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THE IMPACT OF BLENDED PROFESSIONAL DEVELOPMENT ON TEACHER EFFICACY AND PRACTICE

Sonia Hood

THE IMPACT OF BLENDED PROFESSIONAL DEVELOPMENT ON TEACHER
EFFICACY AND PRACTICE

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by
Sonia Hood

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Sonia Hood   Dr. Anthony Annunziato

ABSTRACT

THE IMPACT OF BLENDED PROFESSIONAL DEVELOPMENT ON TEACHER

EFFICACY AND PRACTICE

Sonia Hood

The purpose of this quantitative study was to examine the impact of blended professional development on teacher efficacy. The variables hours of blended learning, subjects taught, and years of experience were investigated. Additionally, teacher efficacy was analyzed across domains of student engagement, instructional practices, and classroom management. Multiple regression analyses were conducted, and the Teachers' Sense of Efficacy Scale was administered to 112 teachers to investigate the following research questions: (a) What is the relationship between teachers' self-efficacy and blended professional learning? (b) Is teacher efficacy influenced by the amount of time spent receiving blended professional learning, by the years of teaching experience, and by the subjects taught?

Through analysis of the TSES, high efficacy scores were found across subscales of student engagement, instructional practices, and classroom management. Multiple regression analysis did not reveal significant findings that resulted in statistical significance.

Recommendations and implications for future research includes development of protocols and guidelines for professional learning that support collaborative, teacher-centered practices that support enhanced efficacy.

DEDICATION

I give thanks to God, who fuels my spirit to be all that I am.

This research study is dedicated to my family; my mother, my daughters Nydja and Nia and my sister Cynthia.

Your unconditional love and support throughout this process provided perspective and a solid foundation that kept me sane, motivated, and focused.   Your combined belief that I can do anything guides me daily to pursue excellence.

Mom, you are truly the wind beneath my wings. Your support is unwavering, and your love is infinite. Thank you for all that you are in my life.

My two heartbeats Nydja and Nia, your determination and commitment to chase your dreams inspires me to chase mine. Your compassion, energy, and drive to live out loud and follow your goals excites me and makes me proud. As you both continue to evolve, keep the faith, and know that if you dream it you can achieve it. I am honored and blessed to call you my daughters.

Thanks to my sister Cynthia, for always believing in me. You are my cheerleader and a discerning prayer warrior who always finds the right words to say at the right time.

Thank you for your steadfast prayers and love. I am grateful that you are my sister.

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Thank you Dr. Annunziato for your consistency, dedication, and willingness to share your knowledge and expertise. Your efforts and guidance were instrumental in successfully navigating through this journey. Every step along the process, you kept a focus on priorities and provided encouragement that supported completion of my dissertation. I am fortunate to have you as a mentor.

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CHAPTER 1: INTRODUCTION

Teacher quality is a major indicator of student success. Professional development is the primary tool that is often used to improve pedagogy and teaching practice. Professional development, which in the United States is budgeted at $18 billion per year (Scherff, 2018), may be mandated at the district, state, or federal levels. Under Part 100.2 of the New York State Department of Education Commissioner's Regulations, teachers are required to maintain 175 hours of professional development every five years (www.nysut.org, 2022). Professional development, sometimes known as professional learning (Scherff, 2018), is defined as professional learning that provides an opportunity to observe, evaluate, and reflect on practices, but it also results in changes in teaching practices and improvements in student learning outcomes (Hammond et al., 2017). Professional development is traditionally provided face-to-face by a consultant or practitioner who is viewed as an expert on a specific topic, skill, or strategy, and opportunities for professional development may be offered on-site within school districts. However, recently there has been an increased acceptance of a blended or virtual model of professional learning, which is a combination of face-to-face classroom learning and online learning (Philipsen et al., 2019). This mode of professional learning has presented a creative and flexible means of providing professional development. Regardless of the mode of presentation, the goal of professional learning is to improve or enhance teaching practices to positively impact the academic outcomes of students. Moreover, professional development not only provides an opportunity for pedagogical growth, but also allows for expansion and enhancement of technological skills.

In districts across the United States, professional development has been targeted as the medium of enhancing instructional classroom practices (Reimers, 2020). At the same time, teachers often express concerns over the level of involvement in decision-making about the professional learning content offered, the level of effectiveness, and the impact of professional learning on teaching practice (Richter et al., 2021). Even though teachers engage in 90 hours of PD annually, and approximately $20 billion dollars is spent each year on professional learning (Gates Foundation, 2016), teachers report that results are lackluster and that the goals of professional development are not being achieved. Teachers question the value and benefit of district-led professional development. They believe there is a misalignment between their professional learning needs and what is traditionally offered. Along these lines, noteworthy nationwide statistics that further support and drive the need for professional learning reform are as follows:

- A limited number of teachers (29%) are satisfied with professional development.

- A limited number of teachers (34%) report improvement in professional learning.

- Fewer than 11% of teachers believe they have any influence over professional development programming.

- Almost half (44%) of teachers assert that there is not enough time built into their schedules for professional development.

- Most teachers (60%) maintain that professional learning does not adequately prepare them for the changing nature of their responsibilities, which include technology, digital learning methods and tools, and analysis of student data to appropriately differentiate and implement updated learning standards (Gates Foundation, 2016).

Given such contrasts, this research is intended to explore the underlying causes of these issues. By examining teacher efficacy through the lens of social cognitive and situational learning theory based upon the communities of practice conceptual framework, one can begin to address how to effectively close the gap in the research and provide a targeted plan and model of professional learning.

Purpose of the Study

The purpose of this research is to explore perceptions of blended models of professional development and their impact on teacher efficacy. The secondary goal of this study was to analyze teachers' lived experiences and use the findings of the research to develop a framework or protocol of meaningful and effective professional development for educators. This protocol would serve as an inclusive and comprehensive framework that school educators and administrators could use as a model of success, based on the data and findings of the study.

As the field of education evolves, adjustments must be made to equip educators with the appropriate skills and tools to successfully address the changes. Teachers need to feel secure in tackling the ever-changing needs of the 21st-century student. In districts across the United States, professional development has been targeted as the medium of building capacity and enhancing instructional classroom practices. Although teachers engage in 90 hours annually, and approximately $20 billion dollars is spent each year on professional learning (Gates Foundation, 2016), teachers report that their specific pedagogical needs are not being addressed.

An extensive study (Gates Foundation, 2016) was conducted to ascertain various stakeholders' perspectives on professional development. The study gathered data from

interviews and surveys of approximately 2900 educators, administrators, and professional development leaders. The goal was to gain an understanding of the issues, needs, challenges, and barriers of professional development. Some of the key issues that were identified included the lack of social characteristics such as coaching, collaboration, communication, and opportunities to model and apply learned skills. Additional barriers to meaningful professional development included the lack of direct connections to the classroom such as data analysis and technology supports. Professional development is viewed as more of an activity of compliance than relevant and meaningful learning.

Theoretical and Conceptual Frameworks

The study is based upon a conceptual framework premised upon social cognitive fundamentals to address how learners engage through communities of practice (CoPs), as a model of professional learning (Smith et al., 2017). This study was also based upon a theoretical framework consisting of Bandura's (1986) social cognitive theory and Lave and Wenger's (1991) theory of situated learning was used to frame the research in the context of CoPs.

Conceptual Framework

The study is premised upon social cognitive fundamentals that address how learners engage through CoPs, as a model of professional learning (Smith et al., 2017). In this context, educators mutually develop, share, and sustain skills that foster meaningful transformative practices. The CoP perspective is derived from situated learning theory, which considers the social nature of learning. Elements of peer engagement, discourse, and collaboration are incorporated. There are three components

of CoPs: presence of group identity, community, and practice. Figure 1 provides an

overview of these domains of CoPs:

Figure 1

Communities of Practice
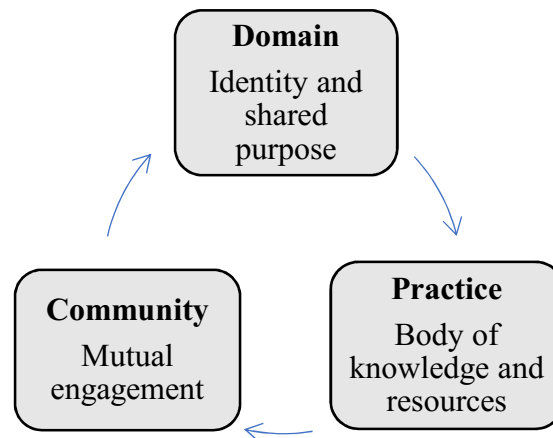
Note: From *Communities of Practice: Learning, Meaning, and Identity* (p. 2), by E.
Wenger, (1998) Cambridge University Press.

Using the CoPs model as a model of professional learning will elucidate the social

context of teacher learning and professional development. In contrast to traditional

teacher training models, the CoPs model supports situated, social, and distributed

learning experiences including leadership roles, organizational support, personalized and

social teacher learning, and the use of guiding principles and purpose (Trust & Horrocks,

2019).

Significance of the Study

This study is important for the ongoing evaluation of professional development

programming. The persistent issue has been that practitioners feel disconnected from

models of traditional face-to-face training, and this impacts their perceptions of the

benefits (Nese et al., 2019). By evaluating teacher perceptions of professional learning,

one can gain a better understanding of protocols and models that can be applied to highlight best practices of professional development. Teachers and educators across K–12 stand to benefit from the findings of the study, which will ultimately translate to enhanced instructional practices in the classroom and successful outcomes for students.

This study extends current research on professional learning by examining teacher efficacy and teaching practice through the lenses of social cognitive and situational learning theory and upon the basis of a CoPs conceptual framework. No extensive research focuses on blended professional learning within these frameworks, particularly amidst the challenges presented during the current COVID-19 pandemic.

Research Questions and Hypotheses

This study was guided by two research questions:

RQ1: What is the relationship between teachers' self-efficacy and blended professional learning?

RQ2: Is teacher efficacy influenced by the amount of time spent receiving blended professional learning, by the years of teaching experience, and by the subjects taught?

H_0: There is no significant relationship between teachers' self-efficacy and the amount of time spent receiving blended professional learning, years of teaching experience, and subjects taught.

H_1: There is a significant relationship between teachers' self-efficacy and the amount of time spent receiving blended professional learning, years of teaching experience, and subjects taught.

Research Design and Method

Multiple regression was used to address the questions: What are teachers' perceptions of the impact of blended professional learning on teacher efficacy? What elements of professional learning impact teaching practice and pedagogy? Multiple regression examines the relationships between two or more independent variables and one dependent variable (Mertler & Vannatta, 2013). I recoded, categorized, and grouped the data to make the analysis process more efficient and organized prior to uploading to SPSS.

Where correlations exist, a level of statistical significance is indicated by a p-value < .05. Analysis was conducted across relationships among teacher engagement, perceptions of confidence, empowerment, development of strategies, and pedagogical practices in relation to various modes of professional learning.

A quantitative correlational research design was used examine the impact of professional learning on teacher efficacy and instructional practices. Teacher reflections on professional learning were collected based on their prior professional learning activities that have occurred in blended professional development experiences, which provided a basis for selection of this design. This type of design is ideal to use with phenomena that have already taken place (Onyia, 2012) and variables that have not been manipulated (Martella et al., 2013). In addition, correlational research design is less expensive, more feasible, and less difficult to conduct than alternatives such as the experimental design (Martella et al., 2013).

This quantitative study involved a cross section population of secondary teachers who teach in school districts across Long Island, NY. Demographics were cross-

referenced with NYS data for accuracy to ensure the sample in the study represented the target population.

The study instrumentation incorporated the Teacher Scale of Self Efficacy (TSES; Tschannen-Moran & Hoy, 2001) and Technological Pedagogical and Content Knowledge (Schmidt et al., 2009) which consists of statements that provide insight into teachers' perceptions of their knowledge base, pedagogical strategies, and instructional practices following participation in professional learning activities. The survey required participants to rate items on a Likert-type scale using responses ranging from (1) least to (9) greatest.

The survey builds on the premise of teacher perceptions of the impact of blended professional learning on teacher efficacy and teacher practice. The bulk of the survey is made up of statements that cover a range of topics from the mode of PD delivery to measures of satisfaction with the session(s). The last item of the survey is open-ended and provides an opportunity for participants to share additional information of their personal choice.

Additional questions were also framed using the CoPs perspective derived from the situated learning theory, which considers the social nature of learning. Elements of peer engagement, discourse, and collaboration were also included. Cronbach's alpha was employed to support internal consistency of the instrument. Once the surveys were completed, each item in the survey was coded and assigned a value to identify each response. All variables were assigned a code to assist with categorizing and analyzing data using SPSS software.

Definition of Terms

The following terms and their definitions are used throughout the study.

Andragogy: Andragogy is the art and science of adult learning and adult education (Knowles, 1970).

Blended learning: Blended learning is a combination of face-to-face learning and online learning (Philipsen et al., 2019).

Communities of practice: CoPs are comprised of individual groups that each contain and concern people with shared interests and shared competence. Often discussed in tandem with professional learning communities, CoPs involve people of the same profession improving upon their practice through regular, interactive learning intervals (Lave & Wenger, 1991).

Instructional practice: Instructional practice includes strategies that support knowledge and skill attainment (Artino, 2012).

Pedagogy: Pedagogy includes components of instruction that incorporate teaching and the learning process for students (Darling-Hammond et al., 2017).

Professional development: Professional development is defined as professional learning that provides an opportunity to observe, evaluate, and reflect on practices though it also results in changes in teacher practices and improvements in student learning outcomes (Hammond et al., 2017). For the purposes of this study, professional development (PD) and **professional learning** (PL) are interchangeable.

Teacher self-efficacy: Teacher self-efficacy is defined as the "belief in one's ability to perform a specific task; …[and] a judgment about one's ability to organize and execute

the courses of action necessary to attain a specific goal" (Rittmayer & Beier, 2008, p. 1,

qtd. in Knowles, 2017, p. 9, Bandura, 1997).

CHAPTER 2: REVIEW OF RELATED RESEARCH

The literature review is delineated into three subsections and includes an overview of (a) Lave and Wenger's situated learning theory, which draws on Bandura's social cognitive theory; (b) an examination of the construct of self-efficacy; and (c) a comprehensive analysis of research literature on blended professional learning. This collective theoretical framework draws on the fundamentals of collaborative professional learning for educators and lends support to communities of practice (CoPs), which are representative of a teacher-centered model of professional learning.

Theoretical Framework

This study was informed by Bandura's (1986) social cognitive theory and Lave and Wenger's (1991) theory of situated learning, which was used to frame the research in the context of CoPs.

Social Cognitive Theory

Bandura's (1986) social cognitive theory was based on the proposition that learning is a social behavior done in social contexts through ongoing, ever-changing (growing), and reciprocal interactions among the individual, their environment, and other learners. Social cognitive theory is rooted in reciprocal determinism (Bandura, 1978), which focuses on triadic reciprocal causation (Bandura, 1989), suggesting that social contexts have both internal and external influence on the learning and learner through social reinforcement. Figure 2 illustrates this concept:

Figure 2

Triadic Reciprocal Causation
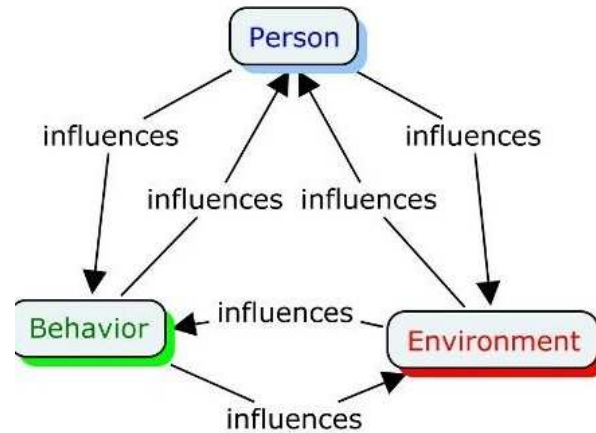
Note: From *Social Foundations of Thought and Action: A Social Cognitive Theory* (p. 454), by A. Bandura, 1986, Prentice-Hall.

According to the theory, the individual learns through observing human behavior, observing a live model, following a verbal instructional model, or following a symbolic model; internal mental states (motivations toward esteem, well-being, achievement, etc.) are activated; and, combined with external environmental reinforcement, the individual imitates the observed behavior. Bandura emphasizes behavior, personal (internal), and environmental factors as key influences on learning environments (such as teacher professional development contexts).

Taking into account the impact of all three reciprocal influences, (behavioral, personal, and environmental), researchers have been able to identify teachers' internal personal factors such as cognitive, affective, and biological processes as well as teachers' personal choices for participating in professional development programs (Richter et al., 2021; Urban et al., 2017), teachers' perceptions of particular programs and training environments (Urban et al., 2017; Walker, 2019), and teachers' behavior and efficacy in

professional development (Loughland & Ryan, 2020), as they impact each other for effective outcomes. In this sense, teachers have the capacity of being regarded as both the product and producer of their outcomes and learning environments (Bandura, 1978).

At the core of Bandura's social learning theory is observation. One's mental state and level of motivation combined with observation enhances the ability to impact and internalize learning (Bandura, 1969). External reinforcements help shape learning, but the learner must feel that the learning is of value to apply and implement the new behavior. Forces of intrinsic and extrinsic reinforcement are equally factored into the process and must be present to provide an optimal learning environment. The learner must feel that they can successfully execute the behaviors, which also impacts one's level of self- efficacy.

Bandura (1969) identifies subprocesses that impact the observational learning process as attention, retention, reproduction, and motivation:

- **Attention:** Learners must be engaged in the process and be able to differentiate distinctive features.

- **Retention:** The ability to store and recall information is important so that the observer can later perform the behavior.

- **Reproduction:** The observer must be able to imitate the patterns of behavior. Continued practice of the learned behavior leads to improvement of skills.

- **Motivation:** Learning is activated once an individual is motivated to perform behaviors. Reinforcement can influence levels of motivation

These are all necessary elements of professional development that impact outcomes for teachers. The social context and flexibility of blended professional learning afford

opportunities that lend themselves to active and meaningful experiences that are valued by educators (Darling- Hammond et al., 2017, Gates, 2014).

Lave and Wenger's (1991) theory of situated learning highlights the social nature of learning. According to situated learning theory, in the context of CoPs, situated learning occurs by way of learner socialization, visualization, and imitation. The social component of situational learning occurs through social interaction as learners become involved in a CoP that embodies certain beliefs and behaviors to be acquired (Lave & Wenger, 1990).

The visualization component of situational learning accounts for learners following a model (or demonstration of a preferred behavior) that they access and process by seeing and hearing what is established as the content to be learned. The imitation component of situational learning then follows, accounting for the observation, repetition, and experience of learning behaviors produced in group learning environments. Relevant to the proposed study, situated learning theory is supported by research that considers learning as a function of the activity, context, and culture in which learning takes place, and promotes teachers' professional development in authentic, social learning contexts. New knowledge will be applied in these contexts (Amendum & Liebfreund, 2019).

Situated learning theory provides the context for interaction and engagement because teacher professional development relies on collaboration and interaction among a community of learners. There is value in the social nature of learning among practitioners that serves as the context for effective professional development. A community of learners can be a powerful and valuable resource when ideas, practices, and strategies are shared and implemented. As teachers model practices and strategies

from experienced practitioners and colleagues in a community of practice, they can

evaluate, make meaning, and reconstruct new knowledge. Teachers use each other's

experiences of practice to collaborate, engage, develop, and grow by way of observing,

reflecting, reconstructing, and evaluating the new knowledge and skills needed for their

classrooms.

Self-Efficacy and Social Cognitive Theory

Bandura's social cognitive theory focuses on the triadic interplay of personal

factors, environmental influences, and behaviors (Bandura, 1998). This holds

significance for educators who enter learning environments with a set of experiences,

insights, and skills and use these variables to make meaning of new situations. These

factors impact self-efficacy. When adult learners engage in professional learning,

efficacy is a key factor that impact beliefs and the types of activities that foster certain

competencies. The social nature and influence of learning is outlined in social cognitive

theory (Bandura, 1986) and evidenced in CoPs, which provide the structure for

professional learning in this research.

Bandura's social cognitive theory (1997) describes self-efficacy as "belief in

one's capabilities to organize and execute the courses of action required to produce given

attainments" (p.3).

Bandura studied human behavior and motivators of behavior. Self-efficacy

influences behavior, decision-making, and the choices that one makes. A person with a

high level of efficacy believes that they can achieve a task irrespective of the skill level.

Conversely, an individual who has low self-efficacy may not have a positive belief of

their abilities to successfully complete a task regardless of the level of skill (Bandura,

15

2001). This is applicable to teachers' beliefs about pedagogical practices and their ability

to effectively produce desired outcomes in the classroom.

Self-efficacy as outlined by Bandura (1997) has four key domains: mastery

experiences, vicarious experiences, verbal persuasion, and physiological and affective

states. Mastery experience is the most powerful of the four domains. Mastery of an

experience gives the individual a sense of confidence based on successful

accomplishment of a task. As teachers experience mastery, they are more likely to

believe in their abilities and expect that future experiences will create successful

outcomes.

Vicarious experiences are based upon witnessing the success of others. Observers

of success share the belief that they can replicate the modeled behavior (Tschannen-

Moran & McMaster, 2009). Forms of professional learning including webinars and

teacher-to-teacher observation and videos, which are formats that provide vicarious

experiences that teachers can model. This provides the encouragement and motivation

that many teachers need to feel confident so they can experience the same positive

outcome. A teacher may observe new instructional strategies and become motivated to

try out these new skills in the classroom based on the observed experience. This can also

have an adverse effect if the observation is of an unsuccessfully completed or

implemented task or skill.

Verbal persuasion is the third domain of self-efficacy. It is the ability to impact or

influence thoughts, actions, or beliefs based on verbal suggestion (Bandura, 1997).

Verbal persuasion is considered the weakest domain in that it is not rooted in an authentic

experience. Through verbal suggestion, teachers may feel strengthened in their belief

that they can successfully achieve a goal or task. Through professional learning

experiences, verbal encouragement and motivation can serve to bolster self-efficacy.

Positive reinforcement may have the potential to encourage positive beliefs about one's

ability and skills to effect change.

Physiological and affective states constitute the fourth domain of self-efficacy.

This domain relates to one's emotional state and the impact on the perception or belief

that success can be achieved. Emotional arousal, as identified by Bandura (1997), can

have positive or adverse implications for self-efficacy. In terms of professional learning,

teachers learning a new skill or strategy may feel confident about the ability to experience

a successful outcome dependent on their physiological or affective state of being.

Communities of Practice

CoPs are built on the premise that learning occurs within a social dynamic where

members observe, communicate, engage, and share within an authentic context of real-

life experiences (Lave & Wenger, 1991). Within this context, teachers can share

instructional strategies or common issues and concerns experienced in classroom

environments. It may not be uncommon for teachers who share the same students across

content areas to discuss specific assessments, strengths, and strategies that have been

successful. As members of the community engage and become paired with expert or

veteran teachers, confidence may increase and bolster self-efficacy in the process.

Aligned with social cognitive theory, CoPs foster socialization and collaboration

among members. Support and construction of knowledge is anchored in the structure of

CoPs. Learning in a digital environment fosters the flexibility and effectiveness that is

found in virtual CoPs (Wenger, 2006). These platforms include Facebook, Twitter, Web

2.0, professional learning networks (PLNs) and various other digital platforms of engagement (Trust, 2012).

Figure 3

Tools to Support Communities of Practice

COMMUNITIES OF PRACTICE: INTEGRATING ORGANIZATION-WORK-TECHNOLOGY

Note. (Wenger, 2010)

In the CoP, Wenger (2000) outlines four components: community, practice, meaning, and identity. The community should be mutually agreed upon by all, connected under a unified practice, a shared unique identity, and meaningful lived experiences. The following components represent the foundation of all CoPs:

- **Domain**: a common interest that connects and holds together the community.

- **Community**: a collective body that is connected by the shared activities pursued in a common domain.

- **Practice:** members of a community of practice are practitioners; what they do informs their participation in the community, and what they learn from the community affects what they do (Wenger, 2000).

Review of Related Research

Research shows that when learners are rooted in authentic contexts, the acquisition and implementation of skills are more readily achieved (Lave &Wenger,1991). Similarly, when teachers engage in virtual communities, their shared goals and strategies are positively impacted. Virtual CoPs encourage reexamination of traditional models of PD by fostering purposeful situated learning experiences that are not found in traditional models.

Andragogy

Malcolm Knowles (1970) provided a context for adult learners that is identified as andragogy, the science of adult learning. This is known to be separate and distinct from pedagogy, the science of teaching children.

Knowles highlights five key assumptions of adult learning (andragogy) as follows:

- Adults are active and motivated learners who move from dependence to self-direction.

- Adults have rich experiences that they bring into learning situations, becoming a valuable resource.

- Adults display a readiness to learn as they mature and channel through developmental processes.

- Adults' orientation to learning shifts as they grow and encounter various situations. Adult learners need to be able to understand how the learning will assist in problem-solving relevant issues that occur daily.

- Adults tend to be led by intrinsic factors for motivation as opposed to extrinsic. There must be a valid and meaningful purpose for learning.

Knowles' theory of andragogy is relevant to this study because it provides an overview of adult learning and sets the foundation of optimal conditions that can provide guidance for successful blended professional learning experiences for teachers. The principles and assumptions of Knowles' theory of adult learning can be integrated into practice to be taken into consideration when planning professional development.

Table 1

Professional Development Principles

Self-Concept	Adults should play an active role in the learning and development of the professional learning process. Engagement, collaboration, and active decision-making should be inherent in the process to ensure the targeted and collective needs of teachers are being addressed.
Experience	Professional learning should consider the diverse experiences of each teacher. Teachers enter professional learning environments with rich experiences that could be used as a springboard to filter and incorporate new knowledge. Material presented in a format that builds upon prior knowledge and experience may elevate confidence and encourage risk-taking and new strategies.
Readiness to Learn	Professional learning experiences should allow learners to share best practices and to model and collaborate with autonomy. Teachers need to experience a level of readiness and emotional safety within the community of practice. Teachers must also be provided with time to practice newly learned skills, to reflect,

	and to revisit. Ongoing support will not only promote but sustain the gains and growth achieved.
Orientation to Learn	Professional learning for adults must be purposeful and connected to classroom instruction. It must incorporate the everyday skills, strategies, and problem-solving processes that are authentic and applicable to the classroom experience.
Motivation	Professional learning should be tied into learning philosophies and pedagogical beliefs of best practices and methods for enhancing instruction. Teachers must feel an intrinsic connection to the learning.

Note. Blended professional learning practices adapted from Knowles (1977) "Assumptions and Principles of Adult Learning".

Professional Development

Professional Development is defined as professional learning that brings about shifts in teacher knowledge and practice that support and improve teaching and student learning (Darling-Hammond et al., 2017). Job-embedded activities are traditionally the primary focus of teacher professional development. The primary goal of improving teacher knowledge and practice is ultimately to improve student learning outcomes. Professional development enhances teacher knowledge and pedagogy while addressing the evolving and transformative needs of the 21st-century learner. When teachers are collectively invested in meaningful learning experiences, they build collective efficacy that results in shared problem-solving and increasing effort and persistence (Bandura, 1993).

Despite scholarship that highlights the importance and correlation of professional development and positive learning outcomes, teachers report that their professional learning needs are not being met and that their PD experiences have been limited, inadequate, or misaligned with their needs or have failed to add value that could be immediately transferred to classroom practice (Guskey, 2002).

Teacher quality has been highlighted as a major indicator of success in the classroom. The traditional forum that has been used to enhance pedagogy and develop teachers' skills has been professional development. Well-known researcher and educator Robert J. Marzano indicates that effective and successful teachers are created (Loewus, 2011). This perception is shared by many school districts across the country, and for this reason most K–12 school districts mandate annual hours of PD to deepen content matter knowledge and keep teachers current in their practices (http://www.highered.nysed.gov/tcert, 2022).

Elmore et. al (2009) emphasized principles of professional development that highlight the active building of teachers' knowledge and skills and the development of a professional knowledge-building culture as essential to improving teaching and learning practices. This notion underscores the importance of teacher collaboration and having systems in place to foster a shared culture of learning that is sustained.

Models of Professional Development

Traditional Professional Development

Traditional professional development is largely school based and presented with a top- down approach. Whole group presentations delivered at the school or district level under the guidance of an experienced facilitator are the traditional method of PD. This

mode of learning is typically provided via workshops, seminars, and large groups with a one-size-fits-all approach (Darling-Hammond, 2017; Guskey, 2002). Research indicates that traditional modes of professional learning tend to have little-to-no impact on instruction (Darling-Hammond et al.; 2017, Moore et al., 2017). School-based traditional professional development is passive in nature and takes on a lecture-style approach that does not enhance pedagogy, develop skills, or address content specific needs.

Research indicates that traditional PD is limited in scope depending on parameters of time, flexibility of location, and provision of generalized concepts that do not address the specific pedagogical concerns that teachers may share (Azukas, 2019). This supports reevaluation of innovative and alternative ways to deliver professional development that addresses the varied needs of all teachers. Extensive research (Blitz, 2013; Guskey & Yoon, 2009) suggests that traditional PD does not result in a shift in teacher practices and instructional strategies (Darling-Hammond et al., 2017).

PD is used in most K–12 schools across the country for the specific purpose of developing teachers. The key issue has been that it has largely been ineffective in meeting the needs of teachers and creating successful outcomes in the classroom (Darling-Hammond et al, 2017). Teachers reported that traditional models of professional learning draw more on theory than real-life practical experiences that are teacher-centered and pertinent to the day-to-day classroom.

Attributes of Quality Professional Development

Overall, research on professional development indicates positive outcomes and experiences for teachers who connect to increased content knowledge, teacher efficacy, and positive student outcomes when specific criteria are met. Elements of high quality and

effective professional learning experience include teacher support, collaboration, active engagement, ongoing sustained learning, and specific content while providing opportunities for modeling, mentoring, and reflection (Darling-Hammond et al. 2017; Gates, 2016; Guskey, 2009).

Teachers identified active learning and the ability to make clear connections across learning and actual classroom practice as valuable authentic learning experiences. Highly contextualized learning that included interactive activities, teacher observations, analyses of student work, and opportunities to learn and practice new skills were key elements that contributed to positive perceptions of PD.

Elmore (2009) emphasized the role of the school district to promote collaboration, create opportunities for interaction among teachers, and sustain instructional improvement. In line with social cognitive theory, Elmore (2002) recognizes learning as a social and individual process that is best supported by interdependent structures. Best practices of professional development should be ongoing with follow-up to extend learning that opens new ideas, perspectives, and ways of teaching and learning.

A comprehensive meta-analysis of 35 studies found that features of flexible professional learning models were more impactful than other formats. Identified features included teacher-led activities, active involvement in decision-making, reflective practices, collaboration, and authentic experiences (Darling-Hammond et al., 2017, Guskey, 2009). These were most often represented in blended or virtual professional learning models that allowed flexibility and active engagement.

This is consistent with research on CoPs, which suggests that adult learners are more confident and find professional development to be more purposeful and effective in

a social, collaborative environment (Wenger & Snyder, 2000). Teachers want to learn by practicing learned strategies and then reconnecting with collaborative groups to share and exchange practices and experiences.

Blitz (2013) identified mentoring, pairing veteran teachers with newer or less experienced teachers, and promoting self-reflection as the best practices of blended professional learning environments. Creating opportunities for members to socialize was highlighted as most important for fostering efficacy and building community. This holds consistent with the principles of social cognitive theory and CoPs (Bandura, 1977, Blitz, 2013; Wenger, 2000). Pairing teachers through activities such as peer coaching, study groups, and mentoring provides ways for teachers to engage and contribute to the development of a strong professional learning community that supports positive self-efficacy (Azukas, 2019; Lave & Wenger, 2009). Effective professional development entails successful implementation and execution of practices that change teachers' attitudes and beliefs and enhance pedagogy.

Blended Professional Development

Twenty-first century learning has brought a shift in the use of digital technologies and the delivery of professional development. In recent years, professional learning has incorporated various formats and modes of delivery, such as the blended model of professional development, which incorporates a combination of face-to-face and online learning (Moore et al., 2018). Although not a new concept, during the recent worldwide pandemic, blended instruction became the primary model of classroom instruction for students and professional learning for educators (Sabawoola & Mishra, 2021). Blended learning offers opportunities for continued learning and greater flexibility for teachers.

These formats include face-to-face lectures, workshops, webinars, online seminars,

video-conferencing, and asynchronous online communities (Sabawoola & Mishra 2021).

This form of learning provides a learning style that meets the diversified needs of

teachers and frames the foundation of CoPs, which derive from social cognitive theory.

Blended professional learning provides educators with a flexible forum for active

engagement to learn, share, and enhance technological skills (Birman et al., 2000).

Teachers report meaningful activities that directly connect to the classroom and build

upon their knowledge base. Best practices are shared, and teachers learn at their own

pace. In one study, teachers reported that traditional district-led professional learning in

contrast to blended models was inadequate and left teachers feeling ineffective (Rice &

Dawley, 2007). This is turn may contribute to feelings of low self-efficacy.

Blended PD provides opportunities for educators to determine their own

professional learning goals and select activities that will successfully lead them to meet

those goals. Navigation of individual and shared activities empowers learners and

increases teacher confidence as they make new meaning of their learning experiences.

This model of professional learning offers a variety of flexible options that enable

educators to individualize their professional growth experiences.

A meta-analysis review of blended professional learning revealed components

that participants recorded as effective, including substantive and supportive online

discussions, teacher-created resources, and development of skills and instructional

strategies (Keengwe & Kang, 2012). Overall, recommendations were made by teachers to

include authentic experiences, examples, and models of instructional strategies that can

be practiced and implemented in the classroom (Belland et al. 2015). Teachers expressed

the need to learn, practice, reflect, and engage in learning communities to discuss. Traditional professional learning does not always afford teachers the flexibility and time to engage in professional communities and practice and revisit learned skills with other teachers. The collaborative nature of professional learning communities is a key factor in building self-efficacy. As teachers build capacity and enhance pedagogy through collaborative support, confidence and the belief that one can be successful will increase (Bandura, 1997; Chambliss & Murray, 1979).

The literature indicates that online professional-learning communities of teachers can successfully accomplish learning goals (Azukas, 2019, Blitz, 2013). Research finds that teachers who collaborate in blended learning environments develop a sense of community, provide support to their colleagues, and enhance their knowledge of pedagogical content. They are also able to effectively modify their instructional practices accordingly (Azukas, 2019). The flexibility of this model provides a stronger advantage over traditional face-to-face professional development models. The virtual and blended learning environment enables teachers to access and share knowledge in real time. It also was found to foster better self-reflection practices for learning and instruction as opposed to face-to-face professional development (Blitz, 2013).

Flipped Classroom Model

The flipped classroom learning model incorporates online learning with face-to face- instruction. Asynchronous instruction is integrated with face-to-face activities (Bishop & Verleger, 2013). Scholarship that compared flipped classroom blended learning models to traditional formats of learning found that learners in the blended learning model experienced a higher level of collaboration, motivation, and overall

success (Bishop & Verleger, 2013; Yapici & Akbayin, 2012). Learners also preferred interactive activities and the higher level of engagement experienced in the flipped classroom model over the traditional format.

In 2016, findings from an extensive research study on professional development were released. The study involved approximately 3,000 teachers and educators and was initiated and funded by the Bill and Melinda Gates foundation (Gates Foundation, 2016). Factors that teachers have indicated as determinants of successful professional development include social characteristics such as coaching, collaboration, communication, and opportunities to model and apply learned skills. Teachers also reported that comprehensive professional development not only serves to improve teacher practice but teacher efficacy as well. Models of delivery, via the traditional format (face-to-face) or blended model (virtual learning) did not hold as much significance as the following tangible factors that allow for change:

➢ Tools that provide for sharing of resources, lessons among teachers, and materials for use with students

➢ Data analysis tools to identify student needs and inform instruction

➢ Assessment tools to provide diverse ways of monitoring learning

(Gates Foundation, 2016)

One size fit all professional development models delivered under the guidance of an outside facilitator are the conventional methods most used at school districts. However, there is growing interest in less traditional models that provide self-directed study and collaboration. One such model is known as Edcamp (Wake & Mills, 2018)

The Edcamp model of professional learning is more of an organic and democratic concept, where participants set the goals and areas of focus. It is also not uncommon for participants to move from the role of facilitator to participant. In the Edcamp model, teachers have more control over topics and discussions related to pedagogy and educational trends. Areas of focus are decided the day of the professional development to ensure that is teacher-driven and organic in nature (Wake and Mills 2018).

Edcamp professional development does not have to be formal in its presentation and participants can choose to have a predefined agenda provided by a facilitator. Participants can change the selection of a workshop and choose to attend sessions based on self-interest. At the beginning of the session, participants can sign up at a general meeting room and select an area of interest, and at the end of the day, participants gather to debrief and share experiences. This model closely aligns with CoP principles that emphasize the value and impact of practitioner collaboration, as addressed in the present study.

Following several professional development sessions using the Edcamp model, research data were collected via surveys to determine teacher perceptions and the levels of effectiveness of the Edcamp model (Wake and Mills, 2018). The research used a mixed method design of qualitative and quantitative methods. Teachers across all subject areas were included.

The following questions provide an overview of the main areas of focus:

➢ How do teachers describe and respond to their traditional professional development experiences?

- ➢ What professional development topics, issues, and needs are being requested by teachers?

- ➢ How do teachers respond to the "Edcamp" professional development model in terms of levels of satisfaction and effectiveness?

An analysis of the data revealed that 94% of teachers expressed satisfaction with the Edcamp model (Wake & Mills, 2018). Overall, teachers felt that collaboration with other participants not only helped update their professional knowledge but also provided opportunities to impact student learning. Teachers felt the training increased the excitement of teaching, equipped them with instructional strategies, and encouraged reflective practices. Based on the teacher selection of sessions, teachers felt better equipped to use technology for instructional purposes and to engage students. Teachers were less enthusiastic about the packaged professional development provided by their respective school districts (Wake & Mills, 2018).

The self-directed model empowered participants because it was more specific to their own needs and interests. Teachers found elements of blended PD to be more valuable and effective. The Blended Practice Profile is a teacher self-assessment tool that was used in a study to determine teachers' perceptions of their level of skills, abilities, and strengths in a blended learning environment (Parks et al., 2016). Self-reported data was used with the goal of establishing a baseline of growth and generating a professional development pathway for teachers. The study consisted of middle and high school teachers and took place over the time span of one year. Findings from the yearlong study resulted in four major areas that teachers highlighted as best practices for blended learning professional development:

> ➢ Authentic and personalized experiences

> ➢ Research-based and proven methodologies

> ➢ Experiences modeled and rooted in real-life

> ➢ Sustained and supported by school leadership

> (Parks et al., 2016)

One common understanding that teachers shared is that professional development must be layered and allow for differentiation and continuous growth based on skill and level of expertise.

Professional learning networks (PLNs) are another notable form of professional development that is teacher driven and has grown in popularity (Trust, 2012). The Professional Learning Network is an online-based platform where teachers can discuss practices, collaborate, and share strategies. This form of professional learning provides an environment for self- efficacy that encourages verbal persuasion. Teachers find this form of professional learning to be effective and meaningful. It encourages learning, sharing, and professional growth without regard to geographic boundaries. Aligned to CoP and social cognitive theory, this format encourages learning within a collaborative, social, and engaging context.

Similarly, Azukas (2019) examined a blended learning CoP model of professional development for K–12 teachers through the lens of personalized learning and self-efficacy. Participants included eighteen (18) K–12 teachers who volunteered to participate and represented a cross section of all subjects and grades on the secondary level (middle and high school). There were sixteen (16) female and two (2) male participants. Pre and post self-efficacy surveys were administered to all participants.

Qualitative data were also obtained from interviews, online discussions postings, and emails. The mean and standard deviation for each construct were calculated and a paired t-test was conducted to compare means. Statistical significance ($p < .05$) was revealed across all constructs related to self-efficacy, and posttest values were higher than pretest values.

Researchers found that because of the blended personalized learning model, teachers experienced an increase in confidence in collaborating, taking risks in the classroom, implementing personalized learning, and problem solving. A shift was also noted in the teachers' roles, from the role of provider of knowledge to facilitator of learning. Teachers also indicated an increase in flexibility and open-mindedness (Azukas, 2019). This is one of the few studies that examined blended learning models of professional development for teachers. This study aligns with the topic I have selected in that it includes a blended model of professional development, which incorporates components of virtual, online, and in-person models. Quantitative methods for measuring efficacy suggest a strong positive correlation among blended professional learning models and teacher efficacy (Azukas, 2019).

Trust (2012) analyzed teacher perceptions and the levels of effectiveness of two of the PLN platforms, Edmodo and Classroom 2.0. Using Edmodo, teachers can build or strengthen pedagogical skills and practices by connecting with other educators and engaging in podcasts, blogs, discussions, and learning opportunities. A unique characteristic of Edmodo is that it can also be used for working with students. Teachers can create classroom groups and have students complete assignments and assessments and then post the grades. This platform opens a dimension of learning that not only

empowers teachers but students as well. Teachers express satisfaction with this form of professional development where communities of educators come together to develop new skills, learn from one another, and then immediately apply what they have learned in the classroom (Trust, 2012).

This collaborative form of learning ties into Lave and Wenger's theory of situated learning, which underscores the role of personalized experiences, critical discourse, and collaboration (Kitchenham, 2008). These factors are key in building self-efficacy and in making meaning of new learning. It is through these experiences that teachers engage, discuss, and construct new frameworks for understanding that impact instructional practices.

Classroom 2.0 offers an additional platform that is teacher directed, and educators can engage in discussion boards or video chats. Teachers can pace their own learning and connect with other educators based on content, area of specialization, or special interest (Trust, 2012). Classroom 2.0 also offers chat features and a live webcast that hosts, or guest presenters can facilitate. Webcasts are recorded so that teachers can use them in the future for reference or further discussion. Research indicates that teachers find these innovative methods to be valuable because they easily connect to classroom instruction and allow for pacing, collaboration, and feedback among colleagues (Trust, 2012).

Martin et al. (2018) conducted research to identify aspects of professional learning in math and literacy that teachers believe are beneficial. Participants included 98 teachers in elementary and middle schools. Online surveys were provided to 150 teachers and 98 responses were received. The survey was based on the responses to the following open-ended requests:

1. Explain the best professional development experience in math and literacy over the past three years.

2. Explain how the professional learning influenced student learning.

3. How do you know the professional learning was beneficial?

The responses were coded by themes and analyzed (Martin et al., 2018).

Findings indicated that 9% of the teachers reported professional development had no impact on student learning, and 3% believed that professional development was negative for student learning. However, the majority (88%) of teachers found value in professional development experiences and as a result, they brought a greater understanding back into the classroom, which in turn helped students think deeply about literacy and mathematics

(Martin et al., 2018).

Yoo (2016) examined the effect of virtual professional development on teachers' self- efficacy. A total of 148 participants (K–12 teachers) were included in the study, 22 males and 126 females. Professional development was administered on a five-week online learning module and pre- and posttest questionnaires were administered to participants. Twenty-four items were rated on a nine-point Likert scale. Results suggested that across all scales, online professional development had a positive effect on teacher efficacy.

Literature on professional development models suggests the most effective models that teachers find valuable incorporate features that are most often included in blended PD models. Features that afford teachers the opportunity to participate in decision-making and to collaborate, share best practices, reflect, and build a community

of support outweigh traditional models of whole group lecture styles. These elements are inherent in social cognitive-based styles of teaching and learning. Digital technologies have allowed educators to reexamine and reframe the way PD is delivered to best meet the needs of all educators.

The figure below shows the conceptual framework for this researcher's study:

Figure 4

Conceptual Framework

The conceptual framework outlines professional learning for educators and highlights a blended model of professional development. Traditional models include the lecturer whole group style of learning and usually do not include differentiation or contextualization. In this context, professional development is often based on the expertise of the facilitator and not driven by data based on the instructional needs of educators. Blended models tend to offer more flexibility and are more collaborative and teacher centered. Research shows that best practices of professional development help learners construct their own learning through authentic, collaborative experiences often found in blended models (Azukas, 2019; Guskey, 2009; Martin et al., 2018). These models take form as CoPs; situated learning; and interactive, flexible models. When this learning environment is set in motion, self-efficacy is bolstered (Darling-Hammond & Hyler, 2020). The increase in self-efficacy encourages risk-taking and allows teachers to feel confident about exploring new instructional strategies. Learners are empowered

when provided with support and are involved with PD planning and establishing goals based on what is relevant and meaningful in their day-to-day practice (Azukas, 2019).

Research supports the use of blended PD as an effective tool that affords teachers the opportunity and flexibility to learn at their own pace, location, and time. This model embraces an effective 21st-century vehicle of learning, which encapsulates the best of both virtual and face-to-face professional learning.

Professional Learning Networks Designed for Teacher Learning

Because of technological advances, students are required to have the skills and abilities to navigate and exploit the increasing network of information. Effective teachers help students achieve this by designing appropriate teaching approaches such as collaboration, studying pedagogical techniques, and professional development (Trust et al., 2017). Trust et al. (2017) argued that to continue providing quality learning and improve their professional practices, teachers have joined online communities to interact with like-minded people. Today, over 6 million teachers and learners are using Edmodo, which is a social media platform used for education interactions between teachers and students. Other popular online communities for educators are The Educator's PLN and Classroom 2.0, which have over 72, 000 users.   According to Azorin et al. (2020), "When a teacher joins an online community or subscribes to education blogs, podcasts, and news feeds, the teacher is building a professional learning network (PLN)" (Trust et al., 2017, p. 2). Trust et al. noted that a PLN is a form of interpersonal connection that ensures that teachers and students continue to interact in informal ways. Azorín et al. (2020) agreed that PLN is appropriate for teachers because it is teacher-driven, reduces isolation, and increases independence. According to Krutka et al., (2017), the aggregation

of information within a PLN provides teachers with opportunities to stay up to date with new information that comes from blogs, websites, and feeds. Email subscriptions are another important form of information aggregation in PLNs. Different websites use widgets such as *subscribe* or *follow me*, which allow users to receive emails anytime, turning emails into RSS readers. Therefore, teachers receive information in their emails rather than having to spend time visiting websites (Krutka et al., 2017).

As Azorín et al. (2020) noted, social media connections are another PLN that teachers use. Teachers utilize social media platforms such as Facebook, Twitter, and Instagram to connect with other individuals across the world. Azorín et al. (2020) suggested that these social media platforms have interaction capabilities allowing teachers to post questions for discussion. Teachers prefer these platforms, which are less demanding of their time, because they can write or respond to posts whenever they have free time in their schedule. Consistent with these findings, Krutka et al. (2017) shared that social media platforms provide space for the collective building of knowledge and a place where teachers can seek support. The real-time interaction tools of social media pages provide opportunities for teachers to have conversations with each other and to receive feedback on new ideas, lesson plans, curriculums, and problem-solving skills and to ask for support (Krutka et al., 2017). Teachers with the ability to manage a PLN's information overload gain instant support: "PLNs transform the paradigm of the isolated teacher who shows minimal professional growth into a lifelong learner who grows and shares expertise with others in his or her network" (Trust et al., 2017, p. 10). Edmodo, Classroom 2.0, and The Educator's PLN are three popular PLNs preferred because they feature both social media platforms and information aggregation. According to Trust et

al. (2017), these PLNs make it easier for teachers to shape their learning by creating profiles, joining interest groups, and taking active roles in group discussions.

Teachers' Professional Development

PD is an important process among teachers and often takes place through workshops that are normally provided by the learning institutions and other educational organizations (Nordgren et al., 2021). According to Nordgren et al. (2021), an effective PD can be important for enhancing students' performances and satisfaction. However, in the past few years, teachers have reported their PD experiences as lackluster or unresponsive to their immediate needs. PD is an important factor in the success and sustainability of teachers' careers. Many states have developed polices that require mandated hours of annual PD to retain their licenses (Nordgren et al., 2021). Dille and Rokenes (2021) identified seven steps that are basic to teacher development, which include: "(1) school and district-based PD models, (2) teacher collaboration, (3) university coursework, (4) professional conferences, (5) mentoring/coaching relationships, (6) informal communications with more knowledgeable colleagues, and (7) self-study" (p. 34). Most teachers have used informal consultations to further their knowledge of students and classroom contexts.

Sprott (2019) argued the biggest challenge and concern for teachers is that they are exposed to traditional PD. Topics delivered in traditional PD do not address their needs and lived experiences. The current PD offered in schools is not practical and there are no adequate resources to support it. Furthermore, Sprott stated the current PD trainers often do not have the minimum classroom experience required. Therefore, the teachers' attitudes toward current PD programs offered in schools reduce the effectiveness of PD

initiatives. Sprott recommended that alternative methods be implemented in schools. In line with Sprott, Nordgren et al. (2021) suggested that schools must create active and engaging environments where teachers can openly exchange ideas and focus on supporting student learning. An effective PD model allows teachers to develop new knowledge and skills with their colleagues and then use this information to enhance students' performances. For Nordgren et al., a good PD model should have the following qualities:

"(a) a content focus, (b) active learning and participation opportunities, (c) an emphasis on collaborative and teambuilding activities, (d) coherence with other PD experiences, and (e) content delivered over time to include at least 20 hours of contact time (Desimone, 2011). In addition, effective PD provides teachers with experiences that "(a) are sustained and intensive rather than short-term, (b) are focused on content and standards enacted in classrooms, (c) promote active and inquiry-based learning opportunities, (d) support teacher collaboration, (e) support teacher leadership in PD development and implementation,(f) are enacted and integrated with daily school practice and culture, (g) reflect teachers' learning goals, and (h) reflect the school mission and reform goals."

Dille and Rokenes (2021) suggested an effective PD model should be aligned with teachers' knowledge and skills. The implementation of PD is successful when teachers are allocated more time, resources, and support to plan for class work. In recent years, several approaches have been developed to give teachers opportunities to take part in relevant and self-directed inquiry-based study. Some of these approaches include Professional Learning Communities (PLCs) and the Edcamp model (Dille & Rokenes,

2021). According to Sprott (2019), the Edcamp model is effective for developing a responsive PD. The model allows teachers to incorporate technology and current educational trends to enhance the learning process. The Edcamp model is preferred in the current educational settings because it can promote "organic, participant-driven PD for K–12 educators worldwide" (Sprott, 2019, p. 45).

Active Learning

Castaño-Muñoz et al. (2018) noted the design of PD for teachers must address what and how teachers learn. The authors argued that teachers come to the classroom with experiences that should be utilized as resources for new learning. Furthermore, teachers should choose their learning opportunities based on interest and their own classroom experiences and needs. According to Castaño-Muñoz et al. (2018), active learning requires moving away from traditional approaches and implementing models that encourage direct teacher engagement. Direct engagement has been associated with the connection between teachers and students in classrooms. Active learning uses authentic artifacts and interactive activities to engage teachers. Valiandes and Neophytou (2018) referred to active learning as highly contextualized professional learning. Active learning incorporates important factors such as collaboration, feedback, training, and reflection. According to Valiandes and Neophytou, "Active learning opportunities allow teachers to transform their teaching and not simply layer new strategies on top of the old, a hallmark of adult learning theory" (p. 12).

Santos and Miguel (2019) investigated how the PD learning model improved students' science learning at California high school and found that teachers analyzed students' work and videotaped classroom lessons to enhance their performances. In this

California high school, biology teachers, through Reading Apprenticeship, participated in PD by integrating academic literacy and biology instruction. The teachers were equipped with experience and knowledge of different learning approaches. According to Castaño-Muñoz et al. (2018), having teachers take part in the same learning activities as their students is an effective form of active learning. Previous researchers have highlighted PD programs that allow educators to engage students through effective curriculums. For example, Santos and Miguel suggested fourth- and sixth-grade teachers can engage students through constructivist, hands-on experiences. Furthermore, the researchers argued that teachers can use role-playing as a way of practicing their lessons to enhance students' learning and understanding.

Other than active learning, observation is another important feature of well-designed PD. According to Trust et al. (2017), collaboration involves interactions between teachers, groups, or other professionals beyond the school. Researchers at the University of Virginia developed *My Teaching Partner-Secondary* (MTP-S), a digital based learning model that is aimed at coaching teachers to improve teacher–student interactions (Trust et al., 2017). Students whose teachers took part in this program recorded improved performances. Such collaborative approaches have been found to be effective in promoting school change that extends beyond individual classrooms.

Relationship Between Prior Research and Present Study

As indicated, there is not extensive scholarship available that is focused on teacher efficacy and blended professional learning during a global pandemic. In this context, this study fills a gap that can be further explored. Online learning and interactive PD models that are teacher- centered and foster teacher collaboration such as Edcamp

and virtual professional learning networks are platforms that are growing in popularity

(Wake & Mills, 2018, Trust 2012).   Although research has not offered vast insight into

hybrid models of professional development, more studies are being conducted that

investigate the growing levels of satisfaction and effectiveness of virtual professional

learning (Sprott, 2019).

CHAPTER 3

The purpose of this quantitative study was to examine teachers' perceptions of the impact of blended professional learning on teacher efficacy. For the purposes of this study, the term *blended professional learning* is used to indicate a combination of online and face-to-face learning, and the term *self-efficacy* is used to indicate the confidence in one's ability to successfully complete a task. This chapter explores the research questions, research design, data analysis, sample, population, and instruments utilized in the study. Emphasis is focused on the methodology and procedures used to conduct the study to explore the relationship between blended professional development and teacher efficacy. This chapter builds on the prior chapters of this study by outlining and supporting the framework and context in which this study has been designed.

Using a social cognitive framework, the researcher examined modes of blended professional learning and the impact on self-efficacy and instructional practices. Scholarly research from the previous chapter indicates that blended professional development provides a collaborative and flexible, teacher-centered learning environment that most traditional models lack (Guskey, 2002).

Research Questions

This study was guided by two research questions:

RQ1: What is the relationship between teacher self-efficacy and blended professional learning?

RQ2: Is teacher efficacy influenced by the amount of time spent receiving blended professional learning, by the years of teaching experience, and by the subjects taught?

Hypotheses

H_0: There is no significant relationship between teachers' self-efficacy and the amount of time spent receiving training in blended professional learning, years of teaching experience, and subjects taught.

H_1: There is a significant relationship between teachers' self-efficacy and the amount of time spent receiving training in blended professional learning, years of teaching experience, and subjects taught.

Research Design

Goals, questions, and collection of evidence based on the research topic should drive the selection of an appropriate design and methodology (Voyt et al., 2012). Design selection is a significant concept in guiding the ways that research is conducted. It provides the blueprint that maps out the strategy of collecting, analyzing, and interpreting data. Design selection is a significant component of any research. According to Creswell (2014), selection of a specific research design is centered on the issue or concept being examined, the researcher's experience, and the intended audience.

A quantitative correlational research design was employed for this study. Quantitative research is an approach that is commonly used to examine relationships among variables and can be measured numerically and analyzed using statistical procedures (Creswell & Creswell, 2018). Quantitative research can be delineated into two subcategories: experimental or nonexperimental. The design chosen for this quantitative research is nonexperimental, which does not include manipulation of variables or an applied intervention.

A nonexperimental quantitative methodology with a correlational design is most appropriate for specific reasons. First, the study includes numerical data that are analyzed to test hypotheses (McCusker & Gunaydin, 2015). Second, the choice of a nonexperimental quantitative method with a correlational design ensures research objectivity because the researcher was separated from the research participants (McCusker & Gunaydin, 2015). Third, there was no manipulation of independent variables; thus, this study used a nonexperimental quantitative method with a correlational design (McCusker & Gunaydin, 2015). Additionally, a nonexperimental quantitative method with a correlational design was the correct design for the current study because the objective was to identify and evaluate the relationship between the dependent variables and the independent variables.

The research strategy of correlational research was used to explain and interpret findings. Correlational research aims to explore relationships among variables and implications of cause and effect (Fraenkel & Wallen, 2003). The specific variables that were examined are *blended professional learning* (predictor variable), *self- efficacy* (outcome variable) and *instructional practices* (outcome variable).

Table 2

Variables

Variable	Independent/ Dependent	Definition
Blended professional learning	Predictor variable	A combination of online and face-to-face learning
Self-efficacy	Outcome variable	Belief in one's ability to successfully complete a task
Instructional practices	Outcome variable	Teaching strategies used by teachers to enhance comprehension and address the academic needs of students

A correlational research approach is most appropriate to explore the association among variables in the study. Selection of this type of research approach highlights the measurement of association among the variables. Across data, the change in one variable is typically associated with a change in another variable, which could be a positive correlation in the same direction or a negative correlation in the opposite direction (Fraenkel & Wallen, 2003).

Statistical Tests and Data Analysis

Because of the nature of the research questions posed, multiple regression is the best fit for data analysis in this study. Multiple regression analysis is used to predict a continuous dependent variable, (self-efficacy), and instructional practices in this case, based on independent variables, number of hours of professional learning received, number of years of teaching, and subject area (Mertler & Vannata, 2013). Additionally, multiple regression analysis also determines the overall fit and the relative contribution of each of the predictors to the total variance explained (Mertler & Vannatta, 2013).

Analysis of the resulting quantitative data was conducted using the statistical software suite Statistical Package for the Social Sciences (SPSS) version 23. The data was cleaned by examining the dataset for missing data (Field, 2018). If a value was missing, the entire case was removed from the analysis (listwise deletion). In listwise deletion, a case is dropped from an analysis because it has a missing value in at least one of the specified variables. The analysis was only conducted on cases that have a complete set of data. Categorical variables (i.e., nominal variables) were dummy coded for the purpose of regression (Field, 2018).

Descriptive statistics of the data for the predictor and dependent variables were reported. The frequency and percentages summary were obtained for categorical variables while the measure of central tendencies of means, standard deviations and the minimum and maximum values were conducted for continuous demographic variables, such as the number of years of teaching.

Prior to conducting multiple regression, the parametric assumptions were first tested. Parametric assumptions are statistical tests conducted to determine when the normality or homogeneity of variance assumptions is met or satisfied (Mertler & Vannatta, 2013). Mertler and Vannatta (2013) indicated that multiple regression analysis includes linearity, normality, homoscedasticity, and multicollinearity (Mertler & Vannatta, 2013). Plots of the standardized residuals and the standardized predicted values were examined to assess linearity and homoscedasticity. If the plots are not curvilinear, there are violations of the assumption of linearity (Field, 2018). Additionally, if the plots form a rectangular pattern, there is no violation of the assumption of homoscedasticity (Field, 2018; Mertler & Vannatta, 2013). A Shapiro-Wilk test of normality was used to determine whether the data were normally distributed (Field, 2018). Kurtosis and skewness statistics were generated to further assess normality. Finally, the variable inflation factor (VIF) was calculated for each variable to determine whether there was a violation in multicollinearity between any two variables (Mertler & Vannatta, 2013). If the VIF scores fall below 10, there is no violation of the assumption of multicollinearity (Field, 2018). Outlier detection was assessed through visual inspection of the boxplots as well as the calculation of standardized values.

The following regression models were tested with SPSS:

Self-Efficacy = b0 + b1 Hours Professional Learning + b2 Number of Years of Teaching + B3 gender + b4 Subject Area.

Student engagement = b0 + b1 Hours Professional Learning + b2 Number of Years of Teaching + B3 gender + b4 Subject Area.

Classroom management = b0 + b1 Hours Professional Learning + b2 Number of Years of Teaching + B3 gender + b4 Subject Area.

Table 3

Data Analysis Methods

Research Questions	Data Source	Data Analysis
What is the relationship between teachers' self-efficacy and blended professional learning?	Modified TSES	Multiple regression
Is teacher efficacy influenced by the amount of time spent receiving blended professional learning, years of teaching experience, and subjects taught?	Modified TSES	Multiple regression TSES score

Sample and Population

The participants in the study represented a cross section of K–12 suburban school districts across Nassau County, Long Island. The researcher is a member of the Nassau Association of District Curriculum Officials (NADCO) and requested participation in this study from all participating school districts, including 25 districts and potential access to over 2500 teachers. Teachers were selected to participate in the study via email invitations. Demographics were cross-referenced with NYS data (https://data.nysed.gov/)

for accuracy to ensure the sample in the study represented the target population. An overview of relevant participant information is provided in a demographics table that depicts years of experience, gender, and subjects taught.

School districts require teachers to participate in annual professional learning but vary in the minimum number of hours required. NYS mandates teachers to complete 175 hours every five years (www.nysut.org, 2022), and this averages 35 hours each year. Over the course of the past 2 years, professional learning has taken the form of a blended model, inclusive of flexible virtual and face-to-face formats. Over the past 2 years, to address safety concerns and social distancing regulations, this format has been the primary means of professional learning for teachers.

To establish groups and organize data, teachers were classified into three groups as follows: Core (math, science, social studies, English*)*, Specials (art, music, and physical education) and Support (*AIS*). The final group of educators represents teachers who push into classrooms to provide supplemental instruction in the form of enrichment, intervention, or support, which includes academic intervention service (AIS).

G*Power was used to perform an a priori power analysis to establish the required minimum sample size for the study. The power analysis took into account four factors: significance level, effect size, test power, and statistical technique. The probability of rejecting a null hypothesis given that it is true is referred to as the *significance level*, commonly known as a *type I error* (Haas, 2012). A 95% confidence level is used in most quantitative studies because it gives sufficient statistical proof of a test (Creswell & Poth, 2017). The estimated measurement of the relationship between the variables under consideration is referred to as the *effect size* (Cohen, 1988). Cohen (1988) divides effect

size into three categories: small, medium, and large. A medium effect size, according to

Berger et al., (2013), is preferable because it achieves a compromise between being

overly stringent (small) and too lenient (large). The probability of accurately rejecting a

null hypothesis is referred to as *test power* (Sullivan & Feinn, 2012). In most quantitative

studies, a power of 80% is used (Sullivan & Feinn, 2012). The statistical test that was

used in this research is multiple regression. To conduct multiple regression to detect a

medium effect size at the .05 level of significance with 80% power, at least 92

participants are required. The researcher conducted data collection from multiple sources

to maximize responses and exceed the minimum number of participants.

Figure 5

G*Power Calculation of Minimum Sample Size
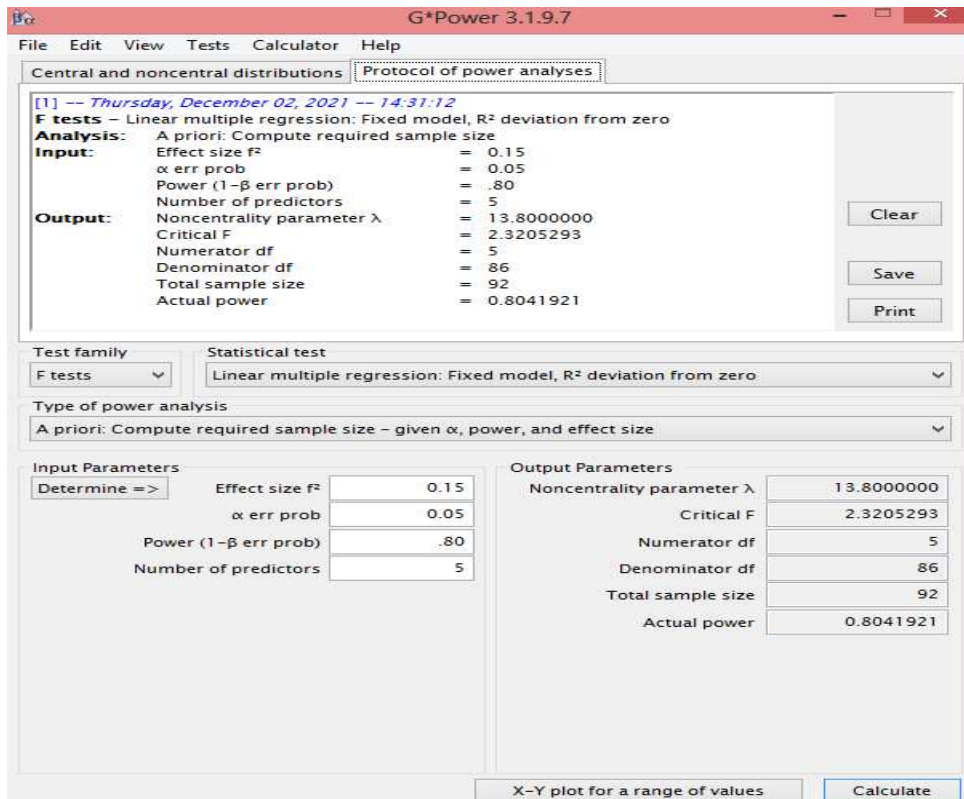
Instrumentation

Self-efficacy is an elusive construct (Tschannen-Moran & Hoy, 2001) so it is difficult to develop a tool to measure it. There have been questions related to the validity and reliability of past measurement tools. One of the earliest instruments to measure teacher self-efficacy is known as the Rand measure, which was designed to examine teacher characteristics and student learning. This measure was based upon the teacher's locus of control or the belief that reinforcement of instructional strategies was an internal mechanism within the teacher's control (Tschannen-Moran & Hoy 2001). Current standards of measurement utilize quantitative methods with Likert-type scales that depict the range of skills, competencies, and tasks that span across the activities teachers are expected to perform.

The primary data source that was used to collect teacher perceptions and answer research questions was a comprehensive survey. The developers of established surveys granted approval to the researcher to use their data sources in the study. Modified versions of the Teacher Sense of Efficacy Scale (TSES; Tschannen-Moran & Woolfolk, 2001), the Technological, Pedagogical, and Content Knowledge framework (TPACK; Koehler and Mishra, 2008) and Teacher Blended Practice Profile (Parks et al., 2016) were utilized. The surveys were used as data sources to answer research questions and obtain a quantifiable measure of self-efficacy. Teachers provided their efficacious beliefs on instructional strategies, classroom management, and student engagement.

Elements of the blended practice profile, TSES, and TPACK were consolidated to serve the purposes of this study. The Likert scale has been modified to (28) statements that range on a scale from one to five (1–5) and was delineated in sections to indicate the

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teachers' level of confidence and belief in their abilities to produce desired outcomes. A portion of the scale measures teachers' use of instructional strategies across the domains of *student engagement, instructional strategies, and classroom management*, all within the context of blended professional development. The final section assesses teachers' ability and perceptions of ways to incorporate technology or digital-age enhancements into instruction.

Self-efficacy measurement tools are created based on the perceptions of what teachers feel they can do in terms of knowledge, skills, and pedagogical enhancement. The Teacher Sense of Efficacy Scale (TSES) is a compilation and revision of Bandura and Rand's earlier instruments (Tschannen-Moran & Hoy 2001). The instrument identifies three main areas of self- efficacy: instructional strategies, classroom management, and student engagement. Tschannen-Moran and McMasters (2009) used the instrument to analyze the impact of professional learning on teacher efficacy. The study investigated the influence of professional development on implementation of instructional strategies. It was discovered that teachers' perceptions of self- efficacy and reading instruction were strongly correlated (Tschannen-Moran & McMasters, 2009). Several subsequent studies including a meta-analysis of the impact of professional development on teacher self-efficacy and positive classroom outcomes yielded similar results across diversified content areas (Kim & Seo, 2018).

The TPACK framework of the instrument focuses on technological, pedagogical, and content knowledge. This content was incorporated into the scale to closely examine the technological components of virtual professional development. The interplay of

relationships and interactions among technological tools and pedagogical practices is vital to blended professional learning models.

The Blended Practice Profile is a teacher self-assessment tool that was used in a study to determine teachers' perceptions of their level of skills, abilities, and strengths in a blended learning environment (Parks et al., 2016). Researchers examined the impact of virtual professional development on teacher practice. Self-reported data was used with the goal of establishing a baseline of growth and generating a professional developmental pathway for teachers. Findings from the yearlong study found that teachers' newly acquired skills were sustained through practice and collaboration via discussion and sharing of learned practices with peers via blended PD.

Reliability and Validity

The Likert scale survey is an efficient instrument that captures attitudes, perceptions, and behaviors (Hartley & Maclean, 2006). Conversely, there has been debate about the consistency in responses, outliers, and the lack of in-depth responses (Joshi et al, 2015). The reliability and validity of Likert scales are largely dependent on the content of the survey. According to Hartley and Maclean (2006), reliability and validity are vastly improved when secondary forms of data are made available. Additionally, more than one statistical analysis was conducted to cross-reference results.

To strengthen the reliability and validity of the study, Cronbach's alpha was administered to support internal consistency. Cronbach's alpha is the most widely used instrument to test homogeneity and determine internal consistency (Shuttleworth, 2016). Additionally, I had a fellow researcher review the instrument, and the survey was

administered to the researcher to check for clarity of statements, validity, and appropriateness of content.

Coefficient Cronbach's alpha is a measure that assesses reliability of the instrument, as well as the reliability score for each category indicated in the instrument. A score at or above .80 is considered an acceptable high score of reliability. The Teachers Sense of Efficacy Scale measures high reliability with a Cronbach's alpha of .90 (Schmidt et al., 2009; Tschannen-Moran & Hoy, 2001).

Joshi et. al (2015) asserted that the validity of the Likert scale is driven by the applicability of the topic and the respondent's level of understanding of the questions and statements. Additionally, measures of central tendencies provided an overview and the dispersion of the data. Inter-rater reliability methods supported calculation of ratings and provided an additional layer of reliability (Creswell & Creswell, 2018). Mean scale scores of 4.0 and higher are indicative of moderate-to-high levels of efficacy.

Procedures for Data Collection

Emails were sent to teachers of 25 school districts in Long Island, representing a cross section of Nassau County school districts and a potential pool of 2500 participants.

A 28-item survey was electronically administered to a pool of 2500 K–12 teachers. The survey included statements that participants would rank on a 5-point Likert scale to express their views on self-efficacy and blended professional learning. Statements ranged from the mode of delivery and content to measures of satisfaction. The last item of the survey provided an opportunity for participants to share additional information or expand on any particular response. The survey was developed based on the TSES framework in the context of blended professional learning and covered the

following three domains: instructional strategies, classroom management, and student engagement.

The following procedural steps of the study were performed:

1. Explain and describe the purpose of the study and obtain electronic consent via email from participants for participation.

2. Administer the Microsoft Forms survey to participants via email for completion.

3. Retrieve data and convert to an Excel format to organize data.

4. Upload data to SPSS software.

5. Establish labels and code data based on categories and assign numerical values based on categories and themes.

6. Check for assumptions (histogram and normal distribution)

7. Run statistical tests (multiple regression).

8. Examine and identify the statistical significance of relationships and correlations ($p < .05$), among variables.

9. Analyze and summarize findings with the goal of outlining key factors of effective and impactful professional learning that supports teacher- efficacy.

10. Provide further insight by addressing any limitations of the study and implications for further research.

Research Ethics

Ethics in research must guide every study. For the purposes of this study, the following considerations were considered:

- Beneficence and respect for persons

- Informed consent

- Confidentiality and data protection

- Conflict of interest

- Integrity

  (McGinn, 2018)

To adhere to all guidelines, I provided teachers with transparent information regarding the purpose of the study and will obtain written consent from each participant. I have maintained confidentiality and have been mindful of my role as a researcher. In doing so, I did not infuse biased opinions or influence results or findings. Maintaining protection and ensuring that no harm comes to any of the participants because of participation, is essential to the implementation of the study. It is crucial to safeguard ethics in research to avoid distractions and maintain an objective focus on the phenomena that is being studied.

Researcher's Role

In my role as a researcher, it is important to maintain an objective perspective and prevent my professional role or prior experience as a facilitator of professional development to influence analysis or interpretation of data. To reduce any potential bias, the researcher used a standardized, peer-reviewed scale, which was administered electronically for data collection purposes. Additionally, the researcher had minimal contact with the participants, a practice that enabled them to respond to survey questions and engage in the study independent of the researcher. Moreover, process and procedures were also outlined to replicate the study independent of the researcher.

Conclusion

      Chapter 3 presents the methodology and procedures employed within the context of this study. A quantitative, correlational research design was used to collect and analyze data. This nonexperimental design was selected to gain insight and examine teachers' perceptions of the effects of blended professional learning on self-efficacy and instructional practices. The instrument that was utilized for data collection purposes combines the Teacher's Sense of Efficacy Scale, TPACK, and the Blended Practice Profile to address areas of interest in the study. The next chapter outlines the results of the study.

CHAPTER 4: RESULTS

Introduction

The purpose of this research was to explore teacher perceptions of blended models of professional development and their impact on teacher efficacy. Specifically, the research addressed the relationship among the amount of time that teachers spent receiving training in blended professional learning, the years of teaching experience, and the subjects taught.

Teacher efficacy was initially studied through the lens of Bandura's (1986) social learning theories. Bandura outlined four types of experiences that contribute to an individual's self-efficacy, including professional development, mastery experiences, vicarious experiences, verbal persuasion, and physiological and affective states (Bandura, 1986).

This chapter outlines the results of the multiple regression analysis conducted based on the results of survey data. The following research questions and hypotheses were addressed:

RQ1: What is the relationship between teacher self-efficacy and blended professional learning?

RQ2 Is teacher self-efficacy influenced by the amount of time spent receiving blended professional learning, by the years of teaching experience or by the subjects taught?

H$_0$: There is no significant relationship between teachers' self-efficacy and blended professional learning.

H₀: There is no significant relationship between teachers' self-efficacy and the amount of time spent receiving blended professional learning, years of teaching experience, or subjects taught.

H₁: There is a significant relationship between teachers' self-efficacy and blended professional learning.

H₂: There is a significant relationship among teachers' self-efficacy and the amount of time spent receiving blended professional learning, years of teaching experience, and subjects taught.

The following is a presentation of the study's population as well as a demographic description of the sample. Demographic descriptions included frequencies and percentages for categorical (nominal) data. Also presented are the test results of the parametric assumptions for the statistical analysis and the results of statistical testing. The subsequent chapter provides a discussion of the results of this study.

Data Collection

The participants in the study represented a cross-section of K–12 suburban school districts across Nassau County, Long Island. Teachers were selected to participate in the study via email invitations. One hundred eighty-two teachers started the survey; however, there were 69 who did not complete the survey and had to be removed from the analysis. Thus, there were $N = 112$ complete cases for analysis.

Most teachers (96, or 85.7%) had been teaching for over 10 years. This was followed by 13 teachers (11.6%), who had taught 6–10 years, and three teachers (2.7%) who had taught 0–5 years. Table 4 depicts these percentages.

Table 4

Years of Teaching

	Frequency	Percent
0–5 years	3	2.7
6–10 years	13	11.6
Over 10 years	96	85.7
Total	112	100.0

Note. This table depicts years of teaching experience for all the participants.

Because of the low sample size in the category of 0–5 years of teaching, this variable had to be recoded for the purpose of regression. The variable Over 10 Years of Teaching was created as a dichotomous variable coded as 1 for yes or 0 for no.

Regarding the level of education, most (84, or 75.0%) had a master's degree. This was followed by a postgraduate degree, (25 or 22.3%), and three teachers (2.7%) who had a doctorate degree (Table 5).

Table 5

Participant's Level of Education

	Frequency	Percent
Doctorate	3	2.7
Master's Degree	84	75.0
Postgraduate Degree	25	22.3
Total	112	100.0

Note. This table outlines the educational level of all 112 participants.

Regarding subjects taught, among the 112 teachers sampled, there were 17

English teachers (15.2%), 17 math (15.2%), nine physical education (8.0%), eight art

(7.1%), eight science (7.1%), seven social studies (6.3%), and one music teacher

(0.9%). The remaining 45 teachers (40.2%) taught some other subjects (Table 6).

Table 6

Subjects Taught by Participants

	Frequency	Percent
AIS	45	40.2
English	17	15.2
Math	17	15.2
Physical Education	9	8.0
Art	8	7.1
Science	8	7.1
Social Studies	7	6.3
Music	1	.9
Total	112	100.0

To make the comparisons of subjects taught easier, especially with small groups,

some categories were combined. Specifically, the following groups were created: Core

(math, science, social studies, and English), Specials (art, music, and physical education)

Table 7

Regrouped Instructional Subjects

	Frequency	Percent
Core	49	43.8
Specials	18	16.1
AIS	45	40.2
Total	112	100.0

and AIS (academic intervention services). There were 49 core (43.8%), 18 specials

(16.1%), and 45 AIS subjects (40.2%) taught (Table 7).

The greatest number of hours of blended professional learning that teachers

received ranged between 11 and 20 hours, (55 teachers or 49.1%). This was followed by

0–10 hours, (40 teachers or 35.7%), and over 20 hours, (17 teachers or 15.2%). This is

represented in Table 8 below.

Table 8

Hours of Blended Professional Development per School Year

	Frequency	Percent
0–10 hours	40	35.7
11–20 hours	55	49.1
Over 20 hours	17	15.2
Total	112	100.0

A simple linear regression was conducted to assess the relationship between

blended professional learning and teacher- efficacy. The results of the regression

suggested that 1% of the variance could be attributed to blended professional learning

$R^2 = .01$, $F(2, 109) = .783$, $p = .460$. Statistical significance was not found in this model,

($\beta = -.08$, $p = .592$) The results of the linear regression can be found below in table 9.

Table 9

Self- Efficacy and Blended Professional Learning

	Coefficients		Standardized Coefficients		
	B	SE	β	t	p
(Constant)	4.230	.128		32.998	.000
Blended PD 0-10 hours	-.082	.153	-.075	-.537	.592
Blended PD 11-20 hours	.055	.147	.053	.376	.707
Blended Pd over 20 hours**					

$R^2 = .01$, F (2, 109) = .783, $p = .460$
**Reference category

Note. Dependent Variable: Teacher Efficacy

Self-efficacy ranged from 1.50 to 5.00 ($M = 4.23$, $SD = 0.53$). Self-efficacy statistics by the number of years teaching are depicted in Table 9. Teachers who taught 6–10 years had the greatest self-efficacy ($M = 4.26$, $SD = 0.30$). This was followed by over 10 years ($M = 4.22$, $SD = 0.55$), and 0–5 years ($M = 4.20$, $SD = 0.53$).

Table 10

Self-Efficacy by Years Teaching

How long have you been teaching?	N	M	SD
0–5 years	3	4.20	.52
6–10 years	13	4.26	.30
Over 10 years	96	4.22	.55

Regarding self-efficacy by educational level, the greatest self-efficacy was found with teachers having a master's degree ($M = 4.29$, $SD = 0.42$). This was followed by postgraduate ($M = 4.105$, $SD = 0.79$), and doctorate ($M = 4.05$, $SD = 0.46$). See Table 7.

Table 11

Self-Efficacy by Educational Level

What is your highest level of education?	N	M	SD
Doctorate	3	4.05	0.46
Master's Degree	84	4.29	0.42
Postgraduate Degree	25	4.05	0.79

Self-efficacy by subject taught is provided in Table 11. The greatest self-efficacy was found in the AIS group ($M = 4.34$, $SD = 0.49$). This was followed by Specials ($M = 4.18$, $SD = 0.68$), while Core ($M = 4.14$, $SD = 0.53$) had the least self –efficacy.

Table 12

Self-Efficacy by Subject

Subjects Regrouped	N	M	SD
Core	49	4.14	0.53
Specials	18	4.18	0.68
AIS	45	4.34	0.49

Self-efficacy by number of blended professional learning hours received is provided in Table 12. The greatest mean self-efficacy was found in the 11–20 hours group ($M = 4.29$, $SD = 0.48$). This was followed by over 20 hours ($M = 4.23$, SD = 0.79), and the 0–10 hours group ($M = 4.15$, $SD = 0.45$), which had the least self-efficacy.

Table 13

Self-Efficacy by Hours of Blended Processional Learning

On average, how many hours of blended professional learning have you received per school year?	N	M	SD
0–10 hours	40	4.15	.45
11–20 hours	55	4.29	.48
Over 20 hours	17	4.23	.79

To measure self-efficacy, the Teacher Sense of Efficacy Scale (TSES) was used. The instrument included 28 items measured on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The mean response of these items was computed to create an overall measure of teachers' self-efficacy. The reliability was assessed by calculating Cronbach's alpha, a measure of internal consistency. The scale showed good reliability with Cronbach's alpha = .931.

As indicated in Table 13 below, the participants' level of efficacy was measured based on responses on a scale of 0–5 for each item. All items in the scale were categorized into three groups as indicated (student engagement, instructional strategies, and classroom management). Teachers reported high levels of efficacy across all subscales. The highest mean score was associated with the respondent's feelings of efficacy related to blended professional development activities (4.6), followed by the efficacy of student engagement and classroom management (4.5) and instructional strategies (4.4).

Table 14

TSES Scores across Subscales

	Mean	SD	Frequency	Percent
Student Engagement	4.5	.77	94	84%
Instructional Strategies	4.4	.83	87	78%
Classroom Management	4.5	.75	93	83%
Blended Professional Learning	4.6	.74	100	90%

Note. The range of the efficacy scale is 0–5. N = 112.

Results

Multiple regression was conducted to address the following research questions and hypotheses:

RQ1: What is the relationship between teacher self-efficacy and blended professional learning?

RQ2: Is teacher self-efficacy influenced by the amount of time spent receiving blended professional learning, years of teaching experience, and subjects taught?

H_0: There is no significant relationship between teachers' self-efficacy and the amount of time spent receiving training in blended professional learning, years of teaching experience, or subjects taught.

H_1: There is a significant relationship among teachers' self-efficacy and the amount of time spent receiving training in blended professional learning, years of teaching experience, and subjects taught.
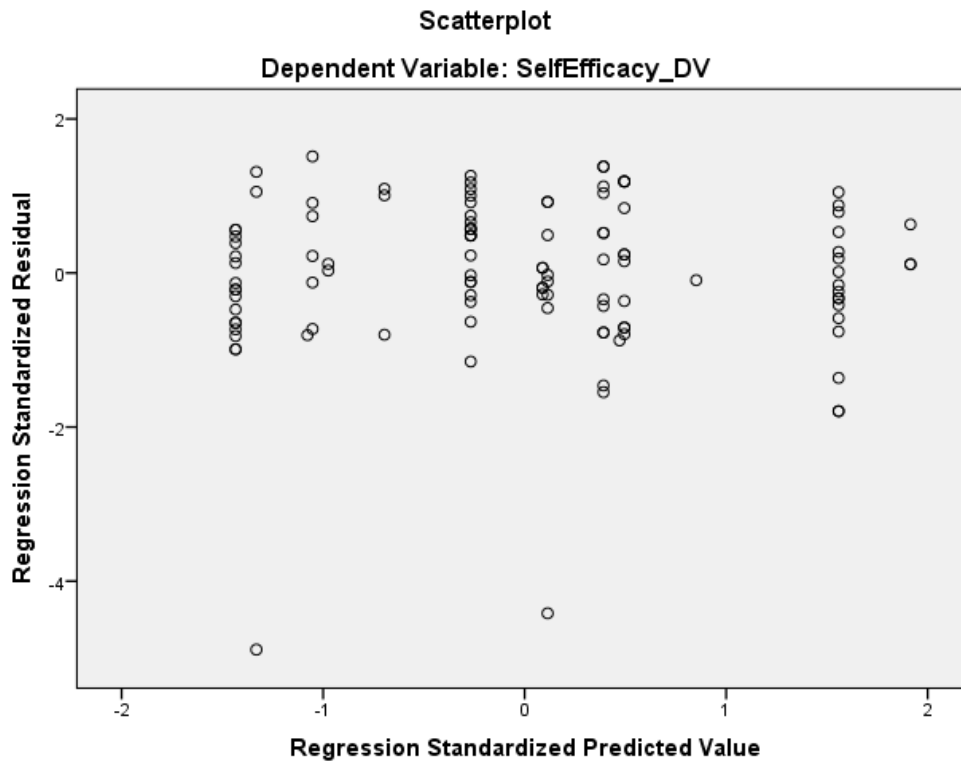
Following Field's (2018) guidelines, the parametric assumptions for multiple regression were tested. Linearity and homoscedasticity were confirmed as assessed by a plot of standardized residuals against the predicted values (Figure 6).

Figure 6

Scatterplot of Standardized and Regression Residuals

Scatterplot
Dependent Variable: SelfEfficacy_DV

The independence of residuals was confirmed, as assessed by a Durbin-Watson statistic of 2.193. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were no standardized residuals greater than $\pm$ 3 standard deviations. The assumption of normality was met, as assessed by a histogram (Figure 7).

Figure 7

Histogram of Regression Residuals
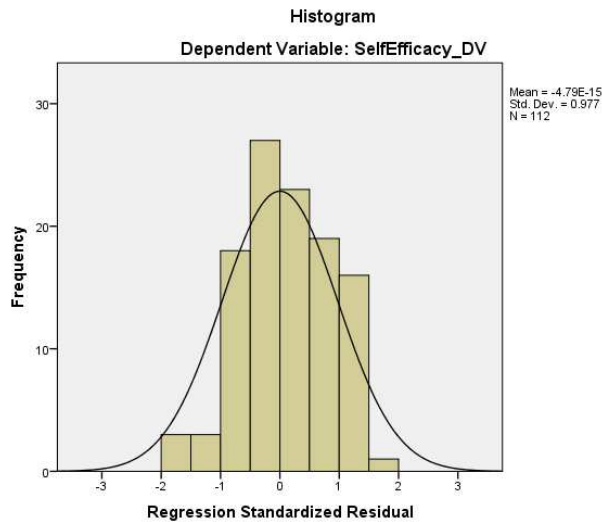
The regression model was not significant, F (5, 111) = 0.984, p = .431. None of the predictors were significant (p >.05). Regression coefficients are depicted in Table 15.

Table 15

Regression Analysis Coefficients Table*

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	SE	β	t	p	Tolerance	VIF
(Constant)	4.322	.181		23.923	.000		
Blended PD 0–10 hours	-.011	.160	-.010	-.072	.943	.422	2.370
Blended PD 11–20 hours	.118	.151	.112	.780	.437	.434	2.306
Blended PD over 20 hours**	**						
Over 10 years teaching	-.040	.145	-.026	-.273	.785	.965	1.036
Core	-.203	.112	-.192	-1.807	.074	.801	1.248
Specials	-.160	.154	-.112	-1.039	.301	.773	1.293
AIS	**						

* F(5, 111) = 0.984, p = .431, R^2 = .044

** Reference category

Table 15 outlines the results from the multiple regression analysis. In this analysis, blended professional development, years of teaching, and subjects taught outline the independent variables studied. Across all variables, statistical significance was not identified ($p =.431$). This analysis suggests that there is no correlation among the variables, and self-efficacy is not impacted by the number of hours of blended professional development, number of years teaching, or subjects taught. The independent variables could account for only 4% variance in teacher efficacy in this model.

Research Question 1: What is the relationship between teacher self-efficacy and blended professional learning?

Efficacy scale scores were used to determine levels of efficacy across three subscales: student engagement, instructional practices, and classroom management. The relationship responses of 112 participants and results of multiple regression analysis suggest there were no relationships that rose to the level of statistical significance ($p = .431$).

Research Question 2: Is teacher efficacy impacted by the amount of time spent receiving blended professional learning, years of teaching experience, or subjects taught?

Descriptive statistics by group level were calculated. Teachers who taught 6–10 years had the greatest self-efficacy. This was followed by over 10 years and then 0–5 years ($M = 4.20$, $SD = 0.53$) with the least level of self-efficacy. Regarding self-efficacy by educational level, the greatest self-efficacy was found with teachers having a master's degree. This was followed by postgraduate, and doctorate.

Regarding self-efficacy by subject taught, the greatest self-efficacy was found in the AIS category ($M = 4.34$, $SD = 0.49$). This was followed by Specials, and Core had

the least level of self-efficacy. Regarding self-efficacy by the number of hours of blended professional learning, the greatest mean self-efficacy was found in the 11–20 hours group ($M = 4.29$, $SD = 0.48$). This was followed by over 20 hours, ($M = 4.23$, SD $= 0.79$) and the 0–10 hours group ($M = 4.15$, $SD = 0.45$), which reported the least self-efficacy.

Results of multiple regression analysis revealed no significant findings regarding the relationship between teachers' self-efficacy and the amount of time spent receiving training in blended professional learning, years of teaching experience, or subjects taught.

Summary

The purpose of this research was to explore the impact of blended models of professional development on teacher efficacy. The findings of Chapter 4 outlined descriptive statistics, demographics, and data from TSES. Multiple regression analysis was conducted to ascertain correlations between number of hours of blended PD, years of experience, level of education, and teacher efficacy. The subsequent chapter will highlight the researcher's interpretation and discussion of the study's results and findings.

CHAPTER 5: DISCUSSION

Introduction

This study sought to examine the impact and influence of blended professional learning on teacher efficacy. Professional learning supports efficacy as a key factor that influences beliefs and the types of activities that promote certain proficiencies. Years of experience, subjects taught, level of education, and the number of hours of blended professional learning were taken into consideration for the purpose of data analysis. This chapter provides a discussion of the findings and results that emerged from the study. Limitations, recommendations for future practice and future research, and a summarizing conclusion will be outlined.

Implications of the Findings

Research Question 1 sought to determine the relationship between teacher efficacy and blended professional learning.

The results of this study were mixed. A multiple regression analysis was employed to explore the relationship of self-efficacy and blended professional learning. Results from the multiple regression analysis revealed no level of statistical significance regarding the relationship between teachers' self-efficacy and blended professional development, as indicated in Table 14.

Results from the Teacher's Sense of Efficacy Scale (TSES), which measured each participant's level of efficacy based on responses across the subscales of teacher efficacy—student engagement, instructional strategies, and classroom management— revealed high levels of self-efficacy on all three subscales. These results suggest a positive relationship between self- efficacy and blended professional learning.

Interpretation of the Results

These findings support prior research indicating that professional development that is flexible and rooted in authenticity fosters transformative practices and develops self-efficacy (Smith et al., 2017). The theoretical principles of CoPs (communities of practice) support development of teacher efficacy through vicarious teacher-centered learning experiences (Trust & Horrocks, 2019).

Learning that can be directly transferred to the classroom for use supports increased efficacy (Nese et al., 2019). All factors indicated on the subscales (engagement, instructional strategies, and classroom management) are basic skills that teachers practice daily and are rooted in real world experiences. Within the framework of social cognitive theory and CoP, teachers collaborate with one another and are given the opportunity to practice and internalize new skills and increase self-efficacy in the process. As outlined below, the researcher's insight and analysis are provided in the participants' responses from the teacher-efficacy scale.

On specific scale items (TSES 8, 11, 15, 19, and 21) that highlight teachers' perspectives of blended professional learning as a major factor of enhanced teaching and learning, a high efficacy score of 4.60 (on a 0–5 scale) was achieved. Ninety percent of the teachers responded favorably on self-efficacy on all subscales: student engagement, instructional strategies, and classroom management. Findings indicate that there was a positive relationship between teacher efficacy and blended professional learning. Teachers indicated that blended professional learning provided the ability to be "creative," and that it "supported technological competencies" and the development of efficacy.

On TSES scale items 7, 19, 24, and 27, which highlighted self-efficacy and student engagement, a mean efficacy score of 4.5 was noted. Respondents reported levels of satisfaction and competence in motivating students, teaching to individual learning styles, and providing collaborative experiences for students, all of which contributed to increased efficacy. These findings suggest that self-efficacy was influenced by professional learning because the teachers' ability to promote student engagement was enhanced.

On TSES scale items 9, 10, 14, 22 and 26, which highlighted self-efficacy and instructional strategies, a mean efficacy score of 4.4 was noted. Respondents reported confidence in their ability to "provide technological based strategies," and "differentiation of instruction" to meet diverse instructional needs and the development of strategies that foster "problem solving and critical-thinking skills."

On the subscale that measured self-efficacy and classroom management, items 5, 7, 13, and 20 produced a self–efficacy score of 4.5. Teachers reported that they were confident in their skills to "foster an environment conducive to learning" and "effectively manage disruptive behaviors." These results suggest that professional learning influences self-efficacy by supporting development of classroom management strategies for teachers.

The final item on the TSES provided participants the opportunity to provide open feedback on blended learning and their thoughts on impacting efficacy. Teachers provided insightful feedback and indicated professional learning that incorporates "collaborative teacher centered experiences" inclusive of the specific needs of teachers, which take into account authentic daily classroom practices, support self- efficacy.

Often times, traditional top-down district led formats of professional learning do not incorporate these components that are deemed effective in bolstering efficacy. Over the past 2 years, flexible formats such as blended professional learning have become the primary mode of delivery. This trend provides a flexible model of learning to address this disparity.

From the analysis results, out of 112 participants, 96 had been teaching for more than 10 years, 13 between 6 and 10 years, and 3 participants between 0 and 5 years. The self-efficacy scale scores for years of experience ranged from 1.50 to 5.00, where teachers with 6–10 years had the highest self-efficacy score of 4.26, followed by those with over 10 years of teaching experience with 4.22 and 0–5 years with 4.20. The results show that teachers with 6–10 years of experience reported higher efficacy in areas of instructional strategies. This could account for teachers feeling more confident after having gained a level of experience in their area of expertise. These educators are experienced but still early enough in their careers to maintain a level of excitement and openness to trying new strategies.

Based on Bandura's social cognitive theory (2001), experience, knowledge, and skills affect self-efficacy. This theory maintains that learning is a social behavior expressed in social contexts through the ongoing, everchanging, and reciprocal interactions of an individual, their environment, and other learners. Teachers with more experience have higher efficacy because they have many years of learning in which they observed human behavior, social interactions, and practice. Because teachers with high efficacy levels have many years of experience, they tend to have a high positive belief that they can achieve any task irrespective of the skill level (Kim & Seo, 2018). This

held true for teachers with over 10 years of experience as well, because their efficacy scores ranked second (4.22). The fact that their scores were not the highest may be attributed to the fact that veteran teachers (the over-10-years group) may not have been as open to professional learning experiences as less experienced teachers.

From the analysis results, on a scale of 0–5, teachers with the highest self-efficacy in terms of educational levels held masters' degrees (4.29 efficacy score). Teachers with masters' degrees were also the highest number of participants (N = 84). Teachers with doctorate and postgraduate degrees had a self-efficacy score of 4.05. Teachers with masters' degrees shared higher self-efficacy scores, which shows that education may be aligned with achieving professional learning goals. The teachers' level of performance increases as education level increases to a certain degree, and then gradually declines.

Research Question 2 asked whether efficacy is influenced by the amount of time spent receiving blended professional learning, by the years of teachers' experience, and by the subjects taught. According to the results from the multiple regression analysis there was no correlation across the variables. Data analysis revealed no relationships that produced statistical significance F (5, 111) = 0.984, p = .431, R^2 = .044, and the regression model showed only 4% of variance that could be attributed to the independent variables tested in the model. The results of Research Question 2 are discussed below.

Regarding self-efficacy measured by hours of blended professional learning received, teachers with 11–20 hours earned the highest self-efficacy score (4.29), followed by teachers who had over 20 hours with a score of 4.23 and teachers with less than 10 hours, who scored at 4.15. In analyzing the results, the teachers with the most hours have the most experience in blended professional learning and would be expected

to have the highest level of efficacy. However, teachers in this category may have reached a plateau in learning and may have considered blended PD as their norm, and therefore fell to second place.

Results for hours of blended learning align with educational levels and self-efficacy, which shows a progression of teacher efficacy to a certain level and then a gradual decline. Within this category, teachers with the highest numbers of hours of blended professional development also had the highest levels of self-efficacy. Teachers with less experience and training represented the least amount of self-efficacy. These findings suggest hours of blended professional learning support teacher efficacy.

Teachers with 6–10 years of experience had a higher efficacy at 4.26, followed by those with over 10 years of teaching experience with a score of 4.22 and 0–5 years with the lowest score of 4.20. These findings indicate that when a teacher has less teaching experience, self-efficacy is lower. Teachers with the highest level of teaching experience (over 10 years) were slightly lower in their efficacy scores than the 6-10 years teaching experience group. This could possibly be attributed to more veteran teachers not feeling as confident or as eager as novice teachers to learn new strategies for providing instruction.

The TSES survey questions revealed that 88% of teachers responded favorably with high efficacy scale scores on items 19, 23, 26, and 27. These questions indicated satisfaction with blended learning, alternative strategies, competencies with digital tools, and teacher-centered collaboration.

Regarding subjects taught, AIS represented the highest level of efficacy (4.34) followed by Specials with a score of 4.18 and the Core with a score of 4.14. These

findings align with the situational learning theory, which places emphasis on learning within a group (CoP) context by discussing, sharing, and practicing behaviors in authentic environments (Lave & Wenger, 1991). Often, AIS teachers provide additional support to students in small groups in diversified modalities, thus upholding the concept of blended professional development. This culture on learning provides the context for efficacy because educators come together for a common purpose where new knowledge is learned and applied (Amendum & Liebfreund, 2019).

To provide further insight, the subject category of Specials includes subjects such as arts, music, and physical education, which provide a format that supports flexibility of learning that may afford higher self-efficacy scores than alternate core subjects, which are accountable to stringent standardized assessment protocols. Teachers may experience more pressure when they are accountable to stringent protocols than when they teach subjects that support a more natural progression of self- efficacy.

According to the data, teachers who taught AIS had a higher self-efficacy level than those who taught Core and Specials. Teachers who also taught Specials experienced higher self-efficacy than those who taught core subjects. Therefore, it can be suggested that the type of subject taught can influence a teacher's self-efficacy.

According to the research data, self-efficacy is also influenced by the hours spent receiving blended professional learning. Teachers with 11–20 hours of blended professional learning had the highest self-efficacy of 4.29. Teachers with over 20 hours of professional blended learning had a self-efficacy of 4.23, which is higher than those with 0–10 hours of learning. These findings were upheld on the TSES, which suggest hours spent receiving blended professional learning can positively influence teacher self-

efficacy. However, the multiple regression indicated no statistically significant findings regarding the relationship between teachers' self-efficacy and the amount of time spent receiving blended professional training, years of teaching experience, or the subjects taught by teachers.

Relationship to Prior Research

Professional development that is of sustained duration and provides the time needed to model a skill, practice the skill in the classroom, and collaborate and reflect, supports efficacy (Azukas, E, 2019; Tschannen-Moran &McMaster, 2009). Effective professional learning cannot be a one-time occurrence. It must be continuous and as teachers continue to develop skills, efficacy is enhanced. This supports the findings of this research that connects increased hours of blended professional learning to increased self-efficacy. Higher efficacy scores were noted for teachers with higher number of hours spent on blended professional development.

Blended professional learning offers opportunities for continued learning and greater flexibility for teachers. Blended professional learning, provides a foundation for communities of practice based on the social cognitive theory of Bandura (1993). According to Rice and Dawley (2007), teachers reported that traditional district-led professional learning in contrast to blended models was inadequate and left teachers feeling ineffective. This report of lower self-efficacy is supported by the findings of this study that teachers with 0–10 hours of blended professional learning experienced less self-efficacy.

The study agrees with the literature that professional development is important because it improves teacher's knowledge and practice and students' learning outcomes

(Darling-Hammond et al., 2017). Professional development enhances teacher's knowledge and pedagogy while addressing the evolving and transformative needs of the 21st-century learner. The literature is supported by the study because the study shows that teachers who have undergone professional development have higher self-efficacy compared to those without.

The study's findings also support the prior literature related to social cognitive theory. According to Bandura's social cognitive theory (1998), focuses on the triadic interplay of personal factors, environmental influences, and behaviors and plays a vital role for teachers who enter the learning environment with a set of experiences, insights, and skills and use these variables to make meaning of new situations. These factors influence self-efficacy. According to the theory, people with high self-efficacy believe that they can achieve a task irrespective of the skill level (Bandura, 1998). People who have low self-efficacy may not have a positive belief in their abilities to complete a task regardless of the level. This study supports prior scholarship relating to teachers who have more years of teaching experience and higher self-efficacy than those who had little to no experience in teaching.

Findings from the study do not mirror the conclusions of prior research that professional development experiences tend to result in a greater understanding of subjects in the classroom. Martin et al., (2018) indicated that professional development helped practitioners think deeply about all subjects including literature and mathematics and then bring this deeper knowledge back to the classroom. According to the results of the study, teachers who taught core subjects such as mathematics and English had lower self-efficacy, as opposed to subjects that do not fall under the stringent accountability

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protocols of standardized assessments. The participants in the current study were teachers who had already undergone professional development but not pre- and posttest interventions, which is why the results from prior research and the current study contradict each other.

Limitations of the Study

Sixty-nine responses were incomplete and were not included in the study. Initially, 181 responses were included, and 112 complete responses were received. Additional responses that were representative of the targeted population may have generated results that were more generalizable. The additional data may have impacted the results and added more variance in the responses and the educators' beliefs of self-efficacy. Self-reporting factors of the study might have contributed to respondents answering survey questions in a way that could be deemed favorable and acceptable but not reliable. Face-to-face administration of the survey would have provided an opportunity to pose follow-up questions and gain further insight into certain answers. This may have possibly reduced the potential for inaccuracy in the participant responses.

Another limitation of the study is the limited sample size. Because the survey was administered electronically, participants may have inadvertently deleted the email or may not have prioritized completion of the survey. One-time data collection could have impacted the responses. Survey completion at different points in the school year might provide more robust results and variance in findings.

Conducting research during the COVID-19 pandemic provided another limitation. Teachers were overwhelmed with the challenges of providing instruction and ensuring the needs of their students were met, which impacted their ability to be fully

engaged in the study. Time constraints provided an ongoing concern as routine day-to-day classroom responsibilities required additional time in a COVID-19-impacted learning environment.

Threats to external validity might include the number of participants who did not complete the survey in its entirety. Participants could have preferred a different format of data collection, and this preference could have adversely impacted their responses or ability to be fully engaged in the study.

Another threat to external validity could be the interaction between history and treatment. This could be attributed to the current COVID-19 global pandemic that might impact how participants responded to questions.

One threat to internal validity may be the different locations of the participants. Participants were exposed to administration of the electronic surveys in various locations, thereby increasing the potential for variance in protocols and the chance that results were adversely impacted.

Because of COVID-19 distancing restrictions, all components of the study were conducted virtually. This impacted the ability to engage all teachers if some may have preferred an in-person format. Additionally, some participants may have encountered issues accessing the digital survey and as a result were not able to provide the needed data.

Recommendations for Future Practice

Based on this study and prior research, professional learning that is collaborative, teacher-centered, targeted, flexible, and ongoing promotes self-efficacy. Collective efficacy captures shared group beliefs in their abilities to impact change (Tschannen-

Moran & McMaster 2009). Models of professional learning that support collective efficacy should be incorporated to improve teacher practice.

Highly efficacious teachers benefit from collaborative and flexible vicarious learning experiences that emphasize modeling, sharing of practices and strategies, and specific needs that are relevant to authentic classroom experiences (Darling-Hammond & Hyler, 2017).

As referenced earlier, the final question on the TSES survey allowed respondents the opportunity to provide open feedback. Responses indicated self-efficacy is best supported by practices that are inclusive of "teacher-centered experiences," "teacher engagement," "decision-making," "subject-specific," "collegial circles," and flexible options and formats. These factors that support efficacy must be incorporated into meaningful models of blended professional learning.

This preliminary study has implications for K–12 educators, building and district level administrators, and policymakers. This study could form the basis for the initial development of standardized protocols for professional development that incorporates a blend of virtual and face-to-face best practices. Key components built around the framework of CoPs (Smith et al., 2017) that transcend virtual and face-to-face professional learning formats should be incorporated. Crucial factors such as collaboration, shared practices, discourse, and modeling are essential components that should be included to support efficacy.

Equally important would be to examine the role of the principal and school leaders and find ways to incorporate a more active role in teacher development to promote meaningful professional learning experiences that foster high teacher efficacy. Teachers

may value the decisions of school leaders who are viewed as practitioners and not exclusively as managers.

Recommendations for Future Research

Based on the findings of the study, future research should explore blended models of professional development and the impact on efficacy with a greater sample size. This would strengthen results and make findings more generalizable to the targeted population. A mixed-methods approach that includes the addition of interviews or observations would fill missing information and provide crucial insight into gaps in the data. An extension of the study would be to examine the impact on student performance. The addition of the extra variable (student achievement) would test the correlation of professional learning, efficacy, and student success.

Additionally, conducting this study post pandemic may provide different results and findings that may be more representative of the impact of efficacy on blended professional learning models.

Conclusion

Overall, teachers prefer professional learning experiences that incorporate collaboration with colleagues and the sharing of practices and strategies. When professional development is focused, ongoing, teacher-centered and collaborative, teachers perceive an increase in feelings of confidence, empowerment, and enhanced pedagogical practices (Nese et al, 2019). Collaborative interactions serve as the underpinnings of CoPs and are a central theme of the findings of this study. The discussion of professional learning must continue to evolve and make sense for the practitioner who engages in the practice on a day-to-day basis. Additional exploration

would require a deeper dive into the development of a model of best practices for blended professional development that includes autonomy, collaboration, and teacher input into decision-making regarding topics and modes of professional learning.

Combined with collaborative and teacher-centered features that support effective delivery of professional learning, this study suggests that years of experience, time dedicated to training teachers, and specific content impact teacher-efficacy. This valuable data can be used to inform instructional practices and ways that educators build competencies.

Development and implementation of requirements for professional learning would help to create a professional standard of expectations for all to follow. Preliminary findings must be further explored to establish outcomes that can be generalized and serve as a standardized model of best practices for blended professional learning that bolsters teacher efficacy.

IRB #: IRB-FY2022-198

Title: Teacher Perceptions of the Impact of Blended Professional Development on Teacher-Efficacy and Practice. Creation Date: 12-14-2021 End Date:
Status: Approved
Principal Investigator: Sonia Hood
Review Board: St John's University Institutional
Review Board Sponsor:

Submission Type Initial	Review Type Exempt	Decision Exempt

Key Study Contacts

Member Anthony Annunziato	Role Co-Principal Investigator	Contact annunzia@stjohns.edu
Member Sonia Hood	Role Principal Investigator	Contact sonia.hood19@stjohns.edu
Member Sonia Hood	Role Primary Contact	Contact sonia.hood19@stjohns.edu

APPENDIX B

Teachers' Sense of Efficacy Scale

Directions: The questionnaire is designed to gain an understanding of your professional learning experiences. Please complete the survey below based on your **blended** (virtual and in person) professional development experiences. Your responses will be kept confidential.

KEY: 1- Strongly disagree   **2**- Disagree   **3**- Somewhat agree   **4**- Agree   **5**- Strongly Agree

1. How long have you been teaching? _____ 0-5 years   _____ 6-10 years _____over 10 years

2. Which subject do you teach?
____Math
____Science
____ELA
____Social Studies
____Music
____AIS
____Other (Indicate subject) _____

3. What is your highest level of education?
____ Bachelor's Degree
____ Master's Degree
____ Postgraduate
____ Doctorate

4. On average, how many **hours** of blended professional learning have you received per school year by month?
0-10 hours _____   11-20 hours_____   over 20 hours_____

5. I can control disruptive behaviors in the classroom.	1	2	3	4	5
6. I can use technology-based resources to motivate students.	1	2	3	4	5
7. I can create an environment conducive to learning.	1	2	3	4	5
8. I can adjust my instruction using technology- based strategies to meet the needs of my students.	1	2	3	4	5
9. I can craft collaborative activities.	1	2	3	4	5
10. I can provide appropriate challenges for all my students.	1	2	3	4	5
11. Blended professional development has been effective.	1	2	3	4	5
12. I can use technology to foster student creativity.	1	2	3	4	5

13. I can use technology to control disruptive behaviors.	1	2	3	4	5
14. I can provide alternate explanations and examples to support student learning.	1	2	3	4	5
15. I can use technology to provide challenging learning experiences.	1	2	3	4	5
16. I can use technology to provide challenging learning experiences	1	2	3	4	5
17. I can implement a variety of technology- based assessment strategies.	1	2	3	4	5
18. Blended professional learning has positively impacted instructional practices in my classroom.	1	2	3	4	5
19. I can implement alternative /non- traditional strategies to support learning.	1	2	3	4	5
20. I can use technology to establish a classroom management system.	1	2	3	4	5
21. Blended PD has enhanced my teaching and learning.	1	2	3	4	5
22. I can differentiate learning in the classroom.	1	2	3	4	5
23. I can use a variety of strategies to improve students' learning experiences.	1	2	3	4	5
24. I can adapt my teaching to meet the needs of different learning styles.	1	2	3	4	5
25. I can assess student learning in multiple ways.	1	2	3	4	5
26. I can use a wide range of effective teaching strategies	1	2	3	4	5
27. I can differentiate classroom activities using digital tools.	1	2	3	4	5

28. Please provide any additional information that you would like to share related to your professional development experiences:

_____

_____

_____

APPENDIX C

CONSENT STATEMENT FOR PARTICIPATION in STUDY

Researcher's Name: Sonia Hood
Affiliated Institution: St. John's University
Phone Number: (516) 860-8340
Email: Sonia.hood19@my.stjohns.edu

Purpose:
The purpose of this consent is to formally accept the invitation to be a participant in a research study to improve Professional Development practices and protocols. This study is being conducted for a final research project, in a graduate course at St. John's University. Acknowledging consent means that you are agreeing to participate in interviews, surveys and or video conferencing connected to professional development activities. You can elect to remain as an anonymous participant. If this is your preference, your identity will be protected.

Description of Procedures:
Your participation is acknowledgement of your involvement in an interview and or survey to provide your professional opinion, thoughts, and beliefs on professional development. This is inclusive of your instructional practices and the impact that it may have on student learning. All interactions will be conducted virtually or via telephone.

Participation & Confidentiality:
Your participation in the research is completely voluntary. Refusal to participate will involve no penalty or loss to you. You may terminate your participation at any time. Your interview responses will be confidential. Only the researcher will have access to the information you provide. Any information obtained from this study will be used for educational purposes specific to this project but will not identify project participants in any way and no identifiable information will be used.

Risks:
There are no foreseeable risks associated with this project. You can skip or refuse to any question and can withdraw from the study at any time prior to completion.

Benefits:
There are no direct benefits to participating in this project. Findings can be shared with you to assist in your professional planning as an educator. Your involvement and engagement will help with completion of the study.

Contact Information:
If you have any questions concerning participation in this study, please contact Sonia Hood via email at Sonia.hood19@my.stjohns.edu or telephone at XXX-XXX-XXXX

Statement of Consent:
By signing below, I agree to participate in this research. I understand that I agree to audio/ video recording via zoom platform and my identity will be protected.

_____   _____
Print Name   Date

_____   _____
Signature   Date

sonia hood ▮▮▮▮▮▮▮▮▮
To: dschmidt@iastate.edu

Hello Dr Scmidt,

I am a doctoral student at St. Johns University located in New York. I would like to request permission to use your TPACK survey for use in my research on professional development. I am attempting to discern and analyze teacher's perceptions of self efficacy as it relates to technology.
This survey would be ideal as it covers all areas.

With your approval, I will be administering the survey to teachers in a Nassau County K-12 school district.
If additional information is required, please let me know.

Thank you,
Sonia Hood

Crawford, Denise A [SOE] <dschmidt@iastate.edu>   Tue, Nov 2, 2021 at 9:45 AM
To: sonia hood

Dear Sonia,

Thank you for your interest in our TPACK survey. You have our permission to use the survey for your research.

Good luck!

Denise Crawford

Denise A. Schmidt-Crawford

APPENDIX E

Anita Woolfolk Hoy, Ph.D.   Professor
                                                                    Psychological Studies in Education

Dear

You have my permission to use the *Teachers' Sense of Efficacy Scale* in your research.
A copy the scoring instructions can be found at:

http://u.osu.edu/hoy.17/research/instruments/

Best wishes in your work,

Anita Woolfolk Hoy

Anita Woolfolk Hoy, Ph.D.
Professor Emeritus

REFERENCES

Artino, A., R. (2012). Academic self-efficacy: From educational theory to instructional

practice*. Perspectives on Medical Education 1*, 76–85.

Azorín, C., Harris, A., & Jones, M. (2020). Taking a distributed perspective on

leading professional learning networks. *School Leadership & Management*, *40*(2-3), 111–127.

Azukas, E. (2019). Cultivating a blended community of practice to promote

personalized learning. *Journal of Online Learning Research 5*(3), 275–310.

Bandura, A. (1986). Social Foundations of Thought and Action. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and

functioning. *Educational Psychologist*, *28*(2), 117–148.

Bandura, A. (1998). Health promotion from the perspective of social cognitive

theory. Psychology and Health, 13(4), 623-649.

Bandura, A. (2001). Social cognitive theory: An agentic perspective *Annual Review of Psychology*, 52

Bishop, J., & Verleger, M. (2013). The Flipped Classroom: A Survey of the

Research.

Blitz, C. L (2013). Can online learning communities achieve the goals of traditional

professional learning communities? What the literature says. (REL 2013–003). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance,

Regional Educational Laboratory Mid-Atlantic. Retrieved from
http://ies.ed.gov/ncee/edlabs.

Castaño-Muñoz, J., Kalz, M., Kreijns, K., & Punie, Y. (2018). Who is taking
MOOCs for teachers' professional development on the use of ICT? A cross-
sectional study from Spain. *Technology, Pedagogy and Education*, *27*(5),
607-624.

City, E. A., Elmore, R. F., Fiarman, S. E., & Teitel, L. (2009).
Instructional rounds in education: *A network approach to improving teaching
and learning.* Harvard Education Press. Cambridge, Mass.

Dille, K. B., & Rokenes, F. M. (2021). Teachers' professional development in formal
online communities: A scoping review. *Teaching and Teacher
Education*, *105*, 103431. DOI:10.1007/978-1-84996-133-2_11

Elmore, Richard (2002). *Bridging the gap between standards and achievement: The
imperative for professional development in education* (Paper presentation)
The Albert Shanker Institute, Washington, D. C.

Guskey, T. R. (2002). *Professional development and teacher change. Teachers and
teaching: Theory and practice*, (8) 381- 391.
http://dx.doi.org/10.1080/135406002100000512

Darling- Hammond, L., Hyler, M. E., Gardner, M. (2017). Effective teacher
professional development. *Learning Policy Institute.*

Darling-Hammond, L, & Hyler, M. E. (2020) Preparing educators for the time of
COVID and beyond, European Journal of Teacher Education, 43:4, 457-
465, DOI: 10.1080/02619768.2020.1816961

Kim, K. R., & Seo, E. H. (2018). The relationship between teacher efficacy and students' academic achievement: A meta-analysis. *Social Behavior and Personality: An International Journal, 46*(4), 529–540.

Koehler, M. J., & Mishra, P. (2008). Introducing TPACK: In AACTE Committee on Innovation & Technology. *Handbook of technological pedagogical content knowledge for educators*, New York, NY: Routledge, 3-29

Knowles, M. S. (1978). Andragogy: Adult Learning Theory in Perspective. *Community College Review*, *5*(3), 9–20. https://doi.org/10.1177/009155217800500302

Knowles, M. S. (1977) *Adult learning processes: Pedagogy and andragogy*, Religious Education, *72*(2), 202-211

Krutka, D. G., Carpenter, J. P., & Trust, T. (2017). Enriching professional learning networks: A framework for identification, reflection, and intention. *TechTrends*, *61*(3), 246-252.

Lave, J., & Wenger, E. (1991). Situated learning*: Legitimate peripheral participation.*

Loewus, L (2011) https://www.edweek.org/leadership/marzano-on-developing-teachers/2011/10

Martin, C., Polly, D., Mraz, M., & Algozzine, R. (2018). Teacher perspectives on literacy and mathematics professional development. *Issues in teacher education*, *27*(1), 94-105

Moore, Robinson, Sheffield, Phillips (2017) Journal of Online Learning Research

      Mastering the Blend: A Professional Development Program for K-12

      Teachers (2017) 3(2), 145-173

New York, NY: Cambridge University Press.

Nordgren, K., Kristiansson, M., Liljekvist, Y., & Bergh, D. (2021). Collegial

      collaboration when planning and preparing lessons: A large-scale study

      exploring the conditions and infrastructure for teachers' professional

      development. *Teaching and Teacher Education*, *108*, 103513.

Parks, Rebecca A., Oliver, W., & Carson, E. (2016). The status of middle and high

      school instruction: examining professional development, social desirability, and

      teacher readiness for blended pedagogy in the southeastern united states. *Journal*

      of Online Learning Research, 2(2), 79-101.

Sabawoola, R & Mishra, P (2021). Learning pedagogy in the post covid-19 ERA.

      Institute of Distance and Open Learning. Volume 50(1) 9-23

Santos, D., & Miguel, L. (2019). The Relationship between Teachers' Beliefs,

      Teachers' Behaviors, and Teachers' Professional Development: A Literature

      Review. *International Journal of Education and Practice*, *7*(1), 10-18.

Sprott, R. A. (2019). Factors that foster and deter advanced teachers' professional

      development. *Teaching and Teacher Education*, *77*, 321-331.

Thomas R. Guskey and Kwang Suk Yoon, What Works in Professional

      Development? Phi Delta Kappan, Vol. 90, No. 07, March 2009, pp. 495-500.

Trust, T., Carpenter, J. P., & Krutka, D. G. (2017). Moving beyond silos:

      Professional learning networks in higher education. *The Internet and Higher*

      Education, *35*, 1-11.

Tschannen-Moran, M., McMaster, P. (2009). Sources of self-efficacy: Four

    professional development Formats and their relationship to self- efficacy and

    implementation of a new teaching strategy. *The Elementary School Journal*,

    110 (*2*), 228-245

Valiandes, S., & Neophytou, L. (2018). Teachers' professional development for

    differentiated instruction in mixed-ability classrooms: investigating the impact

    of a development program on teachers' professional learning and on students'

    achievement. *Teacher Development*, *22*(1), 123-138.

Wenger, E. (2000) *Communities of Practice: Learning, Meaning and*

    Identity Cambridge UK: Cambridge University Press

Wenger, E. (2010). Social learning systems and communities of practice.

    Communities of Practice and Social Learning Systems: The Career of a

    Concept, 179-195.

Wenger, E., & Snyder, W. M. (2000). Communities of practice: The organizational

    frontier. *Harvard Business Review, 78*, 139-145.

Zainuddin, Z. and S. H. Halili (2016). Flipped Classroom Research and Trends.

    International Review of Research in Open and Distributed Learning, (17), 3.

Vita

Name	*Sonia Hood*
Baccalaureate Degree	*Bachelor of Science, Albany State University, Albany, NY Major: Social Work*
Date Graduated	*May, 1992*
Other Degrees and Certificates	*Professional Diploma in Educational Administration*
	Master of Science, Queens College, Queens, NY, Major: K-6 Elementary Education
Date Graduated	*May, 2011*