there and the resources. It keeps me interested in what I am doing, and I feel like it makes what I'm doing in class more engaging for the students." Emily was deeply passionate about staying up to date and fighting stagnation. She said:

> I do not want it to be 30 years from now, and a kid says that I am still teaching the exact same way that I was when he had me 20 years ago. I don't want that. I want them to come and be like, ‘Wow! I wish you [had] taught like this when I was in school. I thought you were good then but look at what you're doing now!’ I want to stay up to date because I want to be [in] that 21st century classroom. This means that whatever steps, trainings, or professional learning that I can take to improve myself, I feel like that is only going to improve my teaching and my students moving forward.

Victoria also wanted to curtail the backward movement that COVID-19 and changing teaching assignments brought her. Victoria's energy was evident when she said, "I want to be the magic science lady. I want to be the one who supports teachers. If you don't have time for it, how can I be the person that makes this happen for you?" Victoria was passionate about helping other teachers in her school and keenly focused on self-improvement as a lifelong learner.

Victoria likes "being a teacher who knows what they're doing. I know I can't know all of it because it is moving faster than me. I feel like everybody in this building should have the Google cert level." For Emily, being a lifelong learner has "kept me fresh and kept me energized by changing things up," and she credits this with making her a better teacher. She also constantly requests student feedback by "asking if that was beneficial. do you feel like that was a good video?" If an Edpuzzle video did not work for her students, she would create her own to meet their needs based on their feedback. Emily admitted, "I don't think I'll be done with learning. I feel like I'm going to use something until it isn't relevant anymore. My teaching style evolves. I'm always hunting every summer for the next thing." The Google and Edpuzzle micro-credentials helped these participants stay relevant and provide effective professional learning on these tools for the classroom.

Penny echoed Victoria's passionate student-focused reason for her love of learning and that being a lifelong learner can extend outside the classroom. Penny asked, "how can it be utilized in the classroom and your everyday life? I want to learn more about the Google applications and be more knowledgeable." Brooklyn shared that she "loves the curiosity of learning" over rote teaching and click here, click there learning.

Christie said that "one of the reasons I really like being a teacher is the ability to keep learning and improving yourself" and that she was open with her students about continuing to learn and better herself. Victoria had not taught her new teaching assignment in over a decade. She elected to attend further professional learning because she understood that "there is an evolution in how things are taught, the way kids think, and the way kids learn."

When the school district adopted a new learning management platform, Stephanie jumped all in and "enjoyed learning about the new Canvas platform that we are using." Brooklyn indicated that her love of learning added a variety of instructional strategies in addition to what the school and district provide. This has allowed her to "bring new elements back to the district and open up a different channel for kids to learn and for teachers to find different ways for kids to learn." Several participants said they spend their summers exploring resources to grow their instructional strategies and stay energized. Emily said, "I spend my summers looking for the latest, greatest thing that will engage the kids and maybe make life a little easier for me." The participants' common statement underscored the value they associated with earning micro-credentials predominantly on their own time.

Christie found that modeling for kids was an effective instructional strategy and underscored the importance of students' mindsets in the classroom.

> Some students feel like sometimes, if it is hard, there is something wrong with them because things have been easy. For these students, the growth mindset versus fixed mindset concept is huge, so I like to model as much as possible. I

would tell them that I was going to a class, getting a degree, or have[having] homework tonight.

As a real-life example, Christie specifically pointed out to her students that she was earning micro-credentials to continue her learning and thereby modeling being a lifelong learner for her students.

Lifelong learning was a common theme for all participants in this study. This was demonstrated through not only earning advanced degrees but also through their selection of micro-credentials as well. Furthermore, some of the participants would go on to earn multiple micro-credentials. Participants earned their micro-credentials for various reasons, including curiosity, fighting stagnation, modeling behavior for students, and seeking out new instructional strategies. This intrinsic desire to continue learning allowed participants to effectively bring new tools and resources to the classroom to increase student engagement, which led to higher student achievement.

Finally, micro-credentials provided a tangible recognition of participants' professional development achievements in the form of a badge. Penny was initially motivated to earn her micro-credential because she wanted the badge for her email. Victoria wanted the badge to demonstrate to her peers and administrators that she had completed the micro-credential program. This motivated teachers to continue their learning and development as they saw the benefits of their efforts and were encouraged to pursue further continual professional development.

Overall, participants perceived micro-credentials as an effective way to become lifelong learners by providing them with a structured, competency-based approach to professional development that recognizes and validates their achievements. Being a

lifelong learner was a critical trait that led them to personal growth, career development, and intellectual fulfillment. Participants adapted to new challenges, improved their problem-solving skills, and fostered a sense of personal fulfillment and satisfaction.

Application to the Classroom

Participants regularly expressed throughout the three-interview series that the strategies from micro-credentials were applicable to the classroom. This was true regardless of the number of years of experience, grade level taught, micro-credential earned, or content area. Participants detailed this information by each micro-credential or shared a pedagogical perspective.

Pear Deck was an educational tool that Stephanie and Brooklyn discussed. It was an online tool teachers used to create presentations where students interacted with the content and provided evidence of learning. Pear Deck offers a micro-credential for teachers.

Stephanie used Pear Deck to create Google Slides as a review game. The students would then play it in class. Another added feature is that "it locks their screens, and they can't be fiddling and around on a bunch of other stuff. What you have shown is what they see." She also explained how the teacher could see student answers and who was not participating live during the activity. Pear Deck also provides reports to identify trends to pull small groups based on the information from Pear Deck.

Brooklyn echoed many of the Pear Deck features that Stephanie explained and elaborated on its instructional application to the classroom. She said, "It’s fun for students to learn technology and me to learn technology from them. It doesn’t keep it the same type of thing every day. If we use Pear Deck one day, they’re active in the lesson and

engage in the lesson in a different way than using a whiteboard and marker." By using Pear Deck in her classroom several times with students, she explained that "they are more engaged with the lesson. They feel more a part of the classroom. It was more engaging to them than just a whiteboard and marker, even though they are doing the same thing. They love using the computers."

The Google Certified Level I Educator micro-credential was the most popular micro-credential earned amongst participants. The school and school district that participants were apart of had Chromebooks and were a Google Workspace for Education district. Google also had several apps and tools that could be used in the classroom for instruction and tiered system of micro-credentials for participants to earn.

Stephanie used a lot of Google Forms in her classroom for pre and post-testing, data teams, and auto-graded quizzes. "It gives you the data right there, whereas those were things that we were doing on paper in years past." She explained that the Google Certified Level I Educator micro-credential program also included information on students collaborating digitally on projects. "I have had students do a lot of projects where they are working on the same Google Doc at the same time. Then, I jump on there, and they're like 'Oh wait, she's looking at it too.' They seemed to really like it, and that platform was really cool to apply to the classroom." Stephanie confessed to learning lots of small workflow strategies from the program that had a big impact. One such strategy was to embed her classroom newsletter on a website so that parents could see what they were doing in class. Stephanie would edit the Google Slide while parents could view the Google Site. When I asked her how often she used strategies from the program, she said, "it is all the time. It is every day that we are using these things."

Victoria chose to pursue the Google Certified Level I Educator micro-credential because "I feel like it's better to have a focus on one or two things instead of a little bit of focus on dozens. When you can recognize that something is there to stay, Google for me isn't going anywhere. In a profession like education, it is meaningful learning, and you're going to continue to use it." She also commented on how the micro-credential impacted her instruction, herself, and her students. She recalled that "anytime that we use any kind of Google app in the class, I remember living this through my training and bringing together student experiences with what I've learned to create artifacts." She specifically mentioned a Manatee adoption project for her classroom where she used Google Forms with her students, a strategy she learned from earning her Google Certified Level I Educator micro-credential. The students were amazed that they did not have to write anything on paper; it automatically collected all the information, calculated percentages, and created a pie chart. Victoria enjoyed being able to not only learn about Google tools but she also enjoyed sharing that knowledge with students and taking them on a deep dive into Google tools.

Brooklyn admittedly had an unfavorable opinion of Google at first. "When we first started moving to Google, I was like this is dumb. I hate it. It doesn’t make sense. Give me back PowerPoint." As the school district moved towards Google and increased the number of devices available for students, she changed her mind. She enjoyed learning more about the application of Google in the classroom through the Google Certified Level I Educator micro-credential. She said, "it is more than just Google. You learn more about it and how to help students use it. It has made them more engaged, and I feel like they’re more prepared to go to the next grade level hopefully knowing a little more than

they did when they started this grade." She was also able to elaborate that "it has helped me to be able to explain it to the kids better. Instead of saying, ‘you do this.’ I could say, ‘here’s the how, why you do it, and what it does.’ It gave a lot more clarity."

Penny enjoyed the ability to differentiate for students using various Google tools by completing the Google Certified Level I Educator micro-credential. She commented on the importance of having easy-to-use tools for some groups, so they are focused on providing evidence of learning instead of fighting to learn the technology. "I feel like sometimes too much time in here can be spent on supporting students through an application and that they are not focused on the learning as much. I must be very careful with the complexity of the tool that is being used. Slides and docs are so compatible. If you know how to do the Google slide, then a doc is going to be just as easy."

Edpuzzle allowed videos to be embedded with questions for teachers to be able to check for learning. Emily was the only participant with this micro-credential and was very passionate about its use in the classroom. She learned about other micro-credentials, but she was not as interested in them, so they fell by the wayside. Emily enjoyed using Edpuzzle and became engaged with it through different professional development opportunities. She then began integrating it into her instruction and explained her experience over the last few years:

> It influences everything that I do and really how the kids are learning. Students are dying from laughter, and they get so competitive. There is even a game part that you can turn off or on. I mean, every month I feel like they come out with something new, and they're really great as a program about asking teachers for

our feedback and then actually doing it. Teachers wanted this, so we've added this or that.

According to Emily, those programs that do not change over time or meet the needs of teachers are harder and abandoned over time in the classroom. Emily used Edpuzzle for so long that she had students in high school remembering their time in her classroom. She relayed that students contacted her during teacher appreciation week and said that, "I just wanted to let you know, I loved your class. I loved the videos you did. I liked the way that you teach. It wasn't boring, so I actually paid attention. I like the way that you gave us an opportunity to show what we know through different avenues." Edpuzzle also allowed Emily to anonymously display class and student accuracy to identify areas of strengths and weaknesses. By using this information weekly, Emily was able to direct their learning. She found this especially helpful during the COVID-19 school shutdown in the Spring of 2020. She was able to confirm if students watched the video, monitor engagement, and check for understanding.

National Geographic also offers a micro-credential that both Christie and Victoria earned. Christie was excited to be able to bring the experiences, experts, and resources of National Geographic to her classroom. She was fortunate to do a Skype session with Jane Goodall with her students. "We did a Skype session with her through National Geographic. We got to be one of the classes that got to be on and ask questions. Because I was a National Geographic certified teacher, I got first priority. That's the kind of next level stuff that I feel like sticks with kids outside of the classroom." This experience inspired her to continue to find experts for her students and continually reference the experience throughout the school year due to its broad applicability. With her school's

focus on problem-based learning, Christie also used National Geographic resources to enrich learning for her students:

> National Geographic is used very organically in the classroom instead of it feeling more like a segmented thing. It doesn't feel so much like now I'm going to stop and teach you social studies. It's using the right kinds of mentor texts or talking about change over time or language arts and tying that to our writing and research. It is also bringing in different groups, like minority groups, that maybe the kids aren't exposed to as often from different parts of the world.

Christie admitted that before the National Geographic micro-credential experience that she was only doing the bare minimum for her social studies classes. The National Geographic micro-credential experience influenced her classroom instruction by making it more fluid, richer, and improved by connecting different elements to the big picture for students. She saw students engage and pay more attention as she introduced more world connections.

Victoria repeated Christie's passion for providing students with experiences and skills she learned from the National Geographic micro-credential. "If I can't bring an experiment to them because maybe it's not safe or maybe we don't have the resources to do it, there are people who can demonstrate it, and you can connect to somebody." In addition to bringing in outside expert speakers, Victoria's other major push was getting students to think about the research process and tools.

Chapter Summary

Teachers are earning micro-credentials to continue their own independent professional learning. This study aimed to identify the strategies used by teachers with

micro-credentials in elementary schools in a Georgia school resulting in students improving their achievement and engagement. Teachers participated in a three-interview series involving their micro-credential background, educational and personal experiences, and an opportunity for participants to reflect on their experiences and make meaning. In this chapter, I discussed themes of motivation, rigor, lifelong learning, and application to the classroom that emerged from a thorough analysis of interviews, observations, and documents.

Chapter VI

DISCUSSION AND CONCLUSIONS

Many teachers are dissatisfied with traditional professional learning and feel it does not prepare them to use technology and digital learning tools (Bill and Melinda Gates Foundation, 2014; Garcia & Weiss, 2019). Teachers are highly dissatisfied with current professional learning and seek new micro-credential opportunities. Teachers choose micro-credentials because they are more teacher-centered than traditional professional learning and provide evidence of professional competencies (ARCC, 2020; Erickson, 2019). This study identified the strategies used by teachers with micro-credentials in elementary schools in a Georgia school district resulting in students improving their achievement and engagement.

Educators may increase student achievement and engagement by understanding the influences of micro-credential professional development strategies. Educators continue to express a desire for personalized, relevant, and choice of professional development, yet school systems continue to support traditional professional development. If the micro-credentialed teacher's experience was better understood and contextualized, other educators, leaders, and policymakers could implement effective instructional strategies and promote school improvement, student achievement, and student engagement.

The following research questions guided this study:

1. What were teachers' personal, social, and professional experiences with micro-credentials in elementary schools in a Georgia school district that took responsibility for improving student achievement and engagement?
2. What strategies did teachers with micro-credentials use in elementary schools in a Georgia school district to improve student achievement and engagement?

I used purposeful sampling to select participants based on their earning at least one micro-credential, being an elementary educator with two years of experience at the school site and a minimum of five years of experience teaching and administering the MAP assessment. I collected data using interviews, observation sheets, documents catalog, research diaries, and memos. The primary data source was a series of three interviews with the six participants, which focused on their experiences. These interviews were recorded, transcribed, and uploaded to the MAXQDA software package. I implemented three coding cycles and revealed four themes which are the findings of this study. These themes include motivation, rigor, lifelong learner, and application to the classroom. In this chapter, I discussed these themes in the context of the research questions, study limitations, implications, recommendations for future research, and conclusions.

Research Questions: Summary Discussion

For three months, I conducted three interviews with each of the six participants to gather information about their shared experiences with micro-credentials. In this section, I elaborated on the research questions that informed this study and their alignment with the existing literature. Additionally, I presented a detailed account of participant

perspectives on how micro-credentials influenced student achievement and engagement, focusing on the four themes that emerged from the collected data.

Research Question 1

RQ1: What were teachers' personal, social, and professional experiences with micro-credentials in elementary schools in a Georgia school district that took responsibility for improving student achievement and engagement?

Seidman (2013) suggested that gaining context and clarity into participants' life experiences through their personal history can offer a better understanding of how they perceive their surroundings. To address RQ1, I used the narrative profiles of each participant, which were created by identifying noteworthy information and sharing it with the participants for verification. Once the important components of each participant's story were established and confirmed, I constructed a narrative profile using the participants' own words. Although each participant had a unique background, I found several commonalities.

The six participants all taught in the same school district in Northeast Georgia. Four of them were born and raised in Georgia, and two of them were from South Carolina. All six were Caucasian females raised in a family, school, or community environment where education was valued. Christie grew up in a metropolitan area, and her parents ran a daycare. Emily's father was an educator who tried to discourage her from joining the teaching profession. Victoria and Brooklyn enjoyed learning and being at school. Penny enjoyed school and was fortunate to have a supportive environment at school during her parent's divorce. Stephanie switched high schools for a better environment and enjoyed the Japanese gardening and engineering opportunities that were

part of the gifted program. All the participants expressed their parents' prioritization of education.

Participants shared the experiences of their preferred teachers and elaborated on the factors that made them memorable. Many of these teachers built relationships with students, cared for them, and created experiences for the students. Christie described her third-grade teacher as someone who made the extra effort to see students outside of school time. Christie's middle school homeroom teacher made a significant impact on her as well because the teacher made her feel special by allowing her to be the one student to experience the classroom's crayfish pond before school. Emily's father was a teacher, admired and respected by the students. He significantly impacted her as she saw his interactions with students and attended pre- and post-planning with him. Victoria's seventh-grade teacher taught her about science by allowing students to take care of classroom animals over school breaks. This was vital to Victoria during the year that her father lost his job. Penny became intrigued with cursive writing in second grade when her teacher previewed it at the end of the school year in preparation for third grade. Brooklyn's third-grade teacher was memorable because she was caring, kind, and passionate about her work. Stephanie enjoyed her middle school social studies teacher because she made history engaging. All the participants in this study were influenced by a teacher in their lives, and some of them were motivated to pursue a career in education because of the profound impact that these teachers had on them.

The participants in this study had been teaching for several years, although some had taken non-traditional paths to enter the teaching profession compared to others. Christie, Emily, Brooklyn, and Stephanie all completed education degree programs.

Victoria completed a double major in psychology and sociology, then went back to higher education for a master's and specialist degrees in education. Penny worked at a dentist's office after high school and then worked on a degree in education while working at a school. Victoria was newly divorced, Stephanie was married, and Brooklyn was single. Emily, Penny, and Christie were married with children.

Research Question 2

RQ2: What strategies did teachers with micro-credentials use in elementary schools in a Georgia school district to improve student achievement and engagement?

This research question focused on participants' specific actions and activities to achieve their instructional goals using micro-credential programs. The study's participants had a collected 75 years of experience in education, and they provided in-depth details on the strategies that they learned from micro-credential programs throughout the interviews. Strategies are defined as "techniques teachers use to help students become independent, strategic learners" (Alberta Learning, 2002). These micro-credential-based strategies allowed for new ways for students to provide evidence of their learning. Participants agreed that these micro-credential based strategies positively influenced student achievement and engagement in their classrooms. The following section details how a variety of micro-credential strategies were implemented by teachers in the classroom and their influences on student achievement and engagement.

The motivation theme illustrated that participants were intrinsically motivated to earn micro-credentials. Participants expressed motivation to earn a micro-credential to build their resumes, distinguish themselves from other teachers, refine skills, improve instructional strategies, increase student achievement, and increase student engagement.

This finding is consistent with Green et al. (2020) study, whereby teacher motivation led to teachers purposefully seeking professional learning to grow and gain a sense of renewal. Researchers also supported micro-credentials for transforming professional learning due to offering personalized learning opportunities driven by an educator's motivations (Abramovich et al., 2013; Ady et al., 2015; Erickson, 2019; Kelley, 2019).

The fact that micro-credential programs were relevant and applicable to their classroom instructions motivated participants to pursue them to benefit their students. Penny explained that it was important to practice how the strategies from a micro-credential could be used in the classroom. This was evident in Google's study materials and the interactivity of the Google Level I Certification exam, which provided real-world scenarios and a digital sandbox for classroom activities. Victoria also chose the Google Level I Certification because it was applicable to the classroom. Stephanie felt that earning a micro-credential would demonstrate that she was using those strategies in her classroom. She also earned the Pear Deck micro-credential after already learning and using the requisite strategies in her classroom. Brooklyn wanted to continue learning and provide new opportunities for her students. Emily used the Edpuzzle micro-credential to effectively incorporate video into her classroom and align materials to Georgia's curriculum.

The rigor theme reflects participants' value for a rigorous curriculum and instruction as a big motivator to pursue micro-credentials. For example, The Google Certified Level I Educator micro-credential program focused on various technology tools and strategies. This experience allowed Christie to "use tools in different ways and give quicker feedback to students than I had before." She could use Google Forms for

automatically graded quizzes, quick checks, and feedback. All the participants agreed that using micro-credential allowed them to design lessons that allowed students to use a range of options to represent what they learned. The participants learned how to increase rigor in their micro-credential programs, and it was manifested in the students' choices of artifacts that represented their content mastery.

Participants also used the Google Level I Certification to provide opportunities for students to work at their own pace, provide additional support for struggling students, and challenge high-performing students. Brooklyn commented on how easy Google was to learn for her students. Specifically, she pointed out that Google Docs and Google Slides integrated well and had similar user interfaces. This made it easier for students to create artifacts and carry over knowledge from each of these digital tools from one to another. Brooklyn also commented that some students do well with summative assessments while others do not. For those that could do better with summative assessments, creating posters, presentations, or a story allowed them to best represent their knowledge. Christie taught writing, and her use of Google Forms allowed her to provide in-depth writing feedback that increased the writing scores of her students. In addition to teacher feedback, Christie also created a digital peer feedback system for student writing. In Christie's class, "kids are excited about what we are doing and more connected to it has led to higher engagement despite different learning levels. In my classroom, higher engagement has led to higher achievement." Victoria used many of these same practices and underscored with students the importance of demonstrating how to "present your information or show me what you have actually learned." Penny also

experienced higher student engagement by implementing different Google tools with her students to create various ways for students to demonstrate mastery.

All participants in this study identified as lifelong learners and pursued a micro-credential to increase and vary their instructional strategies. Christie desired to be on the cutting edge of instruction and model her lifelong learning to her students to serve them best. Emily wanted to fight stagnation and improve her teaching. Victoria wanted to battle the backward movement from COVID-19 and be the magic science teacher. Penny wanted to be more knowledgeable about applying new strategies to the classroom. Brooklyn wanted to shy away from rote learning and lean on the curiosity of learning. Stephanie was excited about using the school district's new learning management system, Canvas. Christie, Brooklyn, and Victoria discussed learning on their own time in the summers to add new instructional strategies to their classroom instead of only what the school district provided.

Participants consistently relied on the direct benefits of micro-credential programs to determine the most appropriate ones to meet their learners' needs. So, their strategy, in this case, was to connect the credential program with their instructional and learning needs regardless of their teaching experience, grade level taught, micro-credential earned, or content area. Participants detailed this information by each micro-credential or shared a pedagogical perspective. Pear Deck and the Google Certified Level I Educator micro-credential provided several strategies for teachers to use in the classroom.

Stephanie and Brooklyn leaned heavily on the Pear Deck online tool to create presentations that allowed students to interact with the content and demonstrate their learning. On the other hand, the Pear Deck online tool also allowed teachers to monitor

student participation and lock down student screens to keep classes on track. Participants used Pear Deck and Google Slides in conjunction with one another to promote using technology, hands-on activities, and project-based learning to make lessons more interactive and relevant to students. Brooklyn pointed out that the seamless integration between Pear Deck and Google Slides saved her time and that her students could better use Pear Deck to demonstrate mastery through various interactive tools in addition to free writing and multiple-choice questions. Stephanie explained, "if we use Pear Deck one day, they're active in the lesson and engage in the lesson in a different way than using a whiteboard and marker." Stephanie and Brooklyn said students were active and engaged in instructional lessons using Pear Deck.

All participants used micro-credential programs to generate data to inform their instruction. This helped them identify areas where students may be struggling and adjust their teaching to meet the needs of individual students. For example, all participants preferred The Google Certified Level I Educator micro-credential as the most effective and efficient tool to generate test data. Stephanie and Victoria learned to use Google Forms for pre-and post-testing, data teams, data collection, and auto-graded quizzes. Brooklyn and Penny also applied Google tools in their classrooms to their lessons so that students could generate progress data on their learning.

Emily adopted a more aggressive instructional strategy when she earned the Edpuzzle micro-credential. The program allowed her to include competition, gamify assignments, monitor engagement, and check for understanding. Edpuzzle could anonymously display student work to allow for peer review in her classroom. Emily also used this data to track and direct student learning. This micro-credential allowed students

to engage in hands-on activities, group work, and multimedia presentations in the classroom. Emily saw increased engagement when she integrated Edpuzzle into her classroom. Students would answer questions throughout the videos, and she would get data on video completion and rewatching. Brooklyn and Emily both commented on the benefits of Edpuzzle allowing students to rewatch videos. They found this benefited the students because they had forgotten certain information or needed to digest more. Christie and Victoria focused on building positive relationships with their students using the National Geographic micro-credential. This made their students feel valued and respected by their teachers, and they were more likely to attend school and engage in learning activities. They used the National Geographic micro-credential to bring their experience, experts, and resources of National Geographic to their classrooms, boosting positive relationships in the classroom. This included learning Skype to allow outside experts to have discussions with students. The National Geographic micro-credential also supported teachers by including strategies on the use of mentor texts, interdisciplinary activities, and experiments that would not be possible in a classroom. The National Geographic micro-credential also allowed new interdisciplinary classroom activities, an international community of teacher peers, and practices to implement in the classroom. Christie said that it increased student engagement and attention in her classroom by making it more fluid, richer, and improved instruction by connecting different elements to the big picture for students. Victoria echoed Christie's experience, and both could make connections to bring in outside experts or include experiments that were not available within a school setting.

Participants administered the MAP assessment in their classrooms. This electronic assessment is administered three times a year and dynamically adjusts to each student's performance. Due to MAP being administered on an electronic device, computer literacy is critical for students. Brooklyn found that the formatting of writing in Google Docs, which is covered in the Google Certified Level I Educator micro-credential, was a major influence on any online assessment, including MAP, because students "are not hunting and pecking as much as they would without that experience. They also struggle on the computer when there is pressure, but it is better if they have time to sit there and be student-paced." According to participants, consistent application of strategies from micro-credential programs increased student computer literacy, positively affecting student achievement.

Micro-credentials programs helped participants implement evidence-based practices related to attendance. For example, through micro-credentials training, teachers learned how to use data to monitor and improve attendance, develop positive relationships with students and families, and implement effective communication practices focused on micro-credentials influencing student attendance. However, the data suggested that participants need help articulating direct connections between their use of micro-credentials and student attendance, although they make insinuations of the two in their practice. They also need help elaborating on how micro-credential strategies can create an engaging classroom and improve the classroom's culture. Christie's experience was that building a culture of a positive classroom community comes from engaging lessons and students working together, which can lead to gains in attendance. If micro-credentials are used to create a classroom community with engaging lessons and

collaborative student work, they can influence student attendance and engagement. Christie further clarified that interest in lessons drives students to want to be at school by saying that "the quality of the lessons and the resources you're pulling in do impact attendance." Victoria specified that "you're not coming to me for the Google experience or the experience that I have with those credentials. You're coming because I'm going to put the math or science in your hands." Penny agreed with Victoria, and she shared her understanding of the importance of students enjoying school and their learning environment by saying that "students feel like it's not so stringent and boring. They have engaged in what they're doing."

Participants used the different micro-credential programs to differentiate their instruction to meet the needs of all students. This allowed them to provide opportunities for students to work at their own pace and additional support for struggling students, thereby increasing the rigor in the classroom. The participants reported increased student achievement on the MAP test through these practices, motivating them to continue using them. This is consistent with research on teacher choice and satisfaction with professional learning that is applicable to the classroom. The Bill and Melinda Gates Foundation (2014) found a high level of satisfaction when teachers choose their professional learning. According to Erickson (2019), teacher success increases as their choice and satisfaction with professional development increases. This is consistent with previous literature on professional development and student achievement. Medina (2020) stated that "effective professional development practices allowed teachers to update and equip themselves with the new skills and knowledge required to improve student learning" (p. 88). Mizell's (2010) research agreed with these findings and concluded that teachers that

experienced effective professional development found "an increase in grades, test scores, student engagement, and positive behaviors" (p. 88). Participants experienced increased student achievement when using practices from micro-credentials, consistent with available literature.

In conclusion, participants for this study came from a range of life, educational, and professional experiences. They each pursued at least one micro-credential as a teacher in an elementary school with varying years of experience. They used micro-credential programs to differentiate their instruction to meet the needs of all students. This allowed them to provide opportunities for students to work at their own pace and additional support for struggling students. They were steadfast in their belief in meeting the school's expectations and continuing to grow professionally to meet the needs of students. By building positive relationships, differentiating instruction, using engaging instructional strategies, and using data to inform instruction, teachers with micro-credentials improved student achievement and engagement in their schools.

Limitations

I conducted this qualitative research to explore the influence of teacher attainment and the use of micro-credentials on student achievement and engagement. Creswell (2014) encouraged researchers to acknowledge the weaknesses of their research design and state that all studies have strengths and weaknesses. This study’s limitations include the participant selection and participation, the potential bias of the researcher, the small sample size, and verifiability. I analyzed these limitations and elaborated on my actions to minimize their impact on my research.

The first limitation was participant selection and participation. I used purposeful sampling procedures to recruit six participants who yielded rich data to address my research questions. The participants met the following inclusion criteria set for this study: they had earned at least one micro-credential, been an elementary educator with two years of experience at the school site, had a minimum of five years of experience teaching, and administered the MAP assessment. Each participant had distinctive experiences and perspectives regarding micro-credential influences in the classroom. It is important to note that most of my data were self-reported and thus prone to inaccuracies. Participants may have exaggerated, forgotten, or overlooked some events. I triangulated three data sources to neutralize this potential threat to my study. Future research may seek student perspectives to paint a complete picture of this issue.

Secondly, as an experienced teacher in Georgia middle and high schools, I could have brought my opinions and perspectives regarding micro-credential's influence on student achievement and engagement. I could not completely remove my perspectives from the research. So, bias remains a threat to the validity of this research. Merriam (2002) described qualitative researchers as the primary instrument for data collection and data analysis, and I could have interjected my own biases into this qualitative research study as the researcher. I provided a researcher positionality statement clarifying my position as the researcher. I used a research memo to control my biases throughout the research and maintain high ethical research standards to enhance my work's trustworthiness.

Third, the small sample size is consistent with qualitative research focusing on in-depth exploration and understanding of complex phenomena rather than generalizing

findings to a larger population. Thus, six participants were appropriate to explore the influence of teacher use of micro-credentials on student achievement and engagement. I aimed to gather rich and detailed data about the teachers, experiences, perspectives, and behaviors of participants using interviews, observation, and document analysis to collect data. The small sample size also allowed me to spend more time on each participant, enabling me to gather more detailed and nuanced data. This approach was particularly useful in studying this technologically complex topic, where in-depth understanding is more important than statistical representativeness. Moreover, the small sample size provided me with a greater opportunity to understand the experiences of the participants deeply and to gain insights into the research question. This study's findings may not be generalized to other school districts with different characteristics. However, School and district leaders that serve in organizations with similar demographics may contemplate if this study's findings apply to their specific setting.

Fourth, as the sole primary researcher in this study, I needed to have the research reviewed by other experts in the field to provide feedback on the quality and accuracy of the research. Thus, I needed someone to help to identify any weaknesses in the research and improve the validity of the findings. Due to potential researcher bias, I could not objectively verify the study's results against the data collected from participants. However, I relied on my dissertation committee to verify my research results objectively. This is consistent with Maxwell's (2013) recommendation of developing and implementing strategies to minimize bias, ensure credibility, and reduce other threats to validity. I included Maxwell's (2013) suggested validity test checklist. The test consists of intense and long-term involvement, rich data, respondent validation, intervention,

triangulation, and comparison. I conducted three interviews over three months with participants based on Seidman's (2013) recommendation to develop intense and long-term involvement with the research participants. I transcribed and reviewed the interviews before the participant interview transcript review to rule out any misunderstandings or misinterpretations of the participant's actions or answers (Maxwell, 2013). I included detailed descriptions of participant perspectives presenting the knowledge gained from this study and its internal and external generalizability. This study may be useful to educators and policymakers to better understand how to use micro-credential professional learning to improve student achievement and engagement.

Implications

Participants completed a variety of micro-credentials and integrated the learned instructional strategies and concepts into their classrooms. Four themes emerged from a thorough analysis of data. These themes were motivation, rigor, being a lifelong learner, and application to the classroom, which were the basis for the implications of this study. These findings are useful for stakeholders directly or indirectly affected by professional development, including teachers, administrators, higher education, legislators, policymakers, parents, and students.

Participants sought out micro-credentials because they wanted a personalized learning experience. The availability and choice of micro-credential opportunities allowed participants to self-select the experience that best fits their teaching assignment, kept them relevant in their professional career, and/or aligned best with their personal, school, or district goals. Christie earned the National Geographic micro-credential because she needed more options for professional development in social studies or cross-

curricular instruction. Emily earned the Edpuzzle micro-credential to fight stagnation and be a better teacher. Victoria, Brooklyn, and Penny earned the Google Level I Certification due to its classroom applicability and desire to grow professionally. Stephanie earned the Pear Deck micro-credential because it had high student engagement and applied to the classroom. In addition to the implication that teachers were earning micro-credentials independently, they were also earning them in areas where available professional development was weak, opportunities for increased student engagement existed, and learning to use new tools in the classroom was paramount.

Participants also commonly discussed the influence of motivation. Participants were motivated for several reasons to earn micro-credentials. Christie wanted differentiated professional development. Victoria felt strongly that the Google Level I Certification should be a basic requirement for all teachers, while Stephanie saw it as a resume builder. Penny and Brooklyn were motivated to complete the Google Level I Certification due to its classroom applicability for Google tools. Emily was also motivated by classroom applicability but chose Edpuzzle instead. The participants explicitly expressed that these micro-credentials were based on their need(s), motivating them to pursue and earn a micro-credential. Creators of micro-credential programs should intentionally align teacher motivations with the messaging, design, and outcomes of such programs.

Another implication of this study was that the micro-credentials created consistency across their discipline. Participants who taught at different grade levels in different schools consistently implemented similar strategies if they earned the same micro-credential. Victoria, Brooklyn, and Penny all earned the same Google Level I

Certification and adopted Google Forms as a writing feedback tool despite not teaching the same grade level or at the same school. These teachers were using these strategies with fidelity after completing the micro-credential. They were not achieving the micro-credential program for the badge, solely for a resume builder, or for their end-of-year evaluation. In addition, their actions demonstrated that streamlined and well-designed micro-credentials provided the consistent application of strategies in the classroom.

Finally, the micro-credential design was the last implication of this study. All the micro-credentials from this study were vendor created and not created by school districts, other governmental organizations, or non-profits. Each vendor had a different platform for providing lessons to teachers, assessments, submitting evidence, and credentialing teachers. If other entities are to adopt micro-credentials for professional development, provide evidence of completion, or re-licensure, then the micro-credential's instructional design and user platform would be critical. Brooklyn still needs to complete the BrainPOP micro-credential due to its tedious nature and comparatively large time commitment. Christie also did not begin the BrainPOP micro-credential because she said it was overwhelming. Stephanie also commented on the difficulty of earning a micro-credential amid regular duties when the program did not align with the priorities that affected her classroom. The proper micro-credential design was imperative for participants to commit to earning the micro-credential and grasp the applicability to the classroom early in the process.

Micro-credentials were an effective method of personalizing professional learning for teachers. As participants integrated strategies from these programs in their classrooms, student achievement improved on the MAP test and some attributes affecting

student attendance and engagement. These findings are useful for teachers, administrators, higher education, legislators, policymakers, parents, and students as they consider micro-credentials for personalized professional learning in education.

Recommendations for Future Research

Based on the study's findings, limitations, and a review of the literature for this study, the following recommendations should be considered for future studies. The first recommendation would be to increase the sample size of the study. The six participants were cooperative in terms of sharing their personal experiences and implementation of micro-credential strategies in the classroom. However, a larger sample size would provide increased triangulation and richer data. Maxwell (2013) also recommended more participants for larger sample sizes to verify findings.

The second recommendation would be to use a different research site with demographics that are different from this study's demographics. The school district was 78.3% White, 7.4% Hispanic, 6.1% Asian, 4.6% Black, and 3.5% multiracial (GADOE, 2021b). The school district was also only 17.3% economically disadvantaged, and 12.6% of students were reported to have a disability (GADOE, 2021b). In addition, this study only included teachers from the elementary level, while future researchers should consider a middle and/or high school setting.

The third recommendation would be to research the impact of the various duties and responsibilities on teacher self-efficacy. Participants consistently brought up a need for more time as a serious concern for improving classroom instruction or lessons. They regularly discussed the myriad of requirements and steps required to reach certain goals that dictated their end-of-year evaluations. Researchers could research teachers'

responsibilities and their effects on teacher self-efficacy. This could inform school and state-level leadership as they evaluate job duties and student support.

The fourth recommendation would be to research teachers amidst the micro-credential process. This could take place by having a cohort of participants earning a micro-credential and conducting research before, during, and after earning the micro-credential. Alternatively, participants could be interviewed at each stage, with one interview during the micro-credential learning process, one interview during the micro-credential examination process, and one interview after completing the micro-credential process. Either strategy would help build efficacy and sustainability.

The fifth recommendation would be to conduct a study to determine the level of influence that micro-credentials have on student achievement compared to traditional professional development. This could be done by comparing two groups: teachers earning micro-credentials and teachers in a control group participating in traditional professional learning that is not earning a micro-credential. This proposed research study would provide insight into whether personalized professional learning in the form of a micro-credential has a greater influence on student achievement.

The sixth recommendation would be to conduct a study among school districts that provide micro-credential professional learning and those that do not. Micro-credentials allow school districts to package their professional learning into micro-credentials to meet state goals, provide consistency, and promote the district's mission and vision. The proposed study would allow for comparing several attributes, including teacher autonomy, student achievement, and culture.

The seventh recommendation would be to research the state-wide micro-credentialing pilots in Tennessee and Kansas. The Tennessee Department of Education developed a micro-credentialing pilot for teachers to allow for personalized and evidence of professional learning. The Kansas Department of Education developed a micro-credentialing pilot for licensure. Multiple research studies from various perspectives could be conducted on the vendors, leaders, teachers, implementation, results, a comparison of the two states, and how the states interacted with school districts within these programs.

The eighth recommendation would be to research the permeation of micro-credential vendors into classrooms. As teachers earn and adopt these micro-credentials, they use a set of tools or resources created by a specific vendor. These tools or resources may or may not align with the standards set by the school, district, or the state. Such a research study could also include a variety of attributes, including electronic data, curriculum standards, and approved technologies for students.

The ninth recommendation would be to research collective efficacy and micro-credentials. The current study concentrated on six educators individually earning a micro-credential. Future research could focus on a group of teachers collectively earning a micro-credential as a cohort and how implementing the strategies could influence their collective efficacy.

The tenth recommendation would be to research the impact of the global pandemic that began in 2020 on micro-credential completion and adoption in the classroom. Many teachers taught online during this time since schools were shut down. Many school districts did not incorporate online learning into their professional

development before COVID-19, so teachers had to turn to their peers, complete hastily created online teaching programs, and search the internet for the best methods to support students during this time.

Conclusions

Professional learning in public schools is in jeopardy despite school districts spending 6-9% of their total budgets on professional learning (New Teacher Project, 2015). The Bill and Melinda Gates Foundation (2014) found that a typical public school teacher spends 68 hours yearly on a school district's professional development. Only 29% of teachers found current professional development offerings applicable. The report concluded that current professional development offerings needed to be more relevant, adequate, and connected to students' learning (2014). Porter et al. (2000) found that school districts and schools face several challenges in meeting the professional learning needs of teachers, including (1) balancing sustained professional learning for large numbers of teachers versus high-quality professional education for a few teachers, (2) implementing knowledge about high quality and effective professional learning, and (3) lacking the infrastructure to manage and implement high quality and effective professional learning. Teachers had a high level of dissatisfaction with current professional learning and sought out new opportunities in micro-credentials. I collected and analyzed data on six participants at the elementary level who earned at least one micro-credential in a Northeast Georgia school district.

Participants gave various answers for why they chose a micro-credential for their professional development. Participants expressed that they were motivated to earn a micro-credential to build their resumes, distinguish themselves from other teachers, refine

skills, improve instructional strategies, increase student achievement, and increase student engagement. Participants wanted to have the choice to pick a micro-credential that would fit the needs of their classroom by increasing rigor to challenge students to think creatively and curiously. As lifelong learners, they were open-minded, curious, and enthusiastic about learning. The micro-credential also had to be applicable to the classroom, or the strategies would not be useful. Teachers "who choose all or most of their professional learning opportunities are more than twice as satisfied with professional development as those with fewer options" (Bill and Melinda Gates Foundation, 2014, p. 10). Teachers prefer authentic and job-embedded professional learning that is energizing, supportive, collaborative, ongoing, and highly contextualized (Bill and Melinda Gates Foundation, 2014; Darling-Hammond et al., 2017). The participants selected the Google Level I Certification, Edpuzzle, Pear Deck, and the National Geographic micro-credentials because they could determine which opportunity would best apply to the classroom.

Micro-credential completion had a positive effect on self-efficacy. Participants were detailed in their accounts of the micro-credential process and implementation of strategies in the classroom. Because participants were completing tasks to earn their micro-credential and implementing them in the classroom, their self-efficacy increased as they gained more independence. Erickson (2019) found a positive correlation that as "educators engage in professional learning experiences that provide more autonomy and satisfaction, they become more efficacious" (p. 28). Micro-credentials could simply be the latest option for professional development, but they also build teacher self-efficacy, which promotes job satisfaction, more positive emotions related to work, being open to

new ideas, experimenting with different teaching methods to meet the current needs of students, and demonstrating a more vital persistence and greater resilience amid a trial (Allinder, 1994; Erickson, 2019; Klassen & Chiu, 2010; Ross & Gray, 2007).

Before I conducted this study, I confidently assumed that gamification would play a major role in this study. However, few of the gamification mechanics were referenced or held in high regard by participants. Leaderboards, points, and rankings were not mentioned by any of the participants of this study. The only gamification attribute participants mentioned was the badge earned by completing a micro-credential program. The badge helped some participants gain initial interest, and others were motivated to complete the program to showcase their badge in their emails and on social media. Dolanowski (2020) stated that the badge was the most widely adopted gamification attribute adopted by micro-credentials. Whether a micro-credential program includes different levels of gamification or not, it should consist of a badge because participants are eager to earn one for a meaningful, accurate, and valuable challenge.

The micro-credential programs that participants completed armed these teachers with instructional strategies that could be used in the classroom. The participants self-reported that students had increased achievement on the MAP test using these new strategies, which increased their self-efficacy. Hattie (2016) concluded that efficacy significantly impacts student learning, collective efficacy positively affects student achievement, and professional learning that leads to increased efficacy should be maximized. Participants were consistent in their interviews that earning their micro-credential increased student achievement by increasing student engagement, increasing rigor, providing multiple options for student artifact completion, and student and teacher

familiarity with technology. Although participants expressed a positive influence on student achievement from micro-credentials, there were other micro-credentials that no participants earned, which makes micro-credential design paramount to teacher adoption and its impact on student achievement.

Research on student attendance demonstrated that attendance positively impacted achievement (Oregon Department of Education, 2015). The reverse was also true, where poor attendance negatively affected student achievement (GADOE, 2021a). When I asked participants directly if micro-credentials influenced student attendance, they did not specifically see how micro-credentials influenced attendance. However, they did elaborate on how micro-credential strategies can create a destination classroom with high student engagement and a positive culture.

Micro-credentials allow teachers to have personalized professional learning that meets the needs of their classroom. The micro-credential programs from this study included a variety of strategies to tap into existing teacher motivations, increasing rigor, the lifelong learning mindset of teachers, and application to the classroom to increase student engagement. The next step would be creating micro-credentials that include instructional strategies related to content standards and curriculum, school or school district expectations, approved tools or strategies, or micro-credential creation based on demand. These opportunities could create an engaging classroom environment through new tools and resources for teachers. According to participants, teacher motivations to earn a micro-credential, rigor for students, the lifelong learning mindset of teachers, and classroom applicability of micro-credentials led to increased student achievement. It is crucial to continue these elements for future micro-credentials.

Researcher's Final Memo

Micro-credentials did not exist in the early part of my career. I have watched them become more popular in K-12 education, earned a few myself, and designed micro-credential programs for various school districts. It has been edifying to design and implement this study as a doctoral student and as a district leader on a topic that I am passionate about. This experience has taught me the importance of the research study design and its value to others who will read this dissertation. I strived to provide context to this study by stating limitations, interpretation of the results, and recommendations for future research. This opportunity allowed me to reflect, analyze, and listen to participants and how the micro-credential process could best serve public education.

Since my proximity to the classroom has distanced me due to my current position, it is easy to be less familiar with classroom changes and reality. This is why supporting and empowering teachers and students when they face challenges is vital. I anticipated that participants saw micro-credentials as busy work or highly encouraged to the point of requirement by school administrators. What I learned was that teachers enjoyed learning new strategies for the classroom, were proud to earn a badge to publicly display, were highly selective in their micro-credential choice due to their precious time, and were proud when student achievement increased. As we strive to improve public education for all students, it is imperative that we offer personalized learning to teachers to ensure that they are using research-based and innovative instructional strategies to maximize their time with students.

Educators seek personalized learning through micro-credential programs outside of school or district mandates. They want to learn, grow, and be the best version of

themselves for their students, which is evident in the four themes of motivation, rigor, lifelong learning, and classroom applicability. Participants in this study chose to pursue micro-credentials offered by vendors, and they learned strategies that positively influenced student achievement. I learned that my experience and perspective on micro-credentials were only a part of the equation, while the participants provided rich data on their experiences that furthered my understanding. This study encouraged me to ask better questions, delve into reasoning, and confront challenges to make meaning of lived experiences to advance public education further.

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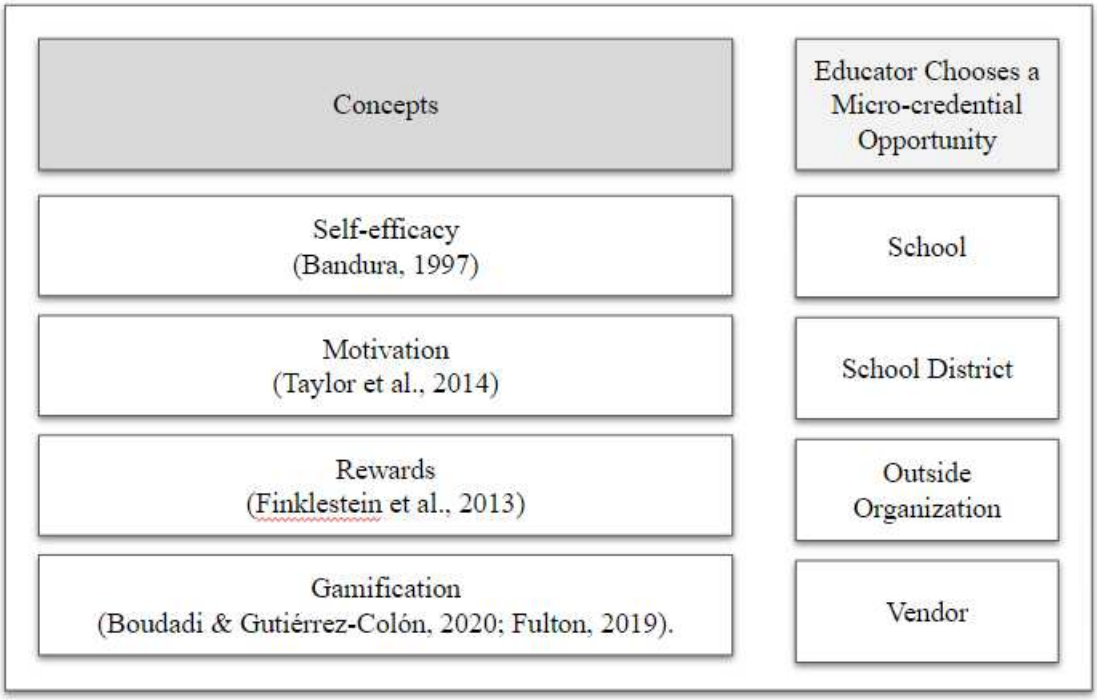
APPENDIX A:

Micro-credential Concepts Chart

Micro-credential Concepts Chart

The below chart demonstrates how integrating these micro-credential concepts influence student achievement and engagement.



APPENDIX B:

Institutional Review Board Approval

Institutional Review Board (IRB)
For the Protection of Human Research Participants

PROTOCOL EXEMPTION REPORT

Protocol Number: 04257-2022 **Responsible Researcher(s):** Ryan White

Supervising Faculty: Dr. Rudo Tsemunhu

Project Title: *Shift Happens: Micro-credential's effect on Student Attendance and Achievement.*

INSTITUTIONAL REVIEW BOARD DETERMINATION:

This research protocol is **exempt** from Institutional Review Board (IRB) oversight under 45 CFR 46.101(b) of the federal regulations **category 2**. If the nature of the research changes such that exemption criteria no longer apply, please consult with the IRB Administrator (irb@valdosta.edu) before continuing your research study.

ADDITIONAL COMMENTS:

- *Upon completion of the research study, collected data must be securely maintained (e.g. locked file cabinet, password protected computer, etc.) and accessible only by the researcher for a minimum of 3 years. At the end of the required time, collected data must be permanently destroyed.*
- *Exempt guidelines **prohibit** the collection, storage, and/or sharing of recordings. Exempt protocol guidelines **permit** the recording of interviews provided recordings are made to create an accurate transcript. Upon creation of the transcript, the recorded interview session must be deleted immediately from all devices.*
- *As part of the informed consent process, interview recordings must include the researcher reading aloud the consent statement, confirming participant's understanding, and establishing willingness to take part in the interview. Participants must be offered a copy of the research statement.*

☒ ***If this box is checked, please submit any documents you revise to the IRB Administrator at irb@valdosta.edu to ensure an updated record of your exemption.***

Elizabeth Ann Olphie *01.20.2022*
Elizabeth Ann Olphie, IRB Administrator

Thank you for submitting an IRB application.
Please direct questions to irb@valdosta.edu or 229-253-2947.

Revised: 06.02.16

APPENDIX C:

School District Permission Letter

November 10, 2021

Dear Mr. White,

I am delighted to offer this letter of support for your research project, *Shift Happens: Micro-credential's Effect on Student Attendance and Achievement,* and hereby grant you permission to conduct this research in Oconee County Schools pending IRB approval.

I understand that all required protocols regarding human subject research and informed consent will be followed. This looks like a very interesting project and I look forward to receiving information regarding the findings of this research project.

Sincerely,

Claire Michael Buck, Ph.D.
Chief Academic Officer

P.O. Box 146 | 34 School Street | Watkinsville, GA 30677 | PHONE: 706.769.5130 | FAX: 706.769.3500
WEB: *www.oconeeschools.org*