Exploring Lived Experiences of Public Elementary School Teachers' Perceptions of Cognitive

Engagement in Distributed, Virtual Professional Learning Experiences in Their Place of Work:

A Phenomenological Study

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Abstract

Exploring Lived Experiences of K-12 Teachers and Administrators Perceptions of Cognitive
Engagement In Distributed, Virtual Professional Learning Experiences In Their Place of Work:
A Phenomenological Study

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Engagement of learners is a critical determinant of efficacy in any educational program, and
presents a unique challenge in a distributed, virtual method of delivery. The purpose of this
phenomenological study is to explore lived experiences and perceptions of K-12 teachers and
administrators about cognitive engagement in distributed, virtual learning environments in order
to understand the pedagogical strategies that influence effective learning experiences in such
settings. Finding actionable solutions to this problem will benefit organizations that utilize
distributed, virtual professional education experiences by recommending key strategies for
increasing student engagement and building effective learning communities in programs. The
research questions that guide this study are: (1) What are the most significant pedagogical factors
that affect cognitive engagement of adult participants in distributed, virtual professional
education experiences? (2) What are the non-pedagogical factors that affect cognitive
engagement of adult participants in distributed, virtual professional education experiences? (3)
How do adult learners in a distributed, virtual professional learning experience conceptualize an
effective professional education experience? This research aligns to prominent instructional
theory, including: Garrison's Communities of Inquiry, Vygotsky's Social Development Theory,
Bruner's Constructivist Education Theory, and the work of Coates and Kuh on engagement in
online learning. Knowledge gathered from the subjective experiences of participants will be used

for data collection on factors that most significantly affect cognitive engagement in such learning experiences. After a reflection on the possible methods of data collection, the researcher has concluded that semi-structured interviews and focus will be the most appropriate research tools for data collection in this study. Once the interviews are each transcribed for analysis, the researcher will employ first and second cycle coding methods to analyze data for findings.

Keywords: professional development, distributed learning experiences, virtual education, cognitive engagement, organizational learning, professional education

Dedication

Dedicated to Katie, Josie, Matilda, and Cooper. Love you all so much.

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Chapter I: Introduction to the Research

Advances in communication technology have liberated professional educational experiences from the necessity of in-person, synchronous delivery methods (Yamagata-Lynch, 2014). Educational opportunities are now more accessible to wider audiences, and are able to utilize asynchronous, blended, and distributed techniques previously impractical or inaccessible due to high costs associated with adequate technology and connectivity. Professional education programs are vital to the onboarding, development, and continual improvement of skills in an organization's workforce in order to build and maintain capacity in an ever-changing and competitive external environment (Liao et al., 2017). In an effort to increase efficacy of professional education programs, engage learners across geographic distance, promote community cohesion in a distributed workforce, and effectively utilize scarce financial and human resources, many innovative organizations have employed distributed, virtual methods of delivery for professional education programs (Argote & Hora, 2017). The researcher's goal for this study is to identify the elements of distributed, virtual professional learning experiences that have the greatest effect on cognitive engagement for public elementary school teachers participating in such experiences at their workplace. Research has been conducted through semi-structured interviews and a focus group with 11 participants from a population of elementary school teachers participating in a distributed, virtual education program at a K-12 public school district in Pennsylvania.

The Problem Statement

Distributed, virtual professional education programs for public elementary school teachers are widely used across many educational settings, however, effective pedagogical strategies within such programs that aim to produce cognitive engagement among participants

have not been adequately researched. As explained by Kormos (2022), "Innovative technology usage can promote a collaborative and interactive learning community…" (p. 147), but that technology must utilize effective structures and strategies to cognitively engage students. Cognitive engagement of learners is a critical determinant of efficacy in any educational program, and presents a unique challenge in a distributed, virtual method of delivery (Cleveland-Innes & Campbell, 2012). Techniques that are effective in promoting engagement in an in-person method of delivery of professional education may be less effective or impractical when utilizing a distributed, virtual method of delivery (Deschaine & Whale, 2017). According to these scholars, given the advantages of distributed, virtual methods of delivery for greater efficiency in the use of human and financial resources, the possibility of access to a wider and more disparate audience, and the practicality of effectively blending asynchronous and synchronous instruction in professional education experiences, there is an imperative to determine the optimal pedagogical and structural strategies for student engagement in this medium.

In addition to pedagogical techniques, class structure, and the blending of synchronous and asynchronous instruction in distributed, virtual professional education experiences, modern technological tools can be used to serve the social and emotional needs of learners and to create Communities of Inquiry (CoIs) that deepen engagement and meaningful learning in distributed, virtual education experiences (Garrison et. al, 2010). Rather than to reinforce existing practices in education and adapt them to modern technological tools, advances in communication technology can serve to facilitate the evolution of pedagogical techniques and structures (2010).

In addition to mastery of the content of the educational experience and the possibility of construction of a learning community of geographically separated individuals or groups, an

additional advantage of the utilization of modern technologies in professional learning experiences is that the learners gain competency in using the technological tools themselves, fostering the development of an additional, secondary layer of skills (Deschaine & Whale, 2017). These layers of skills, combined with the access offered by flexibility in the synchronicity of learning and the reduced cost-barrier for participation in distributed, virtual learning make this method of delivery advantageous for both the organization and the learner (Kim, 2011). As written by Kormos (2022), "Teachers who actively employ technology produce students with higher levels of critical thinking and communication skills" (p. 147). As more individuals and organizations employ this method of delivery, the vital importance of effective strategies for engaging adult learners in distributed, virtual professional education experiences increases in urgency.

Purpose and Significance of the Problem

This study focuses on cognitive engagement of elementary teachers in distributed, virtual professional education experiences in which they are participants through their place of work. With advances in communication and education technology, it is important to examine factors in distributed, virtual professional learning experiences that produce cognitive engagement. The results may be used to inform improved practices for future learning experiences.

Purpose Statement

The purpose of this phenomenological study is to explore the lived experiences and perceptions of elementary teachers about cognitive engagement in distributed, virtual learning environments in order to understand the pedagogical and structural strategies that influence effective learning experiences in such settings. Through the identification of such important

strategies, this study will offer recommendations for effectively designing and implementing professional learning experiences for virtual, distributed professional learning.

Significance of the Problem

Finding actionable solutions to this problem will benefit organizations that utilize distributed, virtual professional education experiences by recommending key strategies for increasing student engagement and building effective learning communities in programs. Results will help the population at hand to refine professional education offerings for greater efficacy and impact. Individuals participating in such programs, in turn, may be benefitted by a more engaging, enriching, and effective professional education experience (Kim, 2011). Additionally, this study will add to the body of research and literature surrounding best practices for the creation and implementation of effective distributed, virtual professional learning experiences, specifically regarding the utilization of online learning communities. The audience of this study is anyone engaged in or considering engagement in the design, implementation, or assessment of distributed, virtual professional education experiences. Identification of key strategies through findings of this study will serve to increase engagement, efficacy, and efficient use of resources in distributed, virtual professional education experiences.

Consistent advancements in communication technology that can be used to facilitate distributed, virtual professional education necessitate the constant reevaluation of best practices in this method of educational delivery (Garrison et al., 2010). This study will build on the body of theory around cognitive engagement in professional education and the construction of learning communities as well as modern research that applies this theory to the structures and methods facilitated by 21st century technological tools. From this literature foundation and subsequent study findings, this dissertation will offer strategic recommendations that consider the most

recent technological advancements as they apply to best practices in professional education experiences. In a dynamic technological environment, there is a consistent need for study around effective strategies that consider the most modern tools, structures, and strategies (Liao et al., 2017).

Strategic recommendations resulting from this study can be applied to professional education experiences across multiple contexts. Understanding the most effective processes for creating professional education experiences that lead to increased capabilities among organizational members can be a matter of survival over time for an entity that exists in an increasingly globalized society (Bahrami et al., 2016).

Competency in professional education is crucial to the success of organizations across many kinds of industries. This competency, along with the creation, retention, integration, and transference of knowledge, forms a cornerstone of organizational learning (Argote & Hora 2017). To create a sustained competitive advantage, many organizations have focused on professional education practices and the creation of communities of learning and practice (Rupčić, 2018). The ways that organizational members practice and share learning is a critical determinant of effectiveness in organizational learning, which is a major contributor to longitudinal organizational success (Tam & Gray, 2015). Therefore, the importance of effective practices in the utilization of modern technological tools toward the accomplishment of strategic organizational learning objectives in professional education experiences has important consequences for both the individual and the organization itself.

Globalization of the work force has both offered opportunities for workers to gain employment outside of geographic boundaries and increased the level of competition for desirable positions (Bahrami et al., 2016). Flexibility in access to instruction facilitated by

modern communication technologies has promoted increased entry and lower associated cost with such professional education experiences (Yamagata-Lynch, 2014). Therefore, the development of important skills through professional education is vital to the individual as much as to the organization offering the experiences. Strategic recommendations for effective distributed, virtual professional education experiences will serve the participant by recommending data-based changes at the design and implementation level.

Research Questions

With the intent to identify the elements of distributed, virtual professional education experiences that are most effective in producing cognitive engagement in elementary school teachers who are participating in such experiences in their place of work, the following research questions help guide this study:

1. How do elementary school teachers report from lived experiences, the pedagogical factors that affect cognitive engagement of adult participants in distributed, virtual professional education experiences?

2. What do elementary school teachers report from their lived experiences about how they perceive that adult learners in a distributed, virtual professional learning experience conceptualize an effective professional learning experience?

The Conceptual Framework

Researcher Stance

As the researcher, I have used a social constructivist lens to better understand the lived experiences of elementary teachers with cognitive engagement in distributed, virtual professional learning experiences. I have worked in school settings for nearly 20 years and have been a participant, designer, and facilitator of various distributed, virtual professional education

experiences. As a teacher, administrator, behavior specialist, and paraprofessional who has worked in six different school districts in different areas of the United States, I have had the opportunity to experience a variety of pedagogical techniques in this medium. In my experience, some pedagogical techniques have been more effective than others in producing cognitive engagement. I believe that socially constructed knowledge from participants will serve as a rich data set that can be analyzed for trustworthy and transferable conclusions and recommendations (Lincoln & Guba, 1985). Qualitative knowledge is socially constructed and perceptions of cognitive engagement are demonstrated indicators of cognitive engagement in a learning experience.

Knowledge gathered from the subjective experiences of participants will be used for data collection on factors that most significantly affect cognitive engagement in such learning experiences. My researcher stance is represented in the qualitative methodology of the study and subjective nature of the data collected for analysis. Using a social constructivist epistemology, I rely on participant perceptions of the phenomenon being studied as a valid data set (Creswell & Guetterman, 2019). Data has been collected from semi-structured interviews and a focus group, then coded according to the guidance of Saldaña (2021). For this study, I have followed the writing of Creswell and Guetterman (2019) on the application of a social constructivist epistemology in a phenomenological study.

Experiential Base

In the context of professional educational experiences and the building of distributed, virtual learning communities, both my ontological and epistemological framework fall under a social constructivist paradigm. In professional educational experiences that utilize a facilitator or learning community, I interpret effective teaching and learning as a social relationship both

between the facilitator and the participant and between the participants themselves. Epistemologically, I posit that the creation of knowledge or development of skills must occur through connection to the individual's cognition. I believe that each person learns differently, but there are generalizable best practices that can serve to effectively reach most learners, especially those that engage learners into an active learning community. These frameworks can be applied to in-person and virtual education experiences, to synchronous, asynchronous, and mixed-method delivery models. The connection of the learner to the material, and the learner to the other participants of the experience, serves to create deep and meaningful knowledge, skills, and capacities.

Researcher Organization of Literature Review

To understand existing scholarly thought surrounding distributed, virtual professional learning across industries, this study examines research of organizational learning in educational institutions, cognitive engagement in virtual learning experiences, and the construction and facilitation of distributed, virtual learning experiences. Figure 1.1 below illustrates the three main streams of literature that help contextualize and examine scholarly thought on the subject of distributed, virtual professional education experiences in the examined setting.

Figure 1

A Graphic Representation of the Three Research Streams
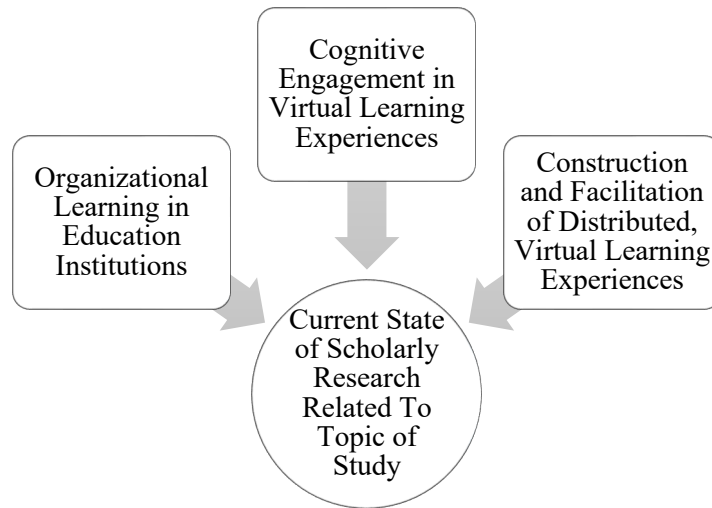
Note. Figure created by author based upon examination of the research streams.

This study utilizes the three strands of literature depicted above in order to contextualize the current body of scholarly thought around the importance of and best practices for cognitive engagement in distributed, virtual professional learning experiences. Literature related to contexts outside of the field of education serves to form a basis for the transferability of findings from the study into possible application outside of the particular details of this sample population and site. The goal is to create findings which can be useful for the development of distributed, virtual professional education experiences across many contexts.

Organizational Learning in Education Institutions

Research into best practices for distributed, virtual professional education experiences in education institutions addresses formats for learning, applications of learning, and best practices for engagement. Documentation, professional conversations, and the co-construction of knowledge emerge as effective elements of professional education experiences through many

scholarly studies in this industry (Harcourt & Jones, 2016). Facilitation and the socio-organizational context of learning also have a significant impact on "…knowledge application and learning, and the impact of the nature of the knowledge or innovation on subsequent learning processes" (Berta et al., 2015, p. 2).

Effective organizational learning, and therefore distributed, virtual professional education experiences, are important for maintaining the vitality and competitive edge of an educational institution (Rikkerink et al., 2015). Highly-effective practices can be developed both within an organization and crowdsourced from outside of the organization, with the sustainability of such development dependent on the willingness of organizational members to change their behavior, actions, and understandings. In education institutions, immersed, ongoing, and practical education all strengthen both the individual participant and the organization as a whole (Chia, 2017). The researcher will conduct this study utilizing participants who work in the education field, seeking to identify the most important elements of highly effective distributed, virtual professional education experiences.

Cognitive Engagement in Virtual Learning Experiences

Cognitive engagement is an important factor in creating meaningful learning experiences for participants. According to Coates (2006), "Student engagement is an idea that captures the broad range of educationally significant interactions that learners have with their study, peers, teachers, and institutions" (p. 1). Kuh (2008), wrote that cognitively engaging activities "…typically demand that students devote considerable time and effort to purposeful tasks…" (p. 27). There are various factors that may influence cognitive engagement in virtual learning experiences, and a thorough review of the literature will provide a foundation for inquiry in data collection.

Construction and Facilitation of Distributed, Virtual Learning Experiences

Consideration of various prominent educational researchers and philosophers is necessary for identification of areas to which this research can contribute in the construction and facilitation of distributed, virtual learning experiences. Theories by Dewey, Vygotsky, Bruner, Garrison, and other prominent thinkers have formed the basis for current practices in distributed, virtual professional learning experiences. According to Akyol et al. (2009b), "The increased level of adoption of online and blended learning is forcing educators to put more emphasis on instructional design" (p. 65). Whiteside (2015) wrote, "Although Vygotsky's work was conducted long before the advent of online learning, …his concept of inner speech sheds light into understanding how language and interaction with others online enhances the learning process in blended and online learning experiences" (p. 1). The researcher seeks to highlight the applicability of this study's findings through a review of literature related to both prominent thinkers in the area of learning and of modern studies into the construction and facilitation of distributed, virtual learning experiences, the applicability of the findings of this study will be established.

Theoretical Basis for the Study

Figure 2

A Graphic Representation of the Theoretical Basis for the Study

Dewey's Pragmatist Education Theory	Pragmatic and Inquiry Based	Active Role of Learner
Coates & Kuh's Research on Student Engagement in Online Learning	Cohort-model and Cross-Curricular Experiences	Feedback and Mentorship
Garrison's Communities of Inquiry	Social, Cognitive, and Teaching Presence	Collaborative Knowledge Building
Bruner's Constructivist Education Theory	Symbolic Interaction	Logico-Scientific vs. Narrative Mode
Vygotsky's Social Constructivism Theory	Zone of Proximal Development (ZPD)	Building Capacity for Self-Sufficiency

Note. Figure created by author based upon examination of the theoretical basis for this study.

Coates and Kuh's Work on Student Engagement. The work of Hamish Coates and George Kuh on student engagement in online learning has served as important thought leadership on the subject during the late 20th and early 21st century. In numerous studies and peer-reviewed publications, important central ideas to their findings have emerged. According to Kuh (2008), high-impact activities "…typically demand that students devote considerable time and effort to purposeful tasks…" (p. 1), many of which require a deepening investment in student activity and academic programs through daily engagement. Engagement includes "…educationally significant interactions that learners have with their study, peers, teachers, and institutions" (Coates, 2006, p. 1). Educational institutions provide students with resources to promote high-impact interactions, but the students determine the efficacy of their own learning.

In developing online education experiences, several best practices have emerged as the result of the work of Coates and Kuh, such as: co-enrolling students in a cohort model throughout an educational program, requiring students to apply what they are studying in one course to another course in the program, and encouraging students to integrate their learnings into their social and academic experiences (Zhao & Kuh, 2004). Feedback, the role of a long-term mentor, and peer collaboration on practical tasks inside and outside the classroom all serve to foster high-impact learning in an online community (Kuh, 2008). In the effective models of virtual education developed by Coates and Kuh, the collaboration between scholars, practitioners, and technical experts on assessment materials allow the educators to moderate processes and outcomes when facilitating an online learning experience (Coates, 2013).

Garrison's Communities of Inquiry. The three main elements of the Community of Inquiry (CoI) framework are: social presence, cognitive presence, and teaching presence (Akyol & Garrison, 2008). These structural elements are interdependent and dynamic, occurring through interaction within a community of learners (Akyol et al., 2009b). Affective expression, open communication, and group cohesion are some of the hallmarks of social presence, forming the first structural element of Garrison's CoI framework (Akyol & Garrison, 2008). The process of a triggering event, exploration, integration, and resolution included in the practical inquiry model of the CoI framework form the basis of cognitive presence, whereas design, facilitation, and instruction are principal elements of teaching presence.

Application of the CoI framework to distributed, virtual professional education experiences include collaborative and reflective processes around understanding a problem, searching for relevant information, and integrating that information into a deeper understanding of both the inquiry itself and of any potential findings (Akyol et al., 2009a). As more

professional education programs migrate to an online and blended learning model of delivery, more emphasis is placed on the instructional design of the program. Utilizing the CoI framework, professional education experiences operating with a distributed, virtual method of delivery can engage learners as collaborative knowledge builders though the search for personal and collaborative meaning, which is an application of the CoI framework that is especially advantageous to developing collective competencies in an organization (Akyol et al., 2009b).

Vygotsky's Social Development Theory. The most salient concept of Vygotsky's body of educational research has proven to the Zone of Proximal Development (ZPD). Collective understandings can surpass the potential of individual insight (Allen, 2005) when different learners can engage in problem solving to construct a shared understanding through communication, explanation, recombination, contrast, and reference. Debating, arguing, rebutting, defending, assessing, and judging different ideas are integral components of the processing and transmission of understanding in a community of learners (Gan & Zhu 2007). One important caveat of Vygotsky's theory, however, is that the process of constructing understanding through social interactions is, in a way, agnostic, and can potentially lead to a negative collective groupthink rather than the collective wisdom aspired to by the designer.

Through the objective of creating self-sufficiency in the problem-solving entity, Vygotsky's research into learning through social processes lends itself straightforwardly to desirable outcomes in distributed, virtual professional education experiences (Whiteside, 2015). Though Vygotsky's studies were conducted before the general availability of the internet, the concepts contained in Vygotsky's theories of social development of collective understanding can be applied to the way students reflect on material, interact with peers, and articulate learning in professional distributed, virtual learning experiences. Cognizant of Vygotsky's position that a

learner's own way of attempting to solve a problem is of paramount importance, the modern course designer can employ technological tools, pedagogical techniques, and social structures in a distributed, virtual professional education experience to maximize the transformative benefit of the radically improved tools for instantaneous connectivity in forming the construction of shared understandings (Allen, 2005).

Bruner's Constructivist Education Theory. Bruner (1966) wrote, "The single most characteristic thing about human beings is that they learn" (p. 41). Symbolic interaction, or the idea that active evaluation and discovery processes lead to the formulation of meaningful knowledge is a foundational tenet of Bruner's constructivist education theories. Learners draw meaning from information and experiences, create inferences based on what is learned, use prior knowledge to construct new knowledge, and decide how to assimilate their new knowledge and understandings into their existing frameworks (Deschaine & Whale, 2017). According to Bruner, reality can be constructed and experience ordered in two distinct ways: in a narrative mode, and in a logico-scientific mode (Rutten & Soetaert, 2013). Knowledge produced in the logico-scientific mode is supported by a foundation of empirical truths and applied procedures, whereas the narrative mode situates truth as constructed and situational.

Bruner (1966) wrote, "Learning is so deeply ingrained in man that it is almost involuntary…" (p. 41). The narrative and logico-scientific paradigms described by Bruner have informed instructional design principles in building online learning communities and experiences (Stewart et al., 2009). The use of technology in and of itself does not ensure the creation of an effective learning community, rather, learners are best served when that technology is leveraged to foster interactions with course content, instructors, and other learning community members. Both the narrative and logico-scientific modes of knowledge construction have a place in

effective distributed, virtual professional education experiences depending on the objectives of the facilitating organization and members of the learning community (Rutten & Stoetaert, 2013).

Definition of Terms

Andragogy

According to Hagen (2016), andragogy "…has been variously defined as a theory of adult learning, a theory of adult education, a technique for adult education, and a set of assumptions that should be used to guide the teaching and learning of adults" (p. 174). An important idea of andragogy is that adults are both driven by an intrinsic motivation to learn and have a desire to know the reason for learning something.

Asynchronous Learning

Asynchronous learning refers to learning that can take place at any time. This could include open-ended experiences that do not follow the structure or schedule of a formal learning experience, or experiences that are flexible to the time of completion within a defined period (Clark & Strudler, 2015). Asynchronous learning can be used in a learning community to provide flexibility to accommodate the schedules of learners, or to differentiate the time needed for instruction (Akyol et al., 2009a). Learning communities can still participate collaboratively in asynchronous activities, albeit at different times.

Cognitive Engagement

Cognitive engagement refers to psychological investment students make towards the learning and the willingness and ability of students to take on the pertinent task. According to Nur Hanis et al. (2022), "Cognitive engagement can be defined as students' willingness and ability to handle the learning tasks and activities close at hand" (p. 187). Self-regulation, the

commitment to master learning, and the use of studying strategies fall under the category of cognitive engagement.

Distributed Learning

Distributed learning refers to learning which takes place across different geographic locations. Distributed learning can utilize various technological tools or methods of delivery toward the accomplishment of learning objectives (Fletcher & Wisher, 2007). This mode of delivery is advantageous for engaging learners across different locations, for organizations that employ a distributed work force, and for implementation of learning experiences in a learning community that is too large to effectively learn together in one physical space.

Learning Community

A learning community is a group of learners who are working together to develop skills, competencies, and knowledge. Communities can interact in myriad ways, and the optimal design for a learning community is that which best serves the needs of the learners and accomplishes the goals of the organization (Kim, 2011). Extensive research has proven the value of learning communities in constructing lasting knowledge and understanding through communication, exploration, contrast, rebuttal, referencing, and discovery (Allen, 2005).

Non-Pedagocial Factors

In this study, the term 'non-pedagogical factors' refers to variables such as class size, communication platform, scheduling, and other factors in a distributed, virtual professional learning experience that are not directly related to instructional strategy and facilitation.

Pedagogical Factors

In this study, the term 'pedagogical factors' refers to instructional and facilitation strategies designed to produce student engagement and mastery of lesson objectives in a distributed, virtual professional learning experience.

Professional Education Experience

A professional education experience is an educational program that is working towards the development of skills and competencies within a professional domain (Ghandforoush, 2013). Organizational leaders have many possible objectives for offering a professional learning experience or for desiring individuals to engage in professional learning experiences. Though they can be delivered in a multitude of formats, this study will examine distributed, virtual professional learning experiences.

Synchronous Learning

Synchronous learning refers to learning taking place at the same time. In the context of distributed, virtual professional education, this could include live sessions that utilize video conferencing, voice conversations, text chat, group discussions, editable documents, or other media conducive to synchronous learning activities (Clark & Strudler, 2015). Synchronous learning is often an important element of a distributed, virtual professional education experience because it fosters interaction between learners, social-emotional connection, and the construction of a cohesive learning community (Akyol et al., 2009a).

Virtual Learning

Virtual learning refers to learning that does not take place in person, but rather through the medium of a communication technology tool. Many virtual learning programs utilize both synchronous and asynchronous activities, and can include learners who are geographically distributed. The size of a virtual learning community can range from just one learner to many

thousands or millions of learners, depending on the objectives of the offering entity and participants (Deschaine & Whale, 2017).

<div align="center">Assumptions and Limitations</div>

Assumptions

This study contains the researcher's epistemological assumption that knowledge about cognitive engagement in distributed, virtual professional education experiences can be effectively constructed using interviews with designers and participants of those experiences. The researcher assumes that participants of the study will be able to provide accurate information about the pedagogical activities, structures, and use of tools that lead to cognitive engagement distributed, virtual professional learning experiences. Further, the researcher assumes that participants will communicate their experiences in a forthright, non-biased, and accurate manner.

Limitations

Limitations are potential problems or weaknesses within the study, such as "inadequate measures of variables, loss or lack of participants, small sample sizes, errors in measurement, or other factors typically related to data collection or analysis" (Creswell & Guetterman, 2019, p. 200). Important limitations of this study include sample size, demographics and geographic location of participants, and the relevance of the technological tools used for distributed, virtual professional education experiences by participants at the time of study contrasted with the relevance of those same technological tools at the time of publication and use of the research. As Creswell and Guetterman (2019) note, consideration of these limitations is advised when planning future application of the findings from the study.

Delimitations

A sample size of 11 participants in distributed, virtual professional education experiences has been utilized for this study, which is a similar sample relative to some other phenomenological research studies of lived experiences. Participants are elementary teachers employed at one public K-12 school district in Pennsylvania, which was determined based on the researcher's access to a sample of eligible participants through his employment at that school district.

Summary

Chapter 1 presents an introduction to the problem, the significance and purpose of the research, the research questions, a conceptual framework, a definition of important terms, and the assumptions and limitations of the proposed study. The purpose of this phenomenological study is to explore lived experiences and perceptions of elementary school teachers related to cognitive engagement in distributed, virtual learning environments in order to understand the pedagogical strategies and structural elements that influence cognitive engagement in such settings. As a distributed, virtual method of delivery becomes more widely utilized for professional education experiences across many fields, the identification of effective strategies for leveraging technological capabilities in this medium towards cognitive engagement of learners is imperative for both the organization and the individual (Lenart-Gansiniec & Sulkowski, 2018).

Chapter 2 will provide a comprehensive literature review of scholarly research and thought in the areas of organizational learning in education institutions, cognitive engagement in virtual learning experiences, and construction and facilitation of distributed, virtual learning experiences. Chapter 3 of this study will explain the research methodology that will be used for data collection and analysis. Chapter 4 will explain the results and findings of the study along

with an analysis of those findings. Chapter 5 of this study will offer conclusions from the results

of the study, a discussion, a summary of the study, and findings and recommendations for future

research into the area of focus.

Chapter 2: The Literature Review

The purpose of this phenomenological study is to explore lived experiences and perceptions of elementary school teachers relating to cognitive engagement in distributed, virtual learning environments in order to understand the pedagogical strategies that influence cognitive engagement in such settings. Through the identification of important strategies for cognitive engagement in distributed, virtual professional learning experiences, this study will offer recommendations for effectively designing and implementing professional learning experiences for virtual, distributed professional learning. The following literature review will represent the current state of scholarly research and thought on the subject of cognitive engagement in distributed, virtual professional learning experiences through three research streams: professional learning in educational institutions, cognitive engagement in virtual learning experiences, and the construction and facilitation of distributed, virtual learning experiences. Through a review of existing scholarly literature in these streams, the researcher intends to explain the context of the present study as it fits into existing scholarly thought.

Figure 3

A Graphic Representation of the Three Streams of Literature Including Prominent Researchers

1st Stream Professional Learning In Education Institutions	2nd Stream Cognitive Engagement In Virtual Learning Experiences	3rd Stream Construction and Facilitation of Distributed, Virtual Learning Experiences
Bonafina (2017) Fahnert (2015) Kaden (2020) Kormos (2022) Harcourt & Jones (2016) Oddone et al. (2019) Rikkerink et al. (2015)	Argote et al. (2003) Akyol & Garrison (2008) Gan & Zhu (2007) Hagen & Park (2016) Hui (2016) Kucey & Parsons (2012) Rutten & Soetaert (2013) Zhang et al. (2021)	Azorín et al. (2020) Carpenter & Munshower (2020) Dhilla (2016) Gaspar (2021) Guskey (2000) Teräs & Kartaglou (2017)

Note. Figure created by author based on literature review.

This literature review utilizes a conceptual framework informed by the work of prominent educational thinkers, including: Garrison's Communities of Inquiry, Vygotsky's Social Development Theory, Bruner's Constructivist Education Theory, and the work of Coates and Kuh on engagement in online learning. This literature review will compare and contrast different studies and their methodologies with the intention of presenting a clear exposition of the current state of scholarly thought and literature on the subject of exploring the lived experiences of elementary teachers' perceptions of cognitive engagement in distributed, virtual professional learning experiences in their place of work.

Stream 1: Professional Learning in Education Institutions

Education institutional are in the unique position of both delivering education as an external product or service and of requiring the consistent improvement of internal

organizational learning capabilities to effectively function as an adaptive organization in the context of a dynamic external environment (Harcourt & Jones, 2016). The speed of change in the capacity and availability of communication technology tools for organizational learning, calls for a re-examination of best practices for cognitive engagement of adult learners in distributed, virtual professional learning experiences utilized by K-12 school districts. A vital application of effective organizational learning capabilities in education entities is skill development for instructors, specifically in the competencies of "…professional learning, engaging students, developing curriculum, leadership and scholarship" (Fahnert, 2015, p. 3). The mechanisms for storing and transfer of knowledge, skill development, adaptations, and learning initiatives must take into account the personnel bandwidth and financial limitations of the organization, the physical distribution of the workforce, the organization's vision and mission, and the willingness and capacity of organizational members "…to change their understandings, behavior and action repertoire" (Rikkerink et al., 2015, p. 225). Each system has its own needs, strengths, and limitations, but research studies have shown that organizations "…with high innovative potential are able to integrate externally developed, successful innovations in their own organization…" (p. 224). In this examination of the relevant scholarly literature on the topic of organizational learning structures and practices in modern education, the first focus is organizational learning in education institutions, considering their common mission across geographic, socioeconomic, and structural differences.

Kaden (2020), Kormos (2022), and Oddone et al. (2019) each conducted studies related to organizational learning in education institutions, but all approached research design, sampling, data collection, and analysis in different ways. Oddone et al. (2019) used an empirical model based on the findings of a qualitative case study. The case study was comprised of 13 teachers,

with ranges of experience between 6 and 41 years, who participated in semi-structured interviews lasting 45 to 60 minutes. Participants prepared for the interview by constructing a visualization of their personal learning network and critical incidents that had been memorable or significant for them. Recommendations from this study included: the cultivation of connectedness for students, the design and implementation of highly accessible professional learning, and the "…significant relationship between networked learning, connectivism, and connected learning" (p. 13).

Kormos (2022) utilized survey research methodology with a questionnaire consisting of five questions, then a list of featured questions, after which teachers were asked to identify barriers. There were 408 participant responses from which data were organized and analyzed. The study found that it was imperative that teachers were trained and provided with realistic timeframes for the implementation of professional learnings, with this particular study being situated in the context of school technology.

Kaden (2020) employed a descriptive and explanatory case study design with a study of the lived experience of a secondary teacher. Data sources included, "direct and participant observations (e.g., workspace, online teaching activity, student interactions), semi-structured weekly interviews, open-ended conversations, (e.g., perceptions of student learning, changes in teacher identity, time commitment, overall well-being), and artifacts (e.g., schedules, lesson plans, Zoom recordings)" (p. 167). Data were analyzed using a qualitative inductive approach, and Kaden (2020) found that, in many teacher-education programs, the virtual learning skills being developed were not necessarily aligned with the needs of educators in their contexts. Kaden (2020) recommended that teacher education programs include preparation for blended learning models and flexible delivery.

The paragraphs below explore professional learning in education institutions in the context of literature and scholarly thought on organizational learning and professional education experiences. Components of organizational learning in a school district include the processes in place for initiatives, structures for decision making, implementation, and evaluation, and both explicit and implicit procedures. According to Chia (2017), "In the face of uncertainty, organizations learn and respond more by sensing, improvising, and adapting as they go; they rely more on practice-acquired sensitivities and dispositions to help them cope, adjust and adapt effectively" (Chia, 2017, p. 108). Modern communication technology has facilitated, and continues to improve, the ability for organizational learning initiatives to utilize a distributed, virtual delivery and evaluation model, which is a paradigm-shift from traditional face-to-face delivery or other non-technical models (Bonafini, 2017). In order for a school district to most effectively and efficiently utilize the tools at its disposal, agile processes and structures that facilitate initiatives and adaptations are critical competencies. This part of the literature review assesses the findings of scholarly research into organizational learning capacity in public school districts as it relates to the organization of learning processes, utilization of technology, and applications of theories to practice in this type of organization.

Organization of professional learning structures and processes in public school districts is determined by the size of the organization, resources at its disposal, expectations of the community, and the competency of its organizational members (Liu et al., 2018). School districts must accomplish organizational learning initiatives such as new-teacher preparation, adaptations to changes in external conditions like the switch from brick-and-mortar delivery of education to distance learning in response to coronavirus variant 2019 (COVID-19) in 2020, and the continuous improvement of instructors that utilizes the expertise of organizational members

(Rikkerink et al., 2015). Explicit processes are involved in organizational learning, but "much of organizational learning, as a collective endeavor, can be adequately explained non-cognitively as the silent transmission and absorption of social practices by organizational members..." (Chia, 2017, p. 108). Therefore, the layer of structure is vital in ensuring that the non-deliberate and unconscious practices of organizational members are engineered towards effective results that support the organization in its mission (Rikkerink et al., 2015).

The budget at the disposal of a public education entity does not always allow for effective, yet resource-intensive solutions, and utilization of the transference of knowledge among staff members becomes a key competency that can be leveraged for effective growth (Harcourt & Jones, 2016). Documentation and reflection are non-technical mechanisms that utilize this resource, and offer "…the possibility to digress from a traditional position of transmission of knowledge to one that proposes a co-construction of knowledge" (p. 82). Both implicit and explicit learning can be effectively accomplished through processes and structures that promote transference of knowledge and learning between members of the organization and can "…support the educator's deeply collaborative construction of meaning and epistemology about teaching and professional practice" (p. 83). This same strategy can be applied to transference of knowledge and peer to peer organizational learning in any job category within a school district (Berta et al., 2015).

Education institutions all utilize technology to some extent, with differences determined by factors including availability, budget, philosophy, need, and expertise of organizational members. Professional development initiatives, assessment and accountability, storing and transferring knowledge, and creating distributed, virtual learning communities are all ways in which an education institution can utilize technology for organizational learning (Liu et al.,

2018). As written by Fahnert (2015), "How to disseminate output and measure impact is changing, and skills need to be developed accordingly" (p. 5). To that point, effective use of technology is advantageous in not only the delivery of organizational learning initiatives, but in the assessment of their efficacy.

Beyond a feature or tool to be used in organizational learning capacities, technology can be integrated into the very structures and processes, the composition, of organizational learning capabilities (Rikkerink et al., 2015). Integration addresses the often unconscious or implicit nature of organizational learning, and "without addressing the question of integration, we run the risk of propagating a highly fractioned view of organizational learning and knowledge management" (Argote et al., 2003, p. 572). It is also important to be conscious of the use of facilitation in leveraging technology for organizational learning functions (Berta et al., 2015). Though the effective use of technology often helps an organization to automate processes, "The value of facilitation as an organizational process that improves performance, and as a useful theoretical construct, lies in its potential to stimulate higher-order learning in organizations" (p. 10). It is through the interaction of expert facilitation and thoughtful deployment of technology that the most powerful results can be achieved for gains in organizational learning capabilities in education institutions (Argote et al., 2003).

Stream 2: Cognitive Engagement in Virtual Learning Experiences

The following research stream seeks to create a connection between the research and existing scholarly thought surrounding cognitive engagement in distributed, virtual learning communities. Scholarly thought in consideration in this stream includes: Garrison's Communities of Inquiry, Vygotsky's Social Constructivism Theory, Bruner's Constructivist Education Theory, Dewey's Pragmatist Education Theory, and Coates and Kuh's work on

student engagement. Scholarly research surrounding best practices for leveraging technology towards greater efficacy and cognitive engagement in virtual learning communities has also contributed to this stream.

Figure 4

A Graphic Representation of Scholarly Thought Informing Stream 2
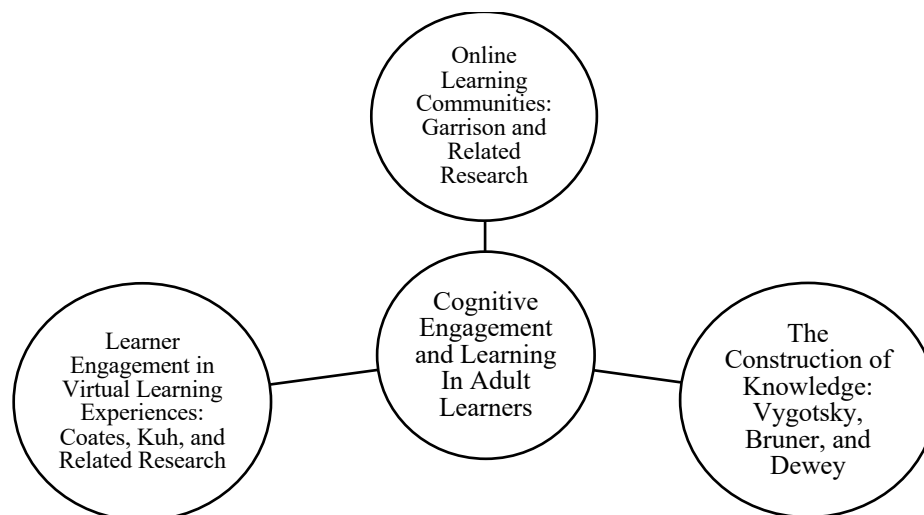
Note. Figure 4 created by author based on Stream 2 of this literature review.

Many prominent educational researchers have conducted studies in the area of cognitive engagement and learning in adult learners, including: Hagen and Park (2016), Hui (2016), and Zhang et al. (2021). In a mixed-methods study of 123 participants, Hui (2016) isolated variables in participant engagement in online professional learning. A Likert-scale questionnaire provided quantitative data in the study, whereas semi-structured interviews were utilized for qualitative data collection. The study found that virtual professional learning must "…be designed to capitalise on the relative strengths of online and human interactions to enhance the overall learning experience" (p. 12). Through analysis of participant responses, Hui (2016) concluded that learners value dialogue with others both in-person and virtually.

Zhang et al. (2021), took a different approach to studying cognitive engagement in a professional learning community. In that study, 1,834 primary and secondary teachers were assigned to 31 professional learning communities. After the duration of the learning experience, Zhang et al. (2021) used the discourse transcripts from each course as data for participation and engagement statistics. After analysis, it was concluded that it was important to "…remind learners of what is being discussed and encourage learners to think from different perspectives" (p. 69). In Zhang's study, re-reading of collegial posts before thoughtful contribution to the discussion was identified as an effective strategy for increasing richness of engagement in the sample communities.

In an in-depth study of scholarly literature relating to the cognitive science of andragogy, Hagen and Park (2016) employed an integrative literature approach to examine the connection between "…linking specific structural techniques to changes in cognitive brain structures…" (p. 186). They found that positive emotions play a significant role in the learning process, and that the examination of the affective dimensions of andragogy from a neurological perspective can be important evidence "…about the influence of emotion on adult learning processes and outcomes" (p. 186). Each of the three studies just described employed a unique approach to data collection and analysis. The underlying concepts informing scholarly understanding of cognitive engagement and learning in adult learners include scholarly contributions from the educational thought leaders in the figure below.

Online Learning Communities: Garrison and Related Research

Figure 5

A Graphic Representation of Online Learning Communities: Garrison and Related Research
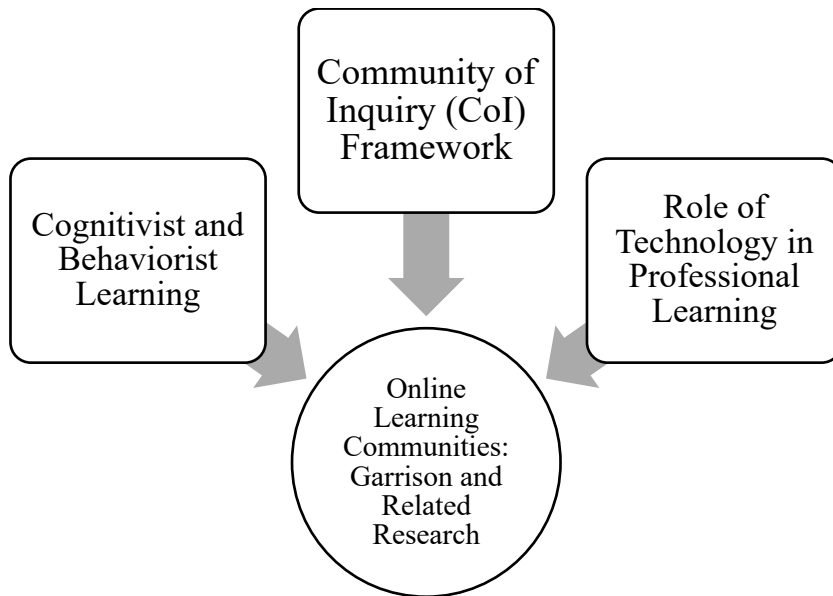
Note. Figure 5 created by author based on literature review.

Organizational learning theory has evolved over time; "The highly differentiated nature of organizational learning and knowledge management is a hallmark of the field and is evident in the multitude of disciplinary perspectives brought to bear on the topic" (Argote et al., 2003, p. 571). Two major categories of theoretical frameworks as they apply to distributed, virtual professional education experiences are: cognitivist, and behavioral. The cognitivist framework explores organizational learning abilities and practices as performed consciously, whereas the behaviorist framework examines the processes and unconscious practices of an organization for their role in organizational learning (Argote et al., 2003). As explained by Chia (2017), "…there is a relatively unacknowledged conceptual tension existing in the extant literature" (p. 108) between the behavioral and cognitivist understanding of learning.

The Community of Inquiry (CoI) framework is valuable model for conceptualizing effective structures in distributed, virtual professional education experiences (Akyol & Garrison, 2008). A distributed, virtual learning community within the CoI framework has three main elements: social presence, cognitive presence, and teaching presence. Each of these elements has methodologies that can be adapted for maximum benefit in both in-person and distributed, virtual professional education experiences. The ability for a distributed, virtual professional education experience to incorporate a strong element of social presence has been tremendously aided by the innovations in instantaneous and accessible communications technology (Akyol et al., 2009b). Whereas social presence in this medium formerly relied on asynchronous messaging, communication technology has now allowed for the use of synchronous videoconferencing for a greater element of social presence in the CoI.

Learning outcomes are important in the CoI framework, but the focus of study in this area places greater concentration on the nature of the educational transaction (Akyol et al., 2009a). A distributed, virtual professional education experience utilizing the CoI framework "includes understanding an issue or problem; searching for relevant information; connecting and integrating information; and actively confirming the understanding in a collaborative and reflective learning process" (p. 125). As technological capabilities and accessibility continue to advance, there is a growing emphasis on building learning communities that foster participation and learning in virtual environments among entities initiating professional education experiences (Akyol et al., 2009b). Under the CoI framework, learners are working together as knowledge builders, creating a personal and public search for understanding and meaning. This model is now entirely feasible in a distributed, virtual professional education experience due to recent technological advances.

The Construction of Knowledge: Vygotsky, Bruner, and Dewey

Figure 6

A Graphic Representation of the Construction of Knowledge: Vygotstky, Bruner, and Dewey
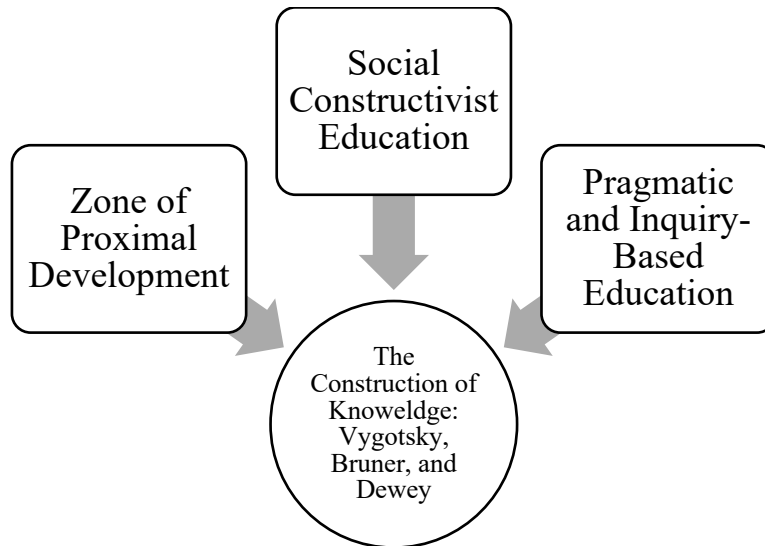
Note. Figure 6 created by author based on literature review.

The Zone of Proximal Development is a central idea in Vygotsky's theories on social constructivist learning (Allen, 2005), including the role that negotiation and the co-construction of knowledge-building play in the production of outcomes not possible for the individual learner (Gan & Zhu, 2007). According to Vygotsky (2011), the Zone of Proximal Development "…is the distance between (his) actual development, determined with the help of independently solved tasks, and the level of possible development, defined with the help of tasks solved…" (p. 204) when able to be assisted by or imitate more advanced modeling. When a learning community is comprised of learners who bring diverse understandings into a shared community to transmit information and solve problems, unique understandings, knowledge, and solutions can be generated (Allen, 2005). Recombination, communication, contrast, reference, and explanation are all forms of interaction within Vygotsky's social constructivist learning community that can lead to a collaborative construction of meaning (Gan & Zhu, 2007). The collective wisdom that

can emerge as the result of the debating, arguing, assessing, re-assessing, and judging different ideas by a collectively intelligent learning community is facilitated by capabilities in and the accessibility of modern technological tools that can facilitate such forms of interaction in a distributed, virtual professional education community.

Similar to the idea of the importance of the structure of a learning community in Garrison's CoI framework, Vygotsky's work on social constructivist education informs the course designer of the importance of fostering connection and engagement in a learning community before focus on inquiry or problem-solving (Whiteside, 2015). This focus, though often underemphasized in the implementation of professional education experiences, encourages learners to connect and engage with each other, foster relationships, and ultimately create the social foundation on which an effective learning community will be built.

Vygotsky's social constructivism research is a valuable background for informing the creation of effective structures, processes, and methods of implementation for learning communities in professional education experiences. The individual learner, capable as they may be, will not be able to produce the insights that are possible through a thoughtfully constructed and facilitated learning community of engaged professionals who possess diverse understandings (Gan & Zhu, 2007).

One of the foundational tenets of Bruner's theories on the constructivist nature of education is that knowledge creation is not a passive process, but rather an exercise in which the learning community must be actively engaged (Ross-Norris, 2017). Through "selection and transformation of information, decision-making, the generating of a hypotheses, and drawing meaning from information from experiences" (p. 10), a constructivist learning community can create new knowledge and understandings. Bruner's work acknowledges two distinct modes, the

logico-scientific and the narrative, in the construction of reality and ordering of experience (Rutten & Soetaert, 2013). Both modes have different operating principles and are complementary. For example, the logico-scientific mode constructs reality by applying procedures for establishing empirical proof, whereas context and situation inform the construction of reality in the narrative mode (Rutten & Soetaert, 2013).

Both modes of constructing reality, shared understanding, and interpretations of experience are valuable in a virtual, distributed learning community. The application of each can lead to thoughtful analysis, engaging narrative, logical proof, and context-situated understandings (Rutten & Soetaert, 2013). Interactions with the course content, the facilitator, and with peer members of the learning community are all important in fostering an engaging and effective collaborative learning community (Stewart et al., 2009). Following Bruner's position that all learning relies on active mental construction, each learner in the community has valuable and unique knowledge derived from their experience, which, when used in effective collaboration within a constructivist learning community, leads to the construction of knowledge and understandings that are only possible from that particular community of learners (Rutten & Soetart, 2013). Stewart et al. (2009) explains that Bruner's research advocates for the construction of distributed, virtual professional education experiences with student-centered approaches that utilize both logico-scientific and narrative constructions of knowledge and understandings (Stewart et al., 2009).

According to Bannen (2018), the work of Dewey advocates for an increased focus on pragmatic and inquiry-based education, where the learner has an active role in the creation and selection of the problem. The power of inquiry forms a foundation for the construction of a learning community informed by the work of Dewey, emancipating the learner to play an active

role in their subject and method of inquiry (Kucey & Parsons, 2012). This, combined with the social and interactive context in which knowledge is embedded, permeate the methodology used to structure, facilitate, and direct a learning community enlightened by the theory and research of Dewey (Bannen, 2018). In this framework, learning is not only a process of discovery and construction of knowledge and understandings, but a reflective process in which the inquirer and learning community question the conditions of the problem itself. Following the research of Dewey, students can both accomplish more and develop understandings that are deeper and longer lasting when they are in control of their learning (Kucey & Parsons, 2012).

Dewey's findings on effective education contradict the industrial education model used throughout many educational experiences in the 20th century (Williams, 2017). Through pragmatic inquiry, learners can become critical thinkers and positive, significant contributors to their fields rather than passive recipients and conductors of knowledge. According to Dewey, "schools and classrooms should be representative of real-life situations…" (Williams, 2017, p. 92), and this same philosophy can be translated to distributed, professional education experiences. With the access to virtually all human knowledge ever created through thoughtful navigation of internet resources, the learner is more empowered now than ever to direct their own learning and path of inquiry. As applied to a distributed, virtual learning community, the work of Dewey reminds educational experience designers, facilitators, and participants not to be strictly bound by a curriculum, but rather to provide student choice and variety in content and process (Kucey & Parsons, 2012).

Together, the research of Garrison, Vygotsky, Bruner, and Dewey form a theoretical foundation for cognitive engagement and learning in adult learners, principles for the effective construction and facilitation of a learning community, and an imperative for thoughtful and

reflective assessment of the creation of knowledge and understandings. With the increasing capabilities and accessibility of powerful communication technology tools, course designers, facilitators, and participants are able to implement the powerful frameworks for Garrison, Vygotsky, Bruner, and Dewey with more and more fidelity. In the study of effective practices for distributed, virtual professional education experiences, a focus on the social nature of cognition and meaning, the situational context of learning, and the shared construction of knowledge and understanding is invaluable as a background for the thoughtful conception of experience design, structure, implementation, and assessment (Imel, 2001).

Stream 3: Construction and Facilitation of Distributed Virtual Learning Experiences

The following stream reviews literature and scholarly research on the subject of construction and facilitation of distributed, virtual learning experiences. In this stream, the work of Coates (2013), Kuh (2008), Guskey (2000), Azorín (2020), Gaspar (2020), and others is considered to review existing scholarly thought on the construction and facilitation of distributed virtual learning experiences. As written by Carpenter and Munshower (2020), "If teachers are going to move toward developing 21st century skills, they must first be immersed in developing their own skills" (p. 299).

Figure 7

The Construction and Facilitation of Distributed Virtual Professional Learning Experiences
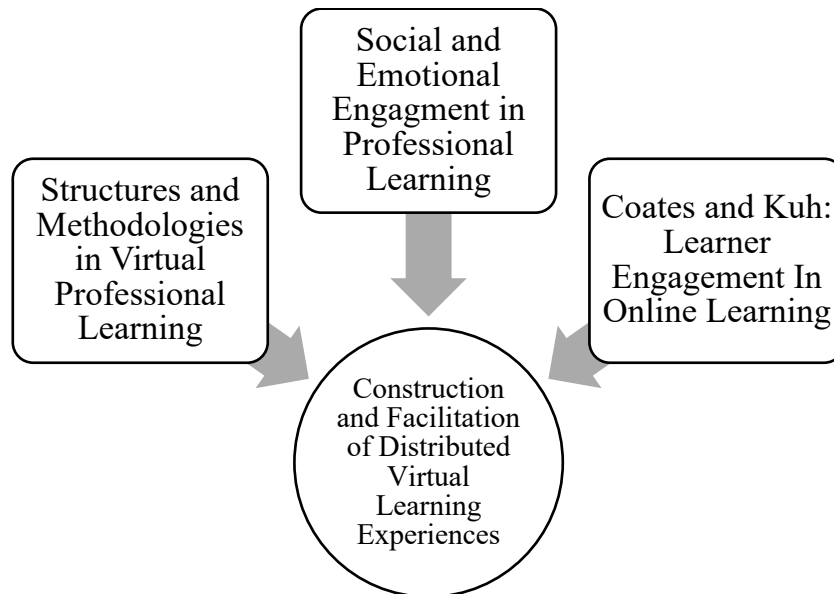
Note. Figure 7 created by author based on literature review.

Much study and research into effective pedagogy, structure, and practices for distributed, virtual learning has been, and continues to be, proposed, and executed. Online education has been endorsed by many as valuable tool in the democratization of education across geographic, socioeconomic, linguistic, and other barriers that formerly excluded many from participation in beneficial learning experiences (Yamagata-Lynch, 2014). The flexibility offered by virtual learning, asynchronous learning, and blended learning formats also allows participants to access experiences that may previously have been inaccessible due to conflicts with personal and professional scheduling. Though access may be greatly improved through availability of technology tools for distributed, virtual professional education experiences, the structure, design, and facilitation of the experience is still a critical component in the success of accomplishing

learning objectives, engaging learners, and fostering an effective learning community (Yamagata-Lynch, 2014).

Among designers and facilitators of professional education experiences, the work of Hamish Coates and George Kuh has helped to provide a theoretical framework for the foundations of student engagement in virtual learning. According to Zhao and Kuhn (2004), there is "…growing recognition that student engagement in educationally purposeful activities inside and outside of the classroom is a precursor to high levels of student learning and personal development as well as an indicator of educational effectiveness" (p. 115). Considerable time and effort dedicated to purposeful tasks, as well as thoughtful composition and size in a course after consideration of instructional objectives are both factors identified by Kuh (2008) as hallmarks of effective online learning. Coates (2006) goes on to detail the effect of active student contribution to learning as a determinant for high-quality learning. Both Coates and Kuh have served as thought leaders in the domain of student engagement in online learning and the effective use of a facilitator for moderating processes and outcomes (Coates, 2013).

Dhilla (2016) conducted a qualitative inquiry related to online pedagogy. The study used a constructivist design to explore the challenges faced by facilitators of online instruction. Through an analysis of data collected from semi-structured interviews, Dhilla found that "…teaching online has a profound impact on instructors and directly influences their pedagogical practices, academic identity, and interactions with students" (p. 156). In another research study within this stream, Ernest et al. (2013) sought feedback from teachers about virtual collaborative learning experiences in which they had participated. That study employed a novel training program created for the purpose of the study and used as the subject of participant questioning. Similarly, Gómez-Rey et al. (2017) collected data through an online questionnaire with the aim

of providing guidance to enhance the quality of online learning experiences. In a recommendation for further study, the researchers wrote about "…the need to continue to explore…" (p. 242), and the importance of the pedagogical role of the instructor as a determinant of student outcomes in an online education experience.

Terkinarslan (2003) noted, "Distance education and its new form of distributed learning have been used in many countries to provide education to people who need training" (p. 208). In an exploration of the current state of technological resources in ongoing education, vanOstveen et al. (2019) used a case study approach with 34 pre-service teachers. In their findings, they wrote, "…the actual participation of the learner in the learning community is what drives the learning process" (p. 1895). Gaspar (2021) also employed a case study design, using 54 participants from a middle school and conducting an analysis of data collected from a 26-item Likert survey. Gaspar highlighted "…the influence of school culture on teacher perceptions of professional learning" (p. 43) and the importance of involving learners in shared decision making and offering learners the opportunity to lead activities.

Guskey (2000) is one of the foremost thought leaders on the subject of professional learning in education. Guskey wrote, "Training is the most efficient and cost-effective professional development model for sharing ideas and information with large groups of educators" (p. 23). When detailing the advantages and disadvantages of the medium, Guskey acknowledged the lack of personal learning opportunities available in the large-scale training model. In a review of research methodologies for the evaluation of successful professional learning, Guskey recommended interviews, writing, "The principal advantage of the interview format is that it allows the interviewer greater control of the information gathered. If the participants' responses are brief or incomplete, for example, the interviewer can ask follow-up

questions…" (p. 132). Nixon (2016) utilized interviews in a qualitative phenomenological study of the role of higher education online learning administrators. In that study, "Participants were asked to share some of their first experiences when they became online learning administrators" (p. 76). Guskey's (2000) guidance on evaluating professional development, along with Nixon's (2016) example of a phenomenological inquiry were considered when crafting the research design of this study.

Before a professional education experience can be effective in accomplishing objectives and creating deep, lasting construction of understandings and knowledge, the importance of engaging learners must be considered (Khan, 2003). According to Khan (2003), "pedagogical, technological, interface design, online support, management, resource support, ethical, and institutional" (p. 3) are all dimensions that factor into the creation of a meaningful learning community. Through a systematic evaluation and understanding of these factors in the design, implementation, facilitation, and assessment of distributed, virtual professional education experiences, participants will be prepared to collaborate effectively as members of the learning community and have a greater chance of accomplishing the learning objectives of the course (Liu et al., 2009).

According to Khan (2003), facilitation is an important component of an effective and engaging virtual learning experience by giving mentors the ability to field questions, direct discussion, suggest resources, and guide learners as they engage in the construction of knowledge and understandings. Often, "…virtual organizations are characterized by a lack of shared physical space and face-to-face social interaction, a continual need for work-related learning, and work-related collaboration" (Parchoma, 2005, p. 464). The maintenance of a community of inquiry over time requires focused, thoughtful, engaged and attentive teaching

presence (Garrison, 2010). In the absence of effective facilitation, guidance, and direction, learning communities are less effective in accomplishing the learning objectives of the experience and continuing to drive purposeful inquiry and meaningful collaboration.

According to Zemblyas (2008), emotion and social engagement are important factors in creating a sense of purpose that shapes the context of adult learning. Factors that promote social engagement in the learning community, such as synchronous videoconferencing, are crucial in forming a basis for the affective dimensions of a distributed, virtual learning community. Constructed knowledge and understandings developed throughout the educational experience will integrate into the existing knowledge and understandings of learners who are socially, emotionally, and intellectually engaged in the experience (Deschaine & Whale, 2017). When students are engaged, they are generally more actively involved with the content and coursework. Educational innovation without attention to the affective dimensions of the student experience is missing a fundamental influence on cognitive engagement and meaningful learning (Cleveland-Innes & Campbell, 2012).

The size of the learning community in consideration of the structure and objectives of the experience is also a meaningful factor in the effectiveness of distributed, virtual professional learning (Clark & Strudler, 2015). Considerations of optimal group-size for various tasks, such as synchronous discussion or collaborative research, are important for shaping an effective virtual education experience. The ability of a facilitator to effectively advise and mentor group tasks is also a factor to consider when designing group size for various activities throughout a virtual learning experience (Owen, 2014). Considerations of group size, effective facilitation, affective engagement strategies, and other factors in experience, design, and implementation can have a measurable effect on outcomes in distributed, virtual learning.

Technological tools, when used most effectively, create the possibility for utilization of methods and strategies that were previously impossible or impractical (Fletcher et al., 2007). Though there are theories about the direction of innovation in communications technology, no one can know the future. That uncertainty creates a mandate for consistent re-evaluation of structures, strategies, and methods that can be employed for effective and innovative distributed, virtual professional development experiences in the future. Though this is a dynamic field of study, there are presently clear possibilities for structure, design, and methods in distributed, virtual professional education experiences that would have previously been impossible or impractical in an in-person delivery model.

A growing number of adults can participate in professional learning regardless of their location or scheduling conflicts (Kim, 2011), creating more equitable access to these beneficial experiences. Synchronous communication, video-conferencing, and distributed, collaborative learning communities also allow an increasing number of adults to develop a strong professional network in their field. In an organization where there may be only one person in a particular position or area of expertise in a geographic location, professional learning experiences can now utilize communication technology to create synchronous professional learning communities that mirror the in-person community that may be available to colleagues (McConnell et al., 2013).

Blended learning and flipped learning, methods that utilize a mix of synchronous and asynchronous learning activities, have been facilitated by technological innovations (Liu et al., 2009). Additionally, an ancillary benefit of the use of such technologies in professional education is the growth of capacities for using new and unfamiliar technologies (Deschaine & Whale, 2017). Through access to internet resources and platforms to collaborate effectively, distributed, professional learning communities can utilize a plethora of resources to support

meaningful, targeted, and self-directed inquiry (Fletcher et al., 2007). The multitude of benefits offered by innovations in technology has created, and continues to create, the possibility for more effective and democratized distributed, virtual professional education experiences for both the organization and participant (Owen, 2014).

This stream has reviewed literature related to cognitive engagement and learning in adult learners. A study of the current state of scholarly thought provides a context for this research study, as well as guidance toward the identification of important variables for perceptions of cognitive engagement in distributed, virtual professional learning experiences.

Summary

This literature review appraises various scholarly writing and research on the subjects of organizational learning in education institutions, cognitive engagement and learning in adult learners, and the construction and facilitation of distributed, virtual learning experiences. Throughout the review, there is a focus on strategies for leveraging technology towards more effective and efficient structures and processes in professional education experiences, with the intention of applying findings to the context of education institutions. In the first section of the review, articles and studies about organizational learning in education institutions serve to authenticate generalizable practices that can then be applied to specific organizations. Following this, there is an examination of important and relevant research on cognitive engagement and learning in adult learners, and then of the construction and facilitation of distributed, virtual learning experiences. For individuals and organizations existing in an increasingly connected, complex, and globalized external environment, such as those working in education institutions, learning is a key element of building the capacity to adapt and thrive over time (Liao et al., 2017). Chapter 3 will present the research methodology utilized in this study.

Chapter 3: Research Methodology

The purpose of this study is to explore the lived experiences and perceptions of elementary teachers about cognitive engagement in distributed, virtual professional learning experiences. This research aligns to prominent instructional theory, including: Garrison's Communities of Inquiry, Vygotsky's Social Development Theory, Bruner's Constructivist Education Theory, and the work of Coates and Kuh on engagement in online learning. Beyond the translation of non-technical methods of education to a new medium, technological advances in communication technology unlock the capability to actualize new, more effective, and more efficient strategies and structures in distributed, virtual professional learning experiences (Garrison et al., 2010). Using a social constructivist epistemology, the researcher will rely on the participants' perceptions of the situation being studied (Creswell, 2019) by using the following research questions in a qualitative case study approach:

1. How do elementary school teachers report from lived experiences, the pedagogical factors that affect cognitive engagement of adult participants in distributed, virtual professional education experiences?

2. What do elementary school teachers report from their lived experiences about how they perceive that adult learners in a distributed, virtual professional learning experience conceptualize an effective professional learning experience?

The research design and rationale are presented in this chapter, followed by explanation of the study's target population, site, site access, research methods, description of instruments, and participant selection. The phenomenological research design and qualitative approach are connected with the social constructivist epistemology informing this study. Ethical

considerations and strategies are discussed and have been applied to data collection and analysis procedures in consideration of human research participants.

Research Design and Rationale

This study utilizes a phenomenological research design emerging from a social constructivist epistemology following the guidance of Moustakas (1994) and Creswell and Guetterman (2019). According to Moustakas (1994), "the empirical phenomenological approach involves a return to experience in order to obtain comprehensive descriptions that provide the basis for a reflective structural analysis that portrays the essences of the experience" (p. 13). Per that guidance, the researcher is seeking to understand the lived experiences of the study participants. Three elementary school sites will be used to collect the data, none of the participants in those sites would know the researcher as a supervisor in a different district department. The purpose of this element of the design is to remove possible bias based on the researcher's supervisory position in the organization and to utilize the method of typical sampling in an elementary group of teachers rather than constructing a narrow study that may only be applicable to one horizontal population in the elementary grade band (2019).

The perceptions of professional elementary school educators in distributed, virtual learning experiences have been collected and coded for analysis. As written by Moustakas (1994), "The human scientist determines the underlying structures of an experience by interpreting the originally given descriptions of the situation in which the experience occurs" (p. 13). The bounded nature of this phenomenological study concerns the time period of the study, school district partnership for access to the sample population, and type of professional learning experience being studied. Several individuals, separately and in a group, will form the participant sample of the study for the purpose of interpreting the perceptions of members of a distributed,

virtual professional learning experience. In designing this research, the study's questions, propositions, units of analysis, logical linkage between data and propositions, and criteria for interpreting findings have been considered for maximum instrumentality in answering the research questions (Yazan, 2015).

This phenomenological study consists of research intended to assess and explain the perceptions of professional participants in experiences of distributed, virtual professional learning in a field setting (Creswell & Guetterman, 2019). The first step in this process was the collection of qualitative data through interviews and a focus group with participants about their experiences in distributed, virtual professional learning. Yin (1992) described the investigation of a contemporary phenomenon in a real-life context when "…the boundaries between phenomenon and context are not clearly evident and in which multiple sources of evidence are used" (p. 124).

Qualitative data collection methods allow for the social construction of knowledge (Yin, 2003). Multiple perspectives increase the accuracy of collected qualitative data by including diverse understandings of reality to formulate knowledge. Following the social constructivist epistemology, knowledge, in this study, will be created through semi-structured interviews and a focus group (Capper, 2019). The contexts of relevance to this study include distributed, virtual professional learning experiences that involve a group of professionals in a single organization. It is anticipated that the findings of this study will serve as guidance for the creation, administration, and evaluation of future distributed, virtual professional learning experiences.

Population and Sample Description

The population of potential participants for this study is approximately 90 elementary school teachers working at one of three elementary school sites in a large, urban school district in

Pennsylvania. Educators in the sample participant group serve grades K-5 and range in experience, age, ethnicity, educational background, professional role, time in the organization, and familiarity with distributed, virtual professional education experiences. The intended sample group is 11 demographically representative teachers from the participating sites (Creswell & Guetterman, 2019).

Though experience with distributed, virtual learning communities varies among participants, all participants have had at least some experience in this medium as a result of changes in the method of organizational communication due to the COVID-19 shutdown of schools on March 16, 2020. From that date, learning, professional education, and organizational interactions in the study site remained virtual through the 2020-2021 school year and returned to in-person delivery in during the 2021-2022 school year. Professional learning experiences in the organization still largely utilized a distributed, virtual medium at the time of the interviews with participants in January 2023. A demographically representative sample of participants was sought for valid data that could be used to produce generalizable findings. A participant sample size of 11 is appropriate for a phenomenological study per the guidance of Moustakas (1994).

Following a social constructivist epistemology, a varied group of participants were chosen to participate in the study (Appendix A) as a demographically representative sample is important for diversity of perspectives in this phenomenological study (Capper, 2019). Participants volunteered for the study at the request of the researcher, and participation in the study was open to any teacher who has participated in distributed, virtual professional education experiences in the organization. Further discussion of the intended participants can be found in the data collection methods section of this chapter.

Site Description

The organization in which this phenomenological study is situated is a public school district in Pennsylvania employing approximately 1,200 staff members and serving approximately 17,000 students. Three elementary schools within the district, Elementary School 1, 2, and 3, are the settings of employment for the participants. The researcher does not work directly with any of the school sites used for participant selection and none of the participants are supervised directly or indirectly by the researcher. The organization serves students of all backgrounds and abilities within the municipality of its location and employs staff members in all manner of roles necessary for the operation of a public school district. Educational delivery to students and delivery of professional education experiences to staff was completely virtual from a mandated shutdown of in-person school operations on March 16th, 2020, through the reopening of schools to in-person students in April 2021. Therefore, all participants have participated in distributed, virtual professional education experiences through their employment in the school district.

At the time of interviews with participants, distributed, virtual professional learning experiences are utilized in this organization for a variety of functions, including: capacity building, training on new programs and processes, consultation services, curriculum evaluation, book studies, and professional learning communities. The focus of organizational members and groups includes operations, educational delivery, business management, human resources, facilities management, social services, safety and community relations, and infrastructure planning. The participants in the sample group are required to participate in such professional learning experiences as part of their professional responsibilities as elementary teachers. The learning experiences occur during the workday at various times and with varying objectives depending on organizational needs.

Site Access

  The researcher of this study is a school administrator in this school district and has access to the participants through professional relationships within the organization. The researcher has received approval to conduct research from the organizational internal review board. Participants were asked to volunteer their engagement in the study but have been informed of their right to opt-out at any time. Data have been deidentified to protect the confidentiality, identity and privacy of those involved.

Research Methods

  In formulating the qualitative design of this phenomenological study, the researcher conducted a thorough review of scholarly literature on the subject of study, a definition of the program in study, development of rationale for the study, and a development of potential logic models. After a reflection on the writings of Moustakas (1994), the researcher has concluded that semi-structured interviews and a focus group were the most appropriate research tools for data collection in this study.

Semi-structured Interviews and Focus Group

  The researcher conducted semi-structured interviews and one focus group with participants in distributed, virtual professional education experiences to determine participant perceptions of effective elements for producing cognitive engagement in experience design and facilitation. Within the sample population of 11 elementary teachers at a public school district in Pennsylvania, a group of participants representing a proportionate cross-section of the work-experience, demographic, and grade-level assignment composition of the organization were invited to participate in a semi-structured interviews or a focus group.

Instrument Description

Semi-structured, open-ended interview questions were used in virtual 1:1 interviews, lasting approximately 30-45 minutes, and assessing participant perceptions of factors related to cognitive engagement in distributed, virtual professional education experiences in which they have participated (Appendix B). One similar focus group has been conducted utilizing the instrument found in Appendix C. The researcher sought to clarify participant responses during the interview and only move on to the following question after the participant has exhausted their response. The research instrument (Appendix B or C) has been developed through study of effective qualitative data collection methods as described by Merriam and Tisdell (2016) and Saldaña (2021). Interviews were arranged in advance through district email and varied in duration depending on the length of response from each participant. Open-ended questions were informed by common themes in the review of scholarly literature found in Chapter 2 of this study.

Participant Selection

Teachers were invited to participate and purposefully identified in an effort to use a demographically representative sample of the population. Selection criteria included years of experience, gender identification, and grade level taught. The only inclusion requirement from the population is that the participants have previously participated in distributed, virtual professional education experiences. Permission from the site was obtained for the researcher to send email invitations to participate in the study. (Appendix A) They were sent by the researcher through district email to the population of approximately 90 elementary teachers across the 3 elementary school sites, with the researcher selecting 11 final members of the sample from the received participant consents (Appendix D). Participants were notified of their selection through

district email, as permitted by the participating school district. They were asked to consent verbally before participation in the study.

Identification and Invitation

Permission was granted from the participating school district for the researcher to email participants from the selected elementary school sites and invite them to participate. They were given the option to use an email address other than their organizational address for communication to avoid any perceived conflict of interest. During initial interviews, the researcher collected educational, demographic, and hierarchical data to ensure a proportionate cross-section of the organization is represented in the participant selection.

Data Collection

After verbally requesting participant consent, the researcher used Zoom Video and QuickTime Audio to record participant responses to each question. The researcher then used Zoom transcription to create a transcript of each semi-structured interview and of the focus group. Data were then extrapolated and coded according to data analysis methods detailed below in the data analysis section (Saldaña 2021). Data were collected as soon as participants verbally consented.

Data Collection and Procedures

Data Collection Process

After approval by the Drexel University IRB and the cooperating organization, the school district of which the researcher is an employee, data were collected in January 2023. After collection, the data were analyzed for findings, conclusions, and future recommendations.

Data Analysis and Procedures for Each Method

Data were analyzed following the guidance of Moustakas (1994), Saldaña (2021), and

Creswell and Guetterman (2019). Moustakas (1994) wrote, "The aim is to determine what an experience means for the persons who have had the experience and are able to provide a comprehensive description of it" (p. 13). The data analysis in this study considers that central purpose and begin with the advice of Creswell and Guetterman (2019) that "A preliminary exploratory analysis in qualitative research consists of exploring the data to obtain a general sense of the data, transmitting ideas in memo form, thinking about the organization of the data, and considering whether you need more data" (p. 243). Member-checking was utilized for triangulation, with the review of a subject matter expert serving to corroborate the validity of data collection and analysis.

Semi-Structured Interviews and Focus Groups

The researcher conducted individual interviews and one focus group of three participants from the sample. Whether a member of the sample took part in an interview or focus group was determined by the researcher to create the most demographically representative set of participant responses. All participants have completed the distributed, virtual professional education program that serves as part of an induction for new employees into ASD. The interviews and focus group were recorded and conducted through Zoom and additionally recorded using QuickTime Audio. The recordings were then fully transcribed using a Zoom transcription. Trustworthiness was established through transparency in the questions being asked, data storage on a password-protected, encrypted Apple MacBook Air M1 2020 computer, and deidentification of identifying participant information. Data will be stored on this device in the form of Zoom recordings and transcriptions for a period of three years. After three years, participant data related to this study will be permanently deleted. Appendix A, B, C, and D were shared with all participants prior to participation in the study. The principle of triangulation was

employed through collection of data by transcription of participant responses in both individual interviews and focus groups, and through a review of responses for clarity of meaning and intent following the guidance of Saldaña (2021).

After verbally requesting permission to record each interview, the researcher listened to the recordings twice, transcribed the data using Zoom transcription, coded the data, and identified themes throughout the various interviews (Creswell & Guetterman, 2019). After collecting data and reviewing participant responses to the semi-structured, open-ended interview questions used in the study, a themes matrix was be created to codify answers into usable data. Once the interviews were each transcribed for analysis, the researcher employed first and second cycle coding methods to analyze data for findings. For this data analysis, the researcher utilized *in vivo* coding, which "uses words or short phrases from the participant's own language in the data record as codes..." (p. 365) and descriptive coding, which "assigns labels to data to summarize in a word or short phrase - most often a noun - the basic topic of a passage of qualitative data" (p. 362). The appropriateness of descriptive coding has been determined after an exploration of the suitability of protocol coding for this study. In comparison, *in vivo* coding and descriptive coding will better suit the research goals.

Creswell and Guetterman (2019) wrote, "An essential process in qualitative research is recording data. This process involves recording information through research protocols, collecting data so that you can anticipate problems, and bringing sensitivity to ethical issues that may affect the quality of the data" (p. 225). Ultimately, the researcher chose descriptive and *in vivo* coding as a preferred method and employed other coding methods as appropriate for the study as the analysis unfolded. In the second cycle of coding for data analysis, the author categorized *in vivo* participant responses into descriptive broader second-cycle categories. As

written by Saldaña (2021), "In Vivo coding is appropriate for virtually all qualitative studies, but particularly for beginning qualitative researchers learning how to code data, and studies that prioritize and honor the participant's voice" (p. 138). The guidance of Saldaña (2021) was referenced frequently throughout the coding process.

Methodological Limitations

Methodological limitations of this study include the geographical proximity of participant selection and the fidelity of described perceptions of participants about lived experiences in distributed, virtual professional education experiences. However, findings may be transferable (Lincoln & Guba, 1985) to other school districts or other organizations as mentioned in Chapter 1 of this study. The sample size of the interviews for this study was 11 participants, which is a de-limitation in the scope of data being collected. Participants were self-selected after receiving an invitation to participate in the study, which also created a limitation on the objectivity of the study participants. The intention of the study is to identify highly-effective elements for producing cognitive engagement in the construction and facilitation of distributed, virtual professional learning experiences, so the necessity of depth in understanding participant perceptions creates a reciprocal scarcity of breadth for practicality of undertaking this study as an individual researcher.

Ethical Considerations

The researcher has earned a CITI qualification in both Responsible Research and Conduct and Conflict of Interest. Data will be stored on a password-protected, encrypted computer and destroyed after a period of three years from collection according to the Drexel IRB guidelines. Data have been deidentified to maintain confidentiality by using pseudonyms. Only

de-identified data have been shared at any point during this study and no original data will be shared with anyone beyond the researcher and the researcher's supervising professor.

The researcher requested approval for this study from the Drexel Institutional Review Board, and ensured that all elements of the study protected participants and the site (Creswell & Guetterman, 2019). This study was conducted with the utmost regard for privacy of participants. The study aims to benefit participants through the identification of elements that can be used to create more meaningful distributed, virtual professional education experiences in the future. Participants may opt out of the study at any time, and have only been asked to participate on a voluntary basis. Breaks were honored. Names and responses have been and will be kept confidential. Both the participants and the site have and will remain unharmed by the work of the researcher in this study. Only de-identified data will be shared with the organization in which participants are employed, and the researcher has referenced the ethical principles of the *Belmont Report* when considering any decisions in the study related to participants.

Summary

This chapter has discussed the research methodology that will be employed in this study, along with rationale, a description of the site and populations, explanations of research instruments, limitations, and ethical considerations. Information in this study is socially constructed and grounded in the perceptions of participants. Semi-structured interviews and focus groups will serve as data-collection tools for the study, and the privacy, dignity, and integrity of participants will be prioritized in accordance with the *Belmont Report.* Chapter 4 will discuss the findings and results of the study. Chapter 5 will offer conclusions, implications, and recommendations from findings.

Chapter 4: Findings, Results, and Interpretation

The purpose of this phenomenological study was to explore the lived experiences and perceptions of elementary teachers about cognitive engagement in distributed, virtual learning experiences in order to understand the pedagogical and structural strategies that influence effective learning experiences in such settings. Chapter 4 of this study includes findings, results, and interpretations related to data collected in participant interviews and a focus group. Through the identification of important strategies for the generation of cognitive engagement in effective distributed, virtual professional education experiences, Chapter 5 of this study includes recommendations for the design and implementation of such professional learning.

Data related to participant experiences were gained through semi-structured individual interviews and a guided focus group. Those data were then coded and analyzed according to the guidance of Saldaña (2021). The voices of participants used in this study offer data that, through coding, has illuminated patterns in data related to the problem of study. Two research questions have guided this study:

1. How do elementary school teachers report from lived experiences, the pedagogical factors that affect cognitive engagement of adult participants in distributed, virtual professional education experiences?

2. What do elementary school teachers report from their lived experiences about how they perceive that adult learners in a distributed, virtual professional learning experience conceptualize an effective professional learning experience?

Introduction of Study Participants

The researcher utilized the participating organization's email system to invite 11 elementary school teachers from three elementary school sites to participate. The reasearcher

confirmed that participants met the criteria for participation and consented to the study before collection of data. All participants work as elementary school teachers in the organization in which this study is situated. Table 1 provides participant information regarding pseudonym, site, years of experience, grade-level taught and the date of the interview or focus group.

Table 1

Participant Overview

Participant Pseudonym	Grade Level Taught	Years of Experience in Education	Site	Date and Interview or Focus Group
Josie	5th	16 years	1	01/02/2023 Interview
Matilda	3rd	1st year	2	01/02/2023 Interview
Owlette	2nd	32 years	1	01/03/2023 Interview
Katie	2nd	28 years	2	01/04/2023 Interview
Mickey	5th	18 years	1	01/05/2023 Interview
Lutlog	2nd	4 ½ years	2	01/11/2023 Interview
Tom	3rd	14 years	1	01/12/2023 Interview
Cooper	4th	5 years	2	01/12/2023 Interview
Rainbow	K	11 years	3	01/13/2023 Focus Group
Ant	1st	11 years	3	01/13/2023 Focus Group
Fone	1st	2 years	3	01/13/2023 Focus Group

Participants are all elementary school teachers who work for the district in which this study has been situated. All participants have participated in virtual, distributed professional learning experiences at their place of work. Participants vary in experience in the field, grade

level taught, and school site of employment. Data were obtained through 11 semi-structured interviews and one focus group of three participants. Audio was captured through Zoom and QuickTime. Audio was transcribed using Zoom transcription and coded according to the guidance of Saldaña (2021). From the data collected in this phenomenological study of the lived experiences of participating elementary school teachers, three major themes emgered: facilitator social presence, learning community, and applicability. The three major findings of this study are: (1) the social presence of the facilitator is important for engagement in a distributed, virtual professional learning experience, (2) the makeup of the community of learners is meaningful for cognitive engagement in a distributed, virtual professional learning experience, and (3) the manner in which the learning is contextualized and participants are able to apply learning is important for an effective distributed, virtual professional learning experience. Each major finding is composed of sub-findings, described below in the presentation of findings.

Findings

As noted, three major themes that emerged from the interviews and focus group are: facilitator social presence, learning community, and applicability. Figure 8 (below) depicts the principal themes and their sub-themes. Once the interviews were each transcribed for analysis, the researcher employed *in vivo* and descriptive coding methods to analyze data for findings (Saldaña, 2021). Themes of participant responses emerged as the coding process was completed, with many participants citing similar factors that affect cognitive engagement in distributed, virtual professional education experiences.

Figure 8

Findings: Themes and Subthemes

Social Presence of Facilitator:	Community of Learners:	Context and Application:
The social presence of the facilitator is important for cognitive engagement in a distributed, virtual professional learning experience.	The composition of and interactions with the community of learners is meaningful for cognitive engagement in a distributed, virtual professional learning experience.	The manner in which the learning is contextualized and participants are able to apply learning is important for an effective distributed, virtual professional learning experience.
Greeting and introduction from facilitator	Participant group size and composition	Presentation of content
Feedback from facilitator	Use of breakout rooms and grouping	Relevance and applicability
Communication technology considerations	Interactions with other participants	Preview and follow up to professional learning

Note. Figure 8 created by author after analysis of themes and subthemes.

Finding 1: The social presence of the facilitator is important for engagement in a distributed, virtual professional learning experience

The topic of the social presence of the facilitator emerged in conversations with participants. Study participants discussed the importance of various factors contributing to the social presence of the facilitator, including: (a) greeting and introduction from the facilitator, (b) feedback from the facilitator, and (c) communication technology considerations. Most participant responses indicated that social presence of the facilitator was an important factor for maintaining their cognitive engagement in learning throughout a professional education experience.

Greeting and Introduction from Facilitator

Many participants, though not all, expressed the importance of a greeting and

introduction from the facilitator as a meaningful aspect of developing connection with

participants and eliciting cognitive engagement in a virtual, distributed professional education

experience. For example, Cooper described elements of an effective greeting:

> Where do I teach? What do I like? What's your name? Just a brief introduction like that, it does make a difference. And in your engagement for myself it does. It makes a difference. I know that I'm more engaged if you start off a meeting with hey, what do you teach? What do you like? What's your name? I'm most likely to be engaged throughout the rest of the meeting. (Cooper)

Participants described professional learning experiences where facilitators did and did not open

with a greeting and introduction that helped participants feel connected to both the facilitator and

the content. Participants described this similarity between the way they approach connecting

with students and the way a facilitator may try to connect with them as adult learners in a

distributed, virtual professional education experience:

> But there's a lot of times that the really good ones will say something and they will make a connection much like we do with the students. You're trying to make a connection to them, and that usually sets it up a little bit better. (Katie)

Josie shared that it can often lead to disengagement when a facilitator does not try to form a

connection with participants:

> Let's say it's a live professional development, and there's no like greeting or check in or asking where you're from. It's a very kind of cold feeling and very not personal. I find that to be like almost immediately like, go check my email as well, instead of really being engaged with the content that they want you to learn. (Josie)

All participants but one spoke of the importance of a greeting and introduction from

the facilitator in fostering their cognitive engagement in the professional learning

experience. In participant descriptions, this could take various forms, such as in this quote

from Lutlog:

> When facilitators try to get to at least know people…I know it can be a lot, because there's multiple people on one Zoom at one time. And you're basically just talking to almost yourself, or whatever, whoever's on your screen in that moment. But I at least appreciate like them saying like, oh, let me get your name, and they address you when you're speaking to them and not just kind of like just talking at you. So, I usually like appreciate, like the facilitator, at least trying to get a rapport with us. (Lutlog)

Feedback from Facilitator

Feedback from the facilitator, such as interactions in which participants are explaining their approach to a problem within their own context, or presenting an interpretation of a case study or theory being learned in the professional learning session, was both important to participants and reportedly not experienced often in professional learning experiences. Among the forms of feedback mentioned by participants were affirmation, constructive dialogue, and discussion. Josie identified feedback and mentorship as the principal role of a facilitator in a professional learning experience:

> Essentially, that's what you know a professional development person should be is someone who's mentoring you to like the next level or giving you some knowledge. (Josie)

Feedback was reported as often missing or under-utilized by Matilda:

> I can't say I've been in any trainings where, like they've, I guess. like real feedback there, you know it's been kind of like … You know we've done feed back to the facility and a Google Survey, or something to do afterwards, or they'll have, you know, a a quick thing for us to do it later on. I don't think that I've ever had a facilitator actually tell me, like true constructive feedback about anything that's going on in the training. (Matilda)

Josie mentioned feedback as a mechanism for building rapport between the facilitator and the participants, noting the social benefit of connecting with the facilitator in encouraging vulnerable and genuine expression:

> Everybody loves positive feedback, and so that can be like really powerful I think it's important to get positive feedback, and like remain really positive with your like trainees, because I think once people start to get like yucky or mean like, or almost like condescending like you are a child in the in the professional

development…you're no longer willing to be vulnerable with like your thoughts and and the things that you share. (Josie)

Mickey conceptualized potential feedback in a distributed, virtual professional learning experience:

> Feedback would be a quick assessment. Snapshot gaining of knowledge whether it's a Google form or some sort of certificate of some sort that you participated, answering a question. I think that would be the best. I mean the most effective feedback for the immediate training. (Mickey)

As a theme, participants expressed the positive benefits of feedback and their lack of experience with genuine and timely feedback in distributed, virtual professional learning experiences at their place of work. This idea will be further explored in the in the discussion section of this chapter. Many participants also relayed the importance of feedback as a relationship-building tool between the facilitator and participants, as described by Lutlog:

> Then it makes you feel like, okay, at least they care about what we're talking about…the learning may be in that, you know, professional setting in that learning environment. I guess so, depending on what the topic is, and they're having an actual dialogue with the teachers … It makes it go smoother. I guess it makes it not so boring…Doesn't seem tedious. It doesn't seem like, oh, why are we here? You know. At least you feel like there's some type of dialogue there's learning going on. And yeah, I usually appreciate feedback. (Lutlog)

Communication Technology Considerations

Communication technology considerations, in this study, are meant to encompass both technical audio/video considerations and the use of technological tools in the delivery of the learning experience. Participants mentioned factors in this theme such as audio quality, video clarity, and the use of tools such as polls, educational applications, and others. On the subject of audio and video quality, Josie reported the following, "Just good like sound quality, not glitchy. Good internet. You know… it can be really distracting and upsetting if you can't hear" (Josie).

Many participants detailed their engagement in learning experiences through the intentional use of technological tools. The use of such tools was especially important to Tom, who stated:

> I think those interactive websites…I personally like them… I'm not going to remember the name of it…there was one where you have to like…Add your like idea bubble, and then everybody else's pops up, and it was kind of it's just like something else to break up the monotony of sitting there and hearing somebody talk and seeing slides and slides and slides. So, I think that, having those like different elements to like a Zoom or some online learning is definitely very important. (Tom)

On the same theme, Lutlog expressed the value of using technological tools for engagement in distributed, virtual professional learning experiences while communicating caution on using tools that may confuse participants:

> Those types of technologies were helpful. Because at least you can share links, you can do interactive stuff like that. But I mean again, if you're not technologically inclined, sometimes it could be difficult for people to utilize. I definitely think that if you know what you're doing and the facilitators able to use them, I say, use them if it makes the process go smoother…It can be challenging when it's a lot of people at one time. (Lutlog)

The social presence value of keeping cameras on in distributed, virtual professional learning experiences in participant places of work was expressed by Matilda:

> I think part of that is because not everybody has their screen…like their video on. So, they're just looking at a bunch of black boxes, and so they don't feel that there's that connection with anybody, so it's harder. (Matilda)

According to participant responses, communication technology considerations are an important factor for promoting engagement in a virtual medium. Josie made an explicit connection between the tools being used and the purpose of the learning experience, "In professional development settings, I think it has to be used like strategically and cautiously… as opposed to just like bells and whistles, and like wowing" (Josie).

Finding 2: The makeup of the community of learners is meaningful for cognitive engagement in a distributed, virtual professional learning experience

The community of learners with whom a participant is co-constructing knowledge in a distributed, virtual professional learning experience, along with their interactions with that learning community, emerged as a recurrent theme in participant responses. Salient sub-themes in participant responses included: (a) participant group size and composition, (b) use of breakout rooms and grouping, and (c) interactions with other participants. Considerations related to this theme encompass both factors in the construction of the learning experience, such as a participant size and composition, and pedagogical techniques used to foster meaningful interactions between participants.

Participant Group Size and Composition

In a distributed, virtual professional learning experience, potential group size is virtually unlimited. According to participant responses, this can be advantageous for reaching a large audience, but also disengaging if participants become disconnected from the learning experience and community. Katie stated, "…the smaller the groups the better, because that allows for those connections to happen…" (Katie). Participant group compostion emerged as an important theme in participant responses, including this lived experience from Lutlog:

> I usually find the difference when I'm talking to somebody who's like in the middle school level or in the high school level, because their experiences are totally different. Their knowledge of things might be different than mine. It can be kind of like… It's hard to have a conversation about what's related…because their experience is different from my experience. So, I might relate something to my elementary experience where they are going to talk about a high school kid or a subject that has nothing to do with me. It can be challenging. (Lutlog)

Optimal group size was mentioned by participants, with Mickey stating, "I think if I know there are 5 of us as opposed to 300 …then I would probably make more of an effort to pay attention" (Mickey). In the words of Josie, "I think when you are like more than 15, you're just kind of a number...I don't like that it really loses that personal touch" (Josie). Matilda

recommended a strategy for fostering connection despite a large group size or disparate

composition:

> I really like when the trainers tell you to put your name and your school, like to change your name to your name, your grade in your school. Then I can really quickly see, like who's talking, or is it an elementary person talking so that…I think I tune in a little bit more for the elementary people than the secondary, just because I know it's two different worlds in things that they're doing in their rooms. (Matilda)

To Mickey, diversity was described as an important component in participant composition:

> If you have a diverse and inclusive group, you are going to learn more from each other. If there are open minds, I think so. I mean, I think …I would say for me I would prefer a diverse group of different age groups, different grade levels, males, females, and even different backgrounds; urban, suburban, rural. I mean if you're talking about educators, I guess I'm thinking of that way…I don't teach emotional support. So even emotional support teachers, seeing their perspective, being able to see from their classes. (Mickey)

Use of Breakout Rooms and Grouping

Breakout rooms and small groups arose as a theme in participant responses relating to

their experience interacting with other members of the learning community. Breakout rooms

were reported to be used frequently as a strategy with larger groups in order to generate

opportunities for discussion, connection, and the co-construction of knowledge. Participant

responses indicate a frequent lack of participation or engagement among the learning community

in a breakout room that was not led by a session facilitator:

> I don't think the breakout rooms work well at all for what we've done. You're asking people to break out and go in and talk with people they've never met without a facilitator. If there was a facilitator in the breakout room, then I think it's a little bit different. But once that happens, you're sending adults to a breakout room, and just assuming that everyone's going to be able to do that. And normally what ends up happening is it is off topic. You know there's so many other things that people want to talk about. (Katie)

Participant responses indicated an appreciation for the potential of small groups in a

distributed, virtual professional learning experience, but a common lack of structure leading

to unproductive interactions in breakout rooms. Matilda suggested whole-group discussion

protocols as an alternative to an unproductive breakout room group:

> I think, like a whole group discussion versus the breakout rooms because what happens in the breakout rooms, I find is…you talk for a few minutes, and you know you get off track or whatever. But then you have to report back as a whole from the breakout room to the whole group, so I just think it would be nicer to have a whole group conversation, and whether that's doing the hand raise function or chatting that you want to say something, and then the person tells you, go ahead and speak…however that would be. I just think that whole group communication is better than doing the breakout and then reporting back to the to the whole group. (Matilda)

Accountability for what is being discussed in breakout rooms was mentioned by

participants as an important factor in participant engagement in a breakout room that is not

attended by a facilitator, with Josie questioning colleague motivation:

> I would enter like breakout rooms and be ready to discuss, and they don't. Sometimes people don't respond, or they don't want to talk about like the topic at hand or so I could feel like I don't know…I'm almost like it's a commitment to teaching like…do you want to get better? I don't know. I questioned like other people's motivation. (Josie)

This accountability was present in participant responses related to cameras being on and

participants maintaining engagement in the task:

> We have so many participants, like a lot of teachers, turn their cameras off, and we're doing other things. I know we're all guilty. We do other things instead of paying attention to it versus like…when we go into a breakout room, we know that we have to participate. So, when we have so many people in in a professional development like it's literally just the instructor talking at us. And I've noticed like that, even if people have their cameras on often, they're like…you can see them doing other things…most teachers don't even have their cameras on, unless we're doing like, you know, breakout rooms or small group things. (Rainbow)

Interactions with Other Participants

Participant responses indicated that interactions with other members of the learning

community in a distributed, virtual professional education experience are meaningful for

cognitive engagement in the learning. When discussing the co-construction of knowledge with other members of the learning community, Tom said the following:

> I think that's one of the most useful aspects of professional development, is like the ability to take what you learn and just bounce your ideas off of other teachers, I mean, that's how we, you know, become better teachers, right like. Oh, that person thought of something that I didn't think of, or oh, they implement it in that way, I didn't think to do that. Or you know what I mean, like that type of interaction. I think it's really helpful. I think a really effective experience is when I can envision, or I can like see myself being able to apply this. (Tom)

According to participant responses, group composition and direction from the facilitator are related to meaningful interaction with other members of the learning community. Josie said, "Even in like a really good workshop, I feel like you don't have the assurance that everyone is going to be like into it or really take it seriously" (Josie). Professional learning that connects colleagues who may not ordinarily interface can also serve as an added benefit to interactions with other participants of the learning community:

> Obviously, it's awkward because you're like…I don't know you, but we have to work together right now and we're probably never going to see each other other than this screen. But, it's nice, because then after a while, you have like the same shared experience. You know, you might talk about one thing that you're supposed to be doing together, and then you're like, yeah, that happens to me over here, too. And then you get to communicating with each other. You know teachers from other places which is kind of cool. (Lutlog)

According to participant responses, interactions with other members of the learning community who worked in a similar context to participants allowed for greater perceived relevance of learning. Participants reported being able to visualize how they would translate the learning experience to their professional practice through understanding the experience of another participant:

> They can share what they're doing, and I would be more engaged, because then I could take ideas from another fourth-grade teacher… they're having success with this. But if I'm hearing a first-grade teacher talk about what they're doing, I can't relate to

that…because I'm going to want to know, how can I apply what they're saying to my classroom? (Cooper)

Finding 3: The manner in which the learning is contextualized and participants are able to apply learning is important for an effective distributed, virtual professional learning experience

Participant responses consistently indicated that relevance to personal context and applicability of learning was a crucial factor in cognitive engagement in distributed, virtual professional education experiences. Presentation of learning experiences in a manner that contextualizes concepts for participant context, as well continuity outside of the time period of the synchronous learning experience emerged as cardinal themes in participant responses. Describing conditions for cognitive engagement in this medium, Owlette said, "Well, I think first of all, it would be something I'd be interested in and and something that would be relevant to what I actually am doing with kids at this age" (Owlette).

Participants described the importance of pedagogical strategies to chunk content into comprehensible parts and mentioned the practical considerations of screen breaks for adult learners.

> When I'm on a training from 8 to 3, even if it's like a 5 min break in between, it's overload. It's like all of a sudden, like the wires become like, you know what I mean, like you start to almost like zone out, because your brain can't even handle that much information like even if it was like a half day, and then a half day on another day that would be like smaller pieces of information. You know less amount of time, even if it's the same time total, less amount of time, like per session. (Tom)

According to participant experiences, relevance and presentation work in tandem to foster high cognitive engagement a distributed, virtual professional learning experience.

Presentation of Content

Instructor presentation of the content was reportedly varied in the lived experiences of

participants. Rainbow mentioned, "Someone sitting and talking on Zoom in a mono tone and

sharing their screen…that's not what I want to do for like a 4-hour course, and then have a half

an hour break" (Rainbow). Ant mentioned a similar dissatisfaction in her lived experiences with

common presentation methods in distributed, virtual professional learning experiences:

> If a principal or an admin or someone came into the classroom and saw us just sitting and just watching you all day long and listening to you all day long…you don't have any type of work you to do or activity to do it, or you're not answering...you're just sitting silently for the entire duration of the day. That's essentially what all of our PDs are. We're not given activities to do. We're not given time to interact with one another. There's nothing hands on. It's literally just direct instruction the entire time. (Ant)

Though some participants reported disengaging methods of presenting content during learning

experiences, others described positive experiences with the presentation of content. Katie

highlighted opportunities for student expression during a distributed, virtual professional

education experience:

> If you have multiple ways that you can express…you can put it in the chat. You can do the polls. You can just raise your hand. You can just raise your hand if you have a question… some of the ones have used the sticky boards, the sticky note boards. So, all of those things work really well in terms of trying to get more of the engagement. (Katie)

> Fone found the experience of following along with handouts helpful for encouraging

cognitive engagement in a distributed, virtual professional education experience:

> I feel like that was useful because she's giving us teaching materials and then doing it with us. Then we know what to do. It's like we all got like it was like some kind of syllable sort and then we were then able to like, learn how to use it in the classrooms. Then that helps us be able to implement it, we all had the resource which is like, actually usable. (Fone)

Responses indicated that there is value in the facilitator helping participants to make an explicit

connection between learning and application in their particular context. They described varying

lived experiences related to the presentation of content. Many participants reported importance attached to a narrative, story-telling mode of explanation so that they could learn vicariously through the experiences of others who work in a similar context:

> I would think like narrative would probably be the most powerful, because…we tend to be like meaning-making as human beings, and we want to hear stories. And I think that helps us to relate to things, especially if you know they're situations that are similar to what we experience. But I think it can also be very interesting to hear about the science behind it and to like, make those deep intellectual connections with what's occurring scientifically. But I would say, like for the most part professionally, like for professional development, that narrative could be would probably be for me the most powerful. (Josie)

Matilda echoed the sentiment that both forms of presentation were important, but that a narrative mode of presentation was powerful in connecting the learning to the potential applicability in the context of the participant:

> For me, storytelling and sharing is much more meaningful, because to me that means it's been practiced, and it's something that works…you need to know the science behind things, but I like to hear those firsthand examples of how things have actually worked in a classroom, because otherwise it is just a scientific thought. (Matilda)

Relevance and Applicability

Relevance and applicability to personal context were reported among the most powerful factors in promoting cognitive engagement in distributed, virtual professional education experiences. Rainbow suggested choice in the subject of learning in a distributed, virtual professional education experience:

> If you're interested in it, you're gonna be more engaged and you're gonna want to, you know, research more and learn more versus being told what you have to do. I mean, if I was told that I had to do a report on, you know, I don't know, some mathematical equation I would be like, this is ridiculous. I feel like if you are given choice in what you're doing, you're automatically gonna be more engaged because it's personal to you. (Rainbow)

Participants reported an interest in hearing how professional learnings could be applied in their context, given the actual challenges that come up over the course of learning experiences in their

classrooms. In an illustration of the occasional dissonance between some professional learning and the actual context of applicability, Fone said, "…it could be a person like having a sit down and like acting out how things would go in a classroom when a child throws a desk at you" (Fone).

The ability to immediately apply learnings to their own context in a manner that improved the teaching practices and was easy to integrate emerged as a theme in participant responses surrounding relevance and applicability. Tom described this:

> When can we actually do this? What is this? What are what are we taking away from it? What this is going to replace? So, it kind of comes down to like the real like application of like, usually what our professional development is in relation to, like the actual environment that we're in. The theories are good, the restorative practices are good, but it's like a lot of that small group discussion, in my opinion, should revolve around like…so when are we doing this, or how can we do this in our classroom? What does your school do? (Tom)

This idea resonated with many participants in describing the difficulty of integrating valuable learnings into their existing practices. Ant suggested role-play as an effective strategy for bridging the distance between theory and practice; "I think that it can be really powerful when you role-play" (Ant). Participants reported value in relevance to their specific grade level and school site, and that contexts relevant to another grade or school site may be too different to be easily applied to their personal context:

> They're vastly, vastly different. So, a lot of the things that they have us doing, I know they're probably pertinent in other areas like other schools in the district, but for us it just seems like kind of a waste of time because it's not the most relevant thing to us, you know, like right now…so I think that's kind of a big issue. We really feel like a lot of the things that we do are essentially kind of a a waste of time versus trainings that we could be doing and not getting any. (Rainbow)

Preview and Follow Up to Professional Learning

Participants reported various preferences for previews and follow-ups to distributed, virtual professional education experiences in their sites of employment. Along with this,

continuity of personnel that facilitate experiences and continuity of learning emerged as themes

in participant responses. For Cooper, a follow up contact for the facilitator was a major facet of

cognitive engagement in a distributed, virtual professional learning experience:

> Leaving their emails to be available to you…that helps out a lot. So then, I know, like for me, like I know, that I can always do something, especially if I have any questions, and they are available…I know that they will respond to whatever questions I have. But if they are just in the meeting to say it, just that's it, and like, and I don't have any contact point…I'm not going to think about what you talk about. But if I do have your communication, if I will ask questions, and I will reach out, because then I have that point of communication. (Cooper)

If possible, continuation of trainings with the same facilitator was described positively by

participants. According to Mickey:

> We would try to get that person to come back and continue their teaching…pick up where they left off saves a lot of time, saves a lot of energy. There is already that basis, that connection and you know they already know where they stopped, so that you can pick it up right away. I think it saves a lot of time trying to figure out where knowledge of the topic needs to be picked up. (Mickey)

> Participants expressed various opinions related to assignments that were suggested for

completion before and after the synchronous time of the distributed, virtual professional learning

experience. Lutlog described the importance of follow up:

> I think having a follow up could be helpful, because I feel like once you do a session…people kind of just probably throw it away afterwards. It's like it just goes, because then you just go back to your daily routines what you know and what you're doing at work and it's hard to retain that lesson of that virtual learning experience because you're like, okay, I got through that, I don't even remember what we talked about. So, if they like, gave us the feedback of like, maybe they gave us like slides afterwards, and like a takeaway or just kind of like a follow up with everybody just saying like, hey, here are a couple of points that we went over, try to utilize this in your own professional lives. I think if you continue to follow up with teachers, then they're more inclined to use it, whereas when you just kinda teach it and then walk away, it's like, okay. (Lutlog)

One consideration in participant perceptions of preview and follow up activities was the amount

of time those activities might take from the busy professional schedules of participants. Fone

suggested giving time for reading and preparation as part of the learning experience:

> I feel like sometimes like getting stuff before and after…here's like the 45 things you have to do for the week, here's like something else for you to read, and then and no one ends up doing it. So, I feel like if they give us the time before the training to do it like, oh here's like actual time to do it…giving us the time as teachers, it's always helpful. (Fone)

Summary of Findings

All participants in this study participated in either a one-on-one, semi-structured interview or a focus group with the researcher. Participants were mostly consistent with what they shared about cognitively engaging and disengaging factors in distributed, virtual professional learning experiences in their place of work. After analysis of participant responses, the following findings emerged from the data: (1) the social presence of the facilitator is important for engagement in a distributed, virtual professional learning experience, (2) the makeup of the community of learners is meaningful for cognitive engagement in a distributed, virtual professional learning experience, and (3) the manner in which the learning is contextualized and participants are able to apply learning is important for an effective distributed, virtual professional education experience. The following results will offer connections between findings and research presented in Chapters 1 and 2 of this study. Following the results and interpretations section of this study, responses to the research questions that guided this study will be offered in Chapter 5.

Results and Interpretations (Discussion)

The purpose of this phenomenological study was to explore the lived experiences and perceptions of elementary teachers about cognitive engagement in distributed, virtual learning experiences in order to understand the pedagogical and structural strategies that influence effective learning experiences in such settings. Through an examination of leading scholarly thought on the subject and of data gathered from participant responses and a focus group, three major themes emerged: (a) social presence of the facilitator, (b) the community of learners, and (c) context and application. The participating teachers volunteered for this study and were mostly

consistent in their identification of cognitively engaging and disengaging factors in distributed, virtual professional learning experiences in their place of work.

Result One: Connection with the Facilitator Increased Cognitive Engagement

Participants in this study shared responses related to the importance of positive meaningful interactions with the facilitator of a distributed, virtual professional education experience at their place of work. Mickey discussed the importance of "…presenters having that good social presence, having the presenter make their way around to each individual…" (Mickey). Participant responses indicated that connection with the facilitator was meaningful in increasing their level of cognitive engagement in the learning experience. Many participants specifically mentioned an introduction or check-in, such as Josie, "Let's say it's a live professional development, and there's like no greeting or asking where you're from…it's a very kind of cold feeling" (Josie).

This finding aligns with the research of Coates (2006) and Kuh (2008) relating to engagement in online learning experiences. Coates (2006), highlights "…educationally significant interactions that learners have with their study, peers, teachers, and institutions" (p. 1). Kuh (2008) cites feedback and mentorship as factors that are important for high-impact learning in an online community. Khan (2003) also identifies facilitation as an important component of an effective and engaging virtual learning experience. The theme of meaningful interactions and connection between participants and the facilitator in a distributed, virtual learning community is present in scholarly thought as well as evident in participant responses from this study.

Result Two: Meaningful Interactions with Other Peers in the Learning Community Were Cognitively Engaging

Meaningful interactions with other members of the learning community were cited by participants as an important component of generating cognitive engagement in a distributed, virtual professional learning experience. Cooper mentioned this as being important in contextualizing the applicability of learnings, saying, "…they're facing the same issues you're facing" (Cooper). Tom said that "…the ability to learn and just bounce your ideas off of other teachers…" is one of the most important aspects of a professional learning experience. As indicated by participant responses, an attentive and engaged learning community is an important element of an effective learning experience in a distributed, virtual medium.

This finding aligns with scholarly thought leadership on the subject, including the work of Gan and Zhu (2007), that explores the power of a community of learners who bring diverse understandings into a shared community. Vygotsky's concept of the Zone of Proximal Development and Garrison's Communities of Inquiry also align with participant responses related to the co-construction of knowledge as an engaging factor in distributed, virtual professional learning experiences. According to Aykol et al. (2009b), building learning communities that foster participation and learning in virtual environments is aided by innovations in communication technology. Similarly, in Vygotsky's conceptualization of a social constructivist learning community, participant interactions can lead to a collaborative construction of knowledge, understandings, and meaning.

Result Three: Relevance to Personal Context Is Very Important To Participants

In their conceptualization of an effective learning experience, most participants discussed the importance of relevance to their personal context. Rainbow expressed this, "You're all doing the same thing at the same time but, realistically, our schools are not all the same" (Rainbow). According to participant responses, preference for relevance extends to the grade level context of

the professional participant in a distributed, virtual professional learning experience. Owlette said, "…it would be something I'd be interested in and something that would be relevant to what I actually am doing with kids at this age" (Owlette). Participants reported the desire for applicability of learning to their professional practice, such as Tom, "I think a really effective experience is when I can envision myself being able to apply this" (Tom).

Participant responses in this theme align with the ideas of Dewey, as expressed Bannen (2018), relating to a pragmatic and inquiry-based approach to learning. Participant responses indicated a preference towards a pragmatic approach to professional learning through the desire for relevance and applicability. Similarly, Kucey and Parsons (2012) described how the construction of a learning community informed by the work of Dewey can emancipate learners to play an active role in their subject and method of inquiry. This choice on the subject of inquiry, according to Williams (2017), includes the idea that learning experiences should be representative of real-life situations.

Summary

This chapter has presented the findings from data gathered in participant interviews and a focus group about the lived experience of elementary school teachers participating in distributed, virtual professional education experiences at their places of work. Data from the 11 participants in the study were gathered through coding of participant responses from semi-structured interviews and a focus group. After analysis according to the work of Saldaña (2021), data gathered from participant responses and a focus group yielded three major themes: (a) social presence of the facilitator, (b) the community of learners, and (c) context and application of the learning.

Scholarly thought on the subject of cognitive engagement in distributed, virtual professional education experiences intersected with participant responses on many themes, as presented in the discussion section of this chapter. Participant responses on the subjects of the relevance of learning, the learning community, and interactions with the facilitator echoed research by thought leaders related to effective online learning communities, facilitation, and pragmatism in professional learning. Participants reported cognitively engaging and disengaging factors in distributed, virtual professional education experiences and their conceptualizations of an effective learning experience in this medium. This chapter has presented the participants, their responses, and the connection of this data to existing scholarly research on the subject. Chapter 5 of this study will present conclusions, implications, and recommendations, as well as responses to the research questions that guided this study and recommendations for further study.

Chapter 5: Conclusions, Implications, and Recommendations

The purpose of this phenomenological study has been to explore the lived experiences and perceptions of elementary school teachers about cognitive engagement in distributed, virtual professional education experiences in order to understand the pedagogical and structural strategies that influence effective education experiences in such settings. This research has sought to find key factors for increasing cognitive engagement in an effective distributed, virtual education experience. In order to identify those factors, the following research questions were used to guide inquiry:

1. How do elementary school teachers report from lived experiences, the pedagogical factors that affect cognitive engagement of adult participants in distributed, virtual professional education experiences?

2. What do elementary school teachers report from their lived experiences about how they perceive that adult learners in a distributed, virtual professional learning experience conceptualize an effective professional learning experience?

Volunteers were requested from a group of participants at three elementary school sites in the same school district in which the study was situated. Approval from both the site IRB and Drexel IRB was granted before research participants were contacted, and all participants consented to participation in the study. 11 total participants took part in the study. Participants were diverse in many factors, including: years of experience in the profession, professional context in which they work, and gender identity. Participants were able to opt-out at any time, or to request that their data be destroyed.
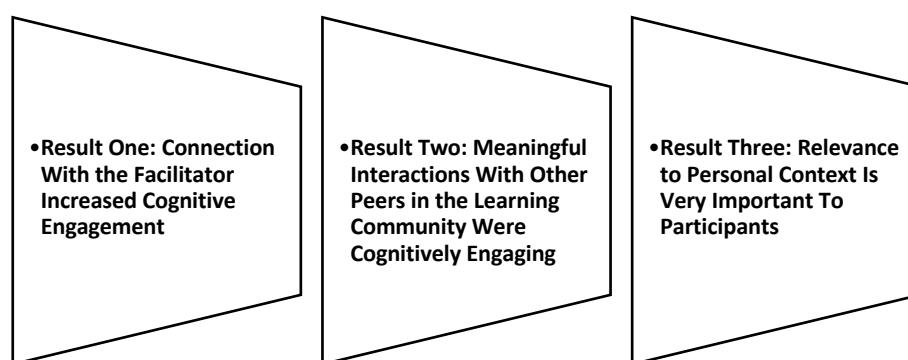
Data collected in participant responses were aligned with the work of various researchers discussed in Chapter 2 of this study. Upon completion of the data analysis, the following themes

emerged in participant responses: (a) social presence of the facilitator, (b) the community of learners, and (c) context and application of the learning. These responses were presented in Chapter 4 of this study, accompanied by a comparative analysis of participant responses and scholarly research on the subject of the study. The results indicated that interactions with the facilitator, composition of and interaction with the community of learners, and the relevance to participant context were all important factors in increasing cognitive engagement for participants, as detailed in Figure 9 below:

Figure 9

Results from Synthesis of Scholarly Thought and Participant Data

- Result One: Connection With the Facilitator Increased Cognitive Engagement
- Result Two: Meaningful Interactions With Other Peers in the Learning Community Were Cognitively Engaging
- Result Three: Relevance to Personal Context Is Very Important To Participants

Note. Figure 9 created by author based on results from study.

Participant responses were largely consistent with scholarly thought on the results listed above in Figure 9. There are implications for the construction and facilitation of distributed, virtual professional education experiences at the participants' place of work. Findings and results discussed in Chapter 4 yield the conclusions below regarding the research questions that have guided this study.

Conclusions

The following conclusions were reached from an examination of the findings and results presented and discussed in Chapter 4 of this study. They provide guidance on potential

applications of the findings and results for the construction and facilitation of an effective distributed, virtual professional education experience.

Research Question 1: How do elementary school teachers report from lived experiences, the pedagogical factors that affect cognitive engagement of adult participants in distributed, virtual professional education experiences?

When participants were asked about the pedagogical factors that affect engagement of adult learners in distributed, virtual professional education experiences, their responses highlighted three cardinal themes: (a) social presence of the facilitator, (b) the community of learners, and (c) context and application of the learning. This intersects with the scholarly research on the topic, as discussed in Chapter 2 of this study. Participants, in alignment with scholarly research, discussed the importance of meaningful interactions with facilitators during professional learning experiences in this medium, co-construction of knowledge with a learning community, and the importance of relevance to personal context.

When elementary teachers were asked about pedagogical factors that affect cognitive engagement in this medium, they discussed experiences in which they were able to connect with facilitators through building social connection, construct meaningful understandings with their community of learners, and apply learnings to their personal context. Teachers noted a preference for communities of learners that were situated in a similar context to their own, such as teachers of the same grade level or teachers working at the same building site. Participant data also showed a preference for professional learning experiences that were immediately applicable to the participants' context.

Overall, teachers favored a greeting and introduction by the facilitator at the beginning of an education experience. They reported wanting to connect with other members of the

community who could share relevant experiences. According to participant data, professional learning experiences were preferred to be relevant to the context of the participant and applicable for the participant in their professional context.

Research Question 2: What do elementary school teachers report from their lived experiences about how they perceive that adult learners in a distributed, virtual professional learning experience conceptualize an effective learning experience?

Participants were asked how they conceptualized an effective learning community. Themes appeared in participant responses relating to the facilitator, community, and relevance of a distributed, virtual professional education experience. Participants often reported relevance and applicability first in their conceptualization of an effective learning experience. Many participants conceptualized a learning experience in which they could immediately apply learnings in the context of their own professional practice.

Learning communities in which learners could have meaningful interactions were conceptualized by participants for an effective learning experience in this medium. Data showed a preference for learning communities comprised of participants who were situated in a context that shared a strong similarity to that of the participant. Teachers reported frustration when grouped with other participants with whom they did not share a context, such as teachers of a different grade or subject.

When conceiving of effective facilitation in a learning experience in this medium, participants discussed social presence of the facilitator as an important factor for an effective learning experience. Participant responses suggest that a strong greeting or introduction and an accessible approach to facilitation are elements of strong social presence for the facilitator of a distributed, virtual professional education experience. Elementary school teachers communicated

experiences in which this connection between the facilitator and participants was meaningful as part of their conceptualization of an effective learning experience in this medium.

Implications and Recommendations

The goal of this study was to identify factors that were effective in producing cognitive engagement among adult learners participating in distributed, virtual professional development experiences at their place of work. Through an examination of the scholarly literature on the subject and an analysis of data gathered from participants in this study, the following recommendations can be offered for encouraging cognitive engagement through the effective construction and facilitation of a distributed, virtual professional learning experience.

Practice

Considering the findings, results, interpretations, and conclusions of this study, the following recommendations are offered for application of study findings to the construction and facilitation of an effective distributed, virtual professional education experience: (a) include meaningful interactions between the facilitator and participants, (b) consider professional context of participants when constructing the learning community, and (c) engage participants in learning experiences that are relevant to their professional context.

When designing a professional learning experience, the recommendation from this study would be to group participants who share a similar professional context, such as grade level or building site. The recommendation for context and applicability in the design of a professional education experience is to engage participants in learning experiences that are relevant to their professional context and applicable to their professional practice. If a professional education experience is designed with those considerations, it will align with participant conceptualizations of an effective learning experience in this medium.

In the facilitation of an effective learning experience, it is recommended that the facilitator greets participants and tries to create a connection with participants through a strong social presence in this medium. Participants discussed a conceptualization of the facilitator as a mentor, and someone from whom they could learn applicable knowledge. It is also recommended that participants are engaged in learning experiences that foster meaningful interactions with other members of the learning community who are situated in a similar professional context as the participant. If a professional education experience is facilitated with those considerations, it will align with participant conceptualizations of an effective learning experience in this medium.

Future Research

Future research related to the research questions that this study was designed to address would be beneficial on the topics of: (a) participant choice in distributed, virtual professional education experiences, and (b) effective facilitation of the co-construction of knowledge among participants in distributed, virtual professional education experiences. Those two areas of inquiry could further understandings on the findings, interpretations, conclusions, and recommendations of this study.

Participant choice relates to the scholarly thought leadership of Dewey and the idea of pragmatist learning, which also appeared as an interesting application of the theme of relevance and applicability in participant response data. Participants showed a strong preference for relevant and applicable professional education experiences, and some suggested student choice as a recommendation for the design of an effective distributed, virtual professional education experience. A study of the topic of student choice in distributed, virtual professional education

experiences is recommended for study to further understand this aspect of the design of an effective professional education experience.

Participant response data showed meaningful interactions with other members of the learning community to be an important factor in encouraging cognitive engagement in distributed, virtual professional education experiences. In participant conceptualizations of an effective learning environment in this medium, they described the co-creation of shared knowledge and understandings with other members of the learning community. Further study into this subject would be beneficial for the recommendation of techniques for facilitation of such co-construction of knowledge. This relates to the scholarly thought of Vygotsky on the co-construction of knowledge in a learning community.

Summary

Chapter 5 began by discussing the purpose of the study, which was to explore the lived experiences and perceptions of elementary school teachers about cognitive engagement in distributed, virtual professional education experiences in order to understand the pedagogical and structural strategies that influence effective education experiences in such settings. This was examined through a review of scholarly research on the subject, as well an analysis of data collected from participant responses. This chapter has then presented responses to the research questions guiding this study.

Responses to the research question were followed by recommendations for application of study findings to professional practice. Future research has been suggested for a deeper understanding of meaningful factors in the design and facilitation of an effective distributed, virtual professional learning experience. Suggested areas of future inquiry include: (a) participant choice in distributed, virtual professional education experiences, and (b) effective facilitation of

the co-construction of knowledge among participants in distributed, virtual professional

education experiences.

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Appendix A: Invitation to Participate in a Study

November 1st, 2022

Dear [   ]

I am writing to invite you to participate in a study that I am conducting on distributed, virtual professional education experiences. The purpose of this study is to explore the most effective practices for producing cognitive engagement, and to understand lived experiences and perceptions in distributed, virtual professional learning experiences. This study is being conducted as part of the dissertation process for a doctoral program in education at Drexel University.

If you agree to participate, you will participate in a one-on-one interview lasting approximately 30 – 45 minutes in or a focus group lasting approximately 45 - 60 minutes during the weeks of November 1st, 2022 through December 31st, 2022. For purpose of data collection, I ask that I be permitted to record video and audio of the interview and take handwritten notes through the process. The recordings and interview transcripts will only be reviewed by the researcher and supervising professor for the purposes of identifying key themes, findings and results. Data will be deidentified and stored on a password-encrypted computer, anonymized, and destroyed after a period of three years. Participation in this study is completely voluntary, participants may opt out at any time, and all participants will remain completely anonymous and will be identified only by pseudonym.

If you are available to participate, I can be reached at (610 324 3505) or by email at (mccloskeyr@allentownsd.org). If you have questions, I am available to provide more information.

Thank you for your time.

Best regards,

Ryan McCloskey
Doctoral Student
Drexel University School Of Education
mccloskeyr@allentownsd.org
(610) 324 3505

Appendix B: Interview Protocol

***Semi-Structured Interview Protocol*: Perceptions of Cognitive Engagement In Distributed, Virtual Professional Learning Experiences**

<u>Time of Interview</u>: TBD
<u>Date</u>: December 20th, 2022 – January 15th, 2023
<u>Place</u>: Virtual
<u>Interviewer</u>: Ryan McCloskey
<u>Individual Interview Participants</u>: Participants will be invited to participate and purposefully identified in an effort to gather data from a demographically representative sample of the population. Selection criteria includes years of experience, gender identification, grade level taught, ethnic identification, racial identification, and age. Invitations will be sent through district email to a sample of 30 demographically representative teachers, with the researcher selecting 11 final members of the sample from the received participant consents. Participants will be notified of their selection through district email.

Research Questions

1. How do elementary school teachers report from lived experiences, the pedagogical factors that affect cognitive engagement of adult participants in distributed, virtual professional education experiences?

2. What do elementary school teachers report from their lived experiences about how they perceive that adult learners in a distributed, virtual professional learning experience conceptualize an effective professional learning experience?

Appendix C: Focus Group Protocol

***Focus Group Interview Protocol*: Perceptions of Cognitive Engagement In Distributed, Virtual Professional Learning Experiences**

Time of Interview: TBD
Date: December 20th, 2022 – January 15th, 2023
Place: Virtual
Interviewer: Ryan McCloskey
Focus Group Participants: Participants will be invited to participate and purposefully identified in an effort to gather data from a demographically representative sample of the population. Selection criteria includes years of experience, gender identification, grade level taught, ethnic identification, racial identification, and age. Invitations will be sent through district email to a sample of 30 demographically representative teachers, with the researcher selecting 11 final members of the sample from the received participant consents. Participants will be notified of their selection through district email.

Research Questions

1. How do elementary school teachers report from lived experiences, the pedagogical factors that affect cognitive engagement of adult participants in distributed, virtual professional education experiences?

2. What do elementary school teachers report from their lived experiences about how they perceive that adult learners in a distributed, virtual professional learning experience conceptualize an effective professional learning experience?

Appendix D: Amended Consent Form

Drexel University
Consent to Take Part In a Pilot Research Study
To be reviewed with the participant prior to commencing the interview or focus group.
Verbal consent is to be obtained.

1. **Title: Exploring Lived Experiences of Public Elementary School Teachers'**

    Perceptions of Cognitive Engagement In Distributed, Virtual Professional Learning

    Experiences In Their Place of Work: A Phenomenological Study

2. Researcher: Ryan McCloskey

3. Why you are being invited to take part in a research study?

Participants will be invited to participate and purposefully identified in an effort to gather data from a demographically representative sample of the population. Selection criteria includes years of experience, gender identification, grade level taught, ethnic identification, racial identification, and age. Invitations will be sent through district email to a sample of 30 demographically representative teachers, with the researcher selecting 11 final members of the sample from the received participant consents. Participants will be notified of their selection through district email, and will be asked to consent verbally before participating in the study. Creating recommendations for effective practices to produce cognitive engagement in distributed, virtual learning experiences is an expected result of this study.

4. What you should know about this study:

- Whether or not you take part is up to you.
- You can choose not to take part.
- If you decide to not be a part of this research no one will hold it against you.
- Feel free to ask all the questions you want before you decide.
- All data will be de-identified and stored on a password-protected computer.

5. How many people will be studied?

12 participants will participate in one-to-one interviews, and there will be one focus group of 3 participants.

6. What happens if I say yes, I want to be in this research?

If you agree to participate in this research, you will participate in either a 30 – 45-minute semi-structured interview or a 45 – 60-minute focus group. The interviews and focus group will be scheduled between November 1st, 2022 and December 31st, 2022. Interviews and the focus

group will be conducted virtually. Interviews and focus groups will be recorded using two devices and transcribed verbatim; and this data will be used for analysis in the study.

You may also be asked to share documents and artifacts that relate to the study. All artifacts and documents you provide will be photographed and the originals returned to you.

7. Is there any way being in this study could be bad for me?

There are no known risks to participating in this research.

8. Will being in this study help me in any way?
There are no benefits to you from your taking part in this research. Beyond the researcher's learning through an applied experience, there are no known benefits to others from your taking part in this research. Participants in this study will receive a $10 gift card to a local business.

Federal tax law requires to you to report this payment as income to the Internal Revenue Service if you are compensated more than $599.00 (in total) this year for participating in research. You may be asked to tell us your social security number or other identifying information (e.g., full name). If payments for this study are more than $599.00, we will report them to the Internal Revenue Service and send you a Form 1099-MISC. This information will not be associated with the information or data you provide for this research. It will be stored separately from your data, it will not be linked in any way, and your identifying information will be destroyed within 1 year of study completion.

9. What happens to the information collected?

Strong efforts will be made to limit access to your personal information. Your name and other identifying information are confidential, you will only be identified by a pseudonym. All information will be stored on a password-encrypted computer and destroyed after one year.

10. What else do I need to know?

This research study being conducted as part of the dissertation process for a doctoral degree in education at Drexel University.

11. How can I contact the Institutional Review Board at Drexel University?
The Drexel Institutional Review board can be contacted at HRPP@Drexel.edu and by phone at (267) 359-2471.