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Instructional Faculty Perspectives on Connectivist Practices in Professional Development Activities

Gary Wayne Hunter Looney
Walden University

Walden University

College of Education

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Gary Wayne Hunter Looney

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Dr. Amy White, Committee Member, Education Faculty
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Abstract

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MS, Full Sail University, 2011

BS, East Tennessee State University, 2008

Submitted in Partial Fulfillment

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Abstract

Collaboration among instructional faculty to improve technology use in their teaching is insufficiently studied. The research problem addresses this gap in the literature of faculty collaboration using information and communication technologies (ICT) via professional development courses. The purpose of this qualitative study was to elicit instructional faculty perspectives in a U.S. southeast regional community college about collaboration opportunities and ICT in professional development activities. This study utilized Siemens' connectivism as the conceptual framework. The three research questions focused on opportunities for collaboration within professional development activities; perceived effectiveness of these activities that incorporated ICT with and without human interaction; and self-reports of teaching shift after participation in the professional development activities. An exploratory case study design was used with data collected from: 14 individual faculty interviews, their electronic reflective journals, and documents on professional development activities. Participants were included in the study if they were full or part time and had participated in at least one technology related professional development activity. Themes found upon coding the data resulted in the key finding about how central collaboration was to a successful faculty professional development experience. This study may affect positive social change by providing educators, instructional designers, and researchers with a deeper understanding of the perspectives of faculty members on collaboration using ICT during professional development courses.

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Chapter 1: Introduction to the Study

To improve teaching and learning, instructional faculty members at community colleges participate in professional development activities, most through the use of information and communication technology (ICT). ICT is used in different formats, including blended, face-to-face, and online venues. Some of these technologies include email, professional development courses (inside learning management systems), and personal learning environments. Personal learning environments vary greatly and can consist of learning management systems or other structured online areas that provide the opportunity to manage or host learning spaces.

For faculty development using ICT, connectivism (the conceptual framework) is important because it includes collaboration, which is vital to effective practices for technology use in professional development (Siemens, 2004). Effective practices are those that apply principles to guide practices that yield a desired result (Patton, 2001). Although many researchers have described technology use in professional development (Blau, Blessley, Kunkle, Schirmer, & Regan, 2017; Carl & Strydom, 2017; Dean, Harden-Thew, & Thomas, 2017), this study is needed because limited research has been conducted on professional development for community college instructional faculty that reflects on effective practices in technology use that apply the principles of connectivism and collaboration from an instructional faculty perspective.

This introductory chapter describes the foundational elements of my study, which include the background, problem statement, purpose of the study, research questions, and the conceptual framework. The conceptual framework offers a brief introduction to

connectivism, centering on collaboration, which is vital for effective practices that use technology in professional development. In the nature of the study, I discuss my approach to investigating the effectiveness of technology-based faculty development and why the qualitative design I chose is the best way to answer the research question. This chapter also includes a brief description of the nature of the study, definition of terms, assumptions, scope and delimitations, limitations, and significance of the study.

Background

Recent studies of professional development activities suggest the potentially important role of collaboration, mentoring, and proper ICT use. These studies introduced below provided a basis for further study; each study added some aspect to how technology and other components of professional development could be used for instructional faculty members' development. In Chapter 2 there will be an in-depth review of these and other studies but a brief introduction will be provided here.

Mentoring is one form of collaboration used in professional development that has been studied. Mentoring can create an environment to help foster professional development (Ciampa, 2017) and be a tool that helps develop deeper knowledge about teaching (Eriksson, 2017). Some ICT have been used such as video recording to help mentoring programs (Lofthouse & Thomas, 2017). Mentoring, when used in professional development properly can help the learning and collaboration occur.

There are different areas where digital and analog collaborative professional development activities can take place. Social professional networks can support and empower individuals in their professional development (Seifert & Bar-Tal, 2017). Online

areas where knowledge can be shared can be used as an effective professional development tool (Robinson, Casey, & Citro, 2017). School partnerships are a means of professional development that can foster reflection and collaboration (Grau, Calcagni, Preiss, & Ortiz, 2017). There are many different ways that collaborative areas can be created for professional development, these were only a few, and more will be reviewed in Chapter 2.

Collaboration is a major component of professional development. Instructors do want opportunities to collaborate (Czerniawski, Guberman, & MacPhail, 2017). Some instructors are not completely ready for collaboration in professional development and may need training to properly collaborate (Glazier, Boyd, Bell Hughes, Able, & Mallous, 2017). When using collaboration in professional development it is important to have structured time for it (Byrd, 2017). Collaboration can be a successful form of professional development (Mottier Lopez & Pasquini, 2017).

Little research has been conducted on the use of connectivist principles in professional development for instructional faculty. The prior studies examined specific technologies and other components of professional development being used in professional development activities but did not examine multiple technologies from the instructional faculties' perspectives. This study is needed in order to explore how professional development for instructional faculty at one community college reflects effective practices in technology use based on the principles of connectivism for instructional faculty.

Problem Statement

Although specific technologies have been studied individually, few studies examine the perspectives of instructional faculty collaboration in the context of the implementation of ICT use in the professional development courses offered at their institution. While other studies show effective practices for specific technologies or collaboration (Blau et al., 2017; Carl & Strydom, 2017; Dean et al., 2017), none were found that have looked into both. Thus, the purpose of this study was to discover what instructional faculty members at a community college believe about the collaboration surrounding ICT used in professional development, as viewed through the lens of connectivism. The research problems listed below are contemporary, meaningful, and relevant to the field of educational technology. ICT is currently used in a wide variety of professional development formats, including online, face-to-face, and blended applications (see, e.g., Blau et al., 2017; Carl & Strydom, 2017; Dean et al., 2017).

Purpose of the Study

The purpose of this qualitative study was to describe the perspectives of instructional faculty at one community college about the use of collaboration opportunities and ICT in professional development activities, and their perceived effectiveness. The purpose was framed by the principles of connectivism. To accomplish this purpose, I interviewed instructional faculty about professional development activities. Based on a reflective journal they kept, I read how they felt about the use of various technologies and about collaboration opportunities in their professional development activities. I described what documents were collected from the community

college and what they reveal about professional development activities related to effective practices in technology use designed for these instructional faculty.

Research Questions

Three research questions guided this study:

RQ1: What are the opportunities for collaboration within professional development activities for instructional faculty members at a community college that allow for a diversity of opinions?

RQ2: What are the perspectives of instructional faculty members at a community college about the effectiveness of professional development activities that incorporate ICT with and without human interaction?

RQ3: How do instructional faculty members perceive their teaching shifted after participation in the professional development activities that allow for connections between ideas or concepts?

Conceptual Framework

The conceptual framework for this study was based on the theory of connectivism (Siemens, 2004). Connectivism was appropriate because it aligns closely with the concept of collaboration, which is vital in describing effective practices for technology use in professional development. In this theory, Siemens (2004) emphasized the role of social and cultural contexts in learning. Siemens' theory is also predicated on the role of collaboration to improve learning. According to Siemens (2004), the eight principles of connectivism are as follows:

- Diversity of opinion helps the process of learning and knowledge acquisition.

- Learning is possible without human interaction.
- The ability to learn more is more important than what is currently known.
- Maintaining and nurturing connections facilitates continual learning.
- Finding connections between ideas or concepts is an important skill.
- Accurate and up-to-date knowledge is the focus of connectivist learning activities.
- Making a decision is in itself a learning process that can change over time as more information is introduced.

Siemens (2004) emphasized that each learner brings a diverse background to any professional development activity and that this background can promote learning. Connectivism places a premium on sharing a diversity of opinions through collaboration. In connectivism, Siemens posits that learning is the main focus. As individuals engage in a professional development activity grounded in connectivism, the focus is on learning through collaboration. Individuals cultivate meaningful and lasting connections with peers during collaborative activities. These connections, Siemens contends, support learning specifically through collaboration. Connectivism was chosen for the emphasis on collaboration. This focus led to the creation of Research Question 1 with the inclusion of collaboration and focused on the diversity of opinions. In Research Question 2, connectivism is called out by the inclusion of the phrase “with and without human interaction” when discussing the incorporation of ICT. Then, in Research Question 3, the focus on the connections between ideas or concepts aligns directly with connectivism.

According to Zhijun, Li, and Anderson (2014), connectivist learning is a process that involves networking, which is split into four levels of interaction: operation, wayfinding, sense-making, and innovation. Additionally, Thota (2015), detailed that a connectivist learning environment furthers interactive knowledge production, encourages a diversity of viewpoints, allows individual autonomy to learners to contribute, and is open to all perspectives. Reese (2015) stated that digital communication technologies that allow for face-to-face interactions and conversations exemplify connectivism. These are some of the researchers that have taken a closer look connectivism.

The theory of connectivism is related to technology use in professional development because most such activities include some form of collaboration, and, increasingly, information and communication technologies are fundamental to these activities. In the analysis of the data, I looked for evidence of the features of connectivism. Collaboration has been a cornerstone of professional development across institutions and has been important to meeting the mission of educational institutions (Afacan Adanir, 2017; Byrd, 2017; Czerniawski et al., 2017; Goddard & Kim, 2018; Grau et al., 2017; Robinson et al., 2017; Seifert & Bar-Tal, 2017; Tour, 2017; Turner, Christensen, Kackar-Cam, Fulmer, & Trucano, 2018; Wright, 2017).

The framework was a common thread throughout the development of the instruments, the interview and reflective journal protocol (Appendix C), interview guide (Appendix D), reflective journal guide (Appendix E), and document data collection form (Appendix F); it linked the instruments to the research questions and it linked the data

analysis through the use of collaboration. In Chapter 2, I discuss connectivism in more detail, particularly concerning collaboration in professional development activities.

Nature of the Study

Most of the studies that were examined throughout this study were qualitative, and most were case studies. These studies, research into other research methods, and the feedback of my committee members over the years all led to this research strategy. For this qualitative study, I used an exploratory case study design to describe the perspectives of instructional faculty at one community college on the use of collaboration opportunities and ICT in professional development activities and the faculty's perceived effectiveness of these activities. To accomplish that purpose, I described the beliefs that these instructional faculty hold about professional development activities that use technologies. I also explained how these instructional faculty members reflected on their use of technologies in their instruction. In addition, I described what documents were collected from the community college and what they revealed about professional development activities related to effective practices in technology use that were designed for these instructional faculty members. The data sources are detailed in the next paragraph.

The case, or unit of analysis, was the professional development program at one community college in the southeast region of the United States. The participants included 14 instructional faculty members from one community college, but representing a variety of departments and disciplines. I sent a recruitment email to all faculty who had completed a professional development activity over the last year and a half, among other

qualifying specifics. Data were collected from multiple sources, including individual face-to-face interviews, reflective journals (electronic) that they wrote, and institutional documents, which included professional development participation lists, descriptions of activities, and requirements for professional development certificates.

Data analysis was conducted at two levels. At the first level of analysis, interview data and reflective journal data were coded using the line-by-line method that Charmaz (2006) recommends for qualitative research. Categories were constructed from this coded data for each data source, using the constant comparative method that Merriam (2009) recommended for qualitative research. Content analysis was used for the institutional documents. At the second level of analysis, the categorized data from all sources were examined to identify themes and discrepant data, which yielded the key findings of this study. The findings were analyzed in relation to the research questions and interpreted with regard to the conceptual framework and literature review.

Other qualitative research designs were considered for this study. One of these designs was phenomenology, which examines the lived experiences of participants in relation to a specific phenomenon (Merriam, 2009). However, the purpose of this exploratory case study design was to describe how professional development programs for instructional faculty at the community college reflect effective practices in technology use, not to describe the lived experiences by faculty members of a specific phenomenon. Another design was grounded theory, which emphasizes the collecting and analyzing of data to build theoretical frameworks (Merriam, 2009). However, the purpose of this study was not to develop a theory. Ethnography was also considered, but the purpose of this

study was not to examine the culture at a community college. An exploratory case study was appropriate because it aligned with the purpose of the study.

Definition of Terms

Computer-supported collaborative learning (CSCL): An approach to learning where the sharing of knowledge among participants via social interaction takes place using technology as the primary form of communication (Stahl, Koschmann, & Suthers, 2014).

Collaboration: A type of coordination that fosters creativity and problem solving around a specific problem. (Goddard, Goddard, & Tschannen-Moran, 2007)

Connectivism: A learning theory that places emphasis on the role of social and cultural contexts on learning and emphasizes the following: (a) learning/knowledge is found in a diversity of opinions, (b) learning is more important than knowing, and (c) cultivating connections is pertinent to supporting learning (Siemens, 2004).

Effective practice: Principles to guide instructional practice that are focused on the intended use by intended users that will lead to the desired result (Patton, 2001).

Information and communication technologies (ICTs): Technology hardware, software, infrastructure, and services that are used to spread information and/or communications (Bhasin, 2012).

Professional development: An activity used by an institution or an individual to enhance capabilities, increase content knowledge, and skills to succeed in a particular profession, primarily through continued education (Khan & Chishti, 2012).

Assumptions

This study was based on three assumptions. The first assumption was that participants would respond openly and honestly to the interview questions and the reflective journal questions. This assumption was important because participants' responses were considered valid data sources and thus impacted the credibility of this study. A second assumption was that the collected documents were accurate and complete, which likewise impacted the credibility of the findings. A third assumption was that participants would reflect on their use of technology in their instruction. This assumption was important because teacher reflections about their own instruction can be challenging to elicit. I dealt with this challenge by asking participants to reflect both in an interview and through a reflective journal; the summaries of those reflections were shared with them.

Scope and Delimitations

In this bounded study, the scope was delimited to professional development for instructional faculty at a single community college in the southeast United States. The participants, time, and resources narrowed its scope. The participants included 14 instructional faculty members who were active in at least one professional development activity, involving the use of technology, within the last academic year and a half. If faculty did not meet the criteria of participating in one professional development activity within the last academic year and a half then they were excluded from being able to participate in the study. A purposeful sampling method was used to identify study participants who represent a diversity of teaching disciplines, levels of experience, and

levels of technology expertise. Concerning time, the data collection process of this study was implemented during the summer of 2019. In addition, resources further narrowed this study because I am the sole researcher.

Limitations

The limitations of a study are often related to the research design. This study was subject to three limitations. Because I was the only person responsible for all data collection, analysis, and interpretation, there was the potential for researcher bias. Therefore, I used specific strategies to address the trustworthiness, including data triangulation, member checks, and the researcher position, which I describe in more detail in Chapter 3.

A second limitation was the number of cases in this study. I selected one community college in the southeast of the United States. This community college may not be representative of all community colleges across the United States, and therefore, the findings may be generalizable only to similar cases. According to Yin (2014), theoretical replication of case study research is possible only when four to six cases are conducted, which may be an additional limitation; with a single case, only literal replication is possible.

A third limitation related to data collection. The participants were interviewed once, and they were asked to maintain a reflective journal for a limited amount of time. Therefore, the collected data may not have been as deep as if it had been collected from multiple interviews and from reflective journals that had been maintained over a more extended period of time.

Significance of the Study

A qualitative study is significant if it advances knowledge in the field, improves practice in the field, and contributes to positive social change. This study will advance knowledge (a) on connectivist theory and (b) in educational technology by testing the explanatory power of connectivism in the context of professional development at one community college. It will provide educators, instructional designers, and researchers with a deeper understanding of effective technology practices for professional development activities at the community college level. And it is expected to contribute to positive social change by describing ways in which instructional faculty at the community college level may be better prepared for the challenges of instruction that increasingly require the use of technology which should result in some societal benefits. Society benefits when there is improved instruction at the community college level because students receive better instruction and when other faculty, professional development designers, and administrators have access to contemporary research related to effective practices for technology use in teaching.

Summary

The purpose of this qualitative study was to describe the perspectives of instructional faculty at one community college on the use of ICT and collaboration opportunities in professional development activities and their perceived effectiveness. The conceptual framework was based on the research of Siemens (2004) on connectivism. This study used an exploratory case study for in-depth examination of a professional development program that used technology at the community college level.

Participants included 14 instructional faculty members. Data were collected from multiple sources, including individual interviews, reflective journals, and documents discussing previous professional development activities that involved the use of various technologies. Data analysis was then conducted. This study was significant because it addressed a gap in the research on how professional development activities for instructional faculty at community colleges reflect effective practices in technology use.

Chapter 2 includes a review of the research literature, including a description of the search strategy, a detailed description of the conceptual framework, and a review of the literature on collaboration in professional development, implementation of professional development, and improving professional development. Chapter 3 is about the research method that I used to conduct this study. In the chapter, I cover the following topics: research design and rationale, role of the researcher, participant selection, instrumentation; the procedures for recruitment, participation, and data collection; the data analysis plan, the issues of trustworthiness and ethical procedures for qualitative research. Chapter 4 will include the findings of the single exploratory case study; a description of the setting, the participants, and the data collection procedures; a discussion of the evidence of trustworthiness for this qualitative research and an analysis of the findings in relation to the research questions. Chapter 5 includes an interpretation of the findings in Chapter 4. The research questions are used as the framework to interpret the findings. Chapter 5 will also include limitations of the study, implications for social change, any recommendations, and a conclusion about the importance of the study.

Chapter 2: Literature Review

There are prior studies about various aspects of professional development and the use of technology (e.g., Blau et al., 2017; Carl & Strydom, 2017; Dean et al., 2017), but little on how professional development activities for community college instructors across academic disciplines incorporate effective practices in the use of technology. The purpose of this qualitative study was to describe the perspectives of instructional faculty at one community college about the use of collaboration opportunities and ICT use in professional development activities and the perceived effectiveness of these activities. This chapter covers the search strategy, a detailed discussion of the conceptual framework, and a review of the following topics: (a) collaboration in professional development, specifically connectivism, (b) implementation of professional development, and (c) improving professional development.

Literature Search Strategy

To identify relevant peer-reviewed articles published within the last 5–7 years, I used these four databases: EBSCOhost, Google Scholar, ProQuest Dissertations & Theses Global, and ERIC. The following key words were used: *professional development*, *technology*, *connectivism*, *educational technology*, *integration*, *technology use*, and *best practices*. I concluded that the literature search was exhaustive once the same patterns or themes kept emerging. I found additional primary sources in the reference lists of the selected articles.

Conceptual Framework

The conceptual framework for this study was based on Siemens (2004) theory of

connectivism. In this section, the principles of connectivism were described as well as how this theory is articulated in current research. In addition, the benefits of using this theory as the conceptual framework for this study were discussed.

Principles of Connectivism

Siemens (2004) contended that connectivism is based on eight principles of learning for the digital age. The first principle is that learning is a process of connecting specialized nodes or information sources in order to learn. The second principle is that information to be learned often resides in nonhuman appliances, which means that an individual does not necessarily need human interaction in order to learn. With the proliferation of technology in the digital age, Siemens posits that individuals have the ability to learn extensively from nonhuman appliances. The third principle is that the capacity to know more is more critical than what is currently known because that hunger for knowledge drives humans to learn. The fourth principle is that nurturing and maintaining connections between learners is critical in supporting continuous learning because connections provide much greater returns than trying to understand a single concept. The fifth principle of learning is that a core skill is the ability to see connections between fields, ideas, and concepts. This principle is important because different approaches and skills are more critical in the digital age than in the atomic age, machine age, or previous eras. The sixth principle is that learning and knowledge resides in a diversity of opinions. The seventh principle of connectivism is that current and accurate knowledge is the goal of all connectivist-learning activities. The eighth principle is that decision-making is a learning process itself because making choices by discerning the

meaning of the incoming information either provides individuals with opportunities to learn or diverts them from the learning goal. Thus, with these eight principles in the digital age, it shows that individuals can learn on their own without interactions with others but connections fostered with others provide greater returns.

These principles of learning, in relation to the connectivism theory, are partially articulated in current research. These learning principles are particularly important in the digital age because they differentiate connectivism from other current learning theories. These principles also are the basis for consideration of connectivism as a digital age learning theory. Each of these eight learning principles supports learning through the use of contemporary technologies. One specific aspect of connectivism, that was important to this study, is the third principle that aligns with professional development because it is about the hunger for knowledge and the drive to learn more. Connectivism was designed to intersect between with technology and collaboration, which makes it the theory that would fit the best with this study.

Some researchers have debated the classification of connectivism (Dobozy, Campbell, & Cameron, 2013; Kop & Hill, 2008; Siemens, 2006). Some people believe that connectivism is only a collection of concepts and characteristics (Bell, 2010; Clarà & Barberà, 2013; Kop & Hill, 2008). While other individuals believe that connectivism meets the standards to be a learning theory (Downes, 2009, 2010; Mattar, 2018; Siemens, 2005, 2006). The discourse around connectivism is likely to continue because most of the current discussion is accomplished through blogs and nonpeer-reviewed works (Starkey, 2012). Without peer-review this discourse will not be subjected to rigorous standards of

peer-reviewed research. Researchers are finding that connectivism is a useful resource when developing learning experiences with technology, whether it is a learning theory, conceptual framework, or otherwise (Barnett, McPherson, & Sandieson, 2013; del Moral, Cernea, Villalustre, 2013; Garcia, Brown, & Elbeltagi, 2013; Rodriguez, 2014; Shemberger & Wright, 2014; Yeager, Hurley-Dasgupta, & Bliss, 2013).

Articulation in Current Research

Many of the principles of connectivism are aligned with collaboration, which is important to this study because many professional development activities currently include some form of collaboration (Byrd, 2017; Czerniawski et al., 2017; Goddard & Kim, 2018; Grau et al., 2017; Robinson et al., 2017; Seifert & Bar-Tal, 2017; Tour, 2017; Turner et al., 2018). The first principle of connectivism is making connections in information sources in order to learn while the fourth principle is about nurturing and maintaining connections between learners to provide greater returns in learning. The fifth principle of learning details the ability to see connections between fields, ideas, and concepts. These principles are applicable to collaboration. Collaboration appears in a wide range of professional development activities. Seifert and Bar-Tal (2017), Tour (2017), Grau et al. (2017), Czerniawski et al. (2017), Turner et al. (2018), and Robinson et al. (2017) found that social professional networks, personal learning networks, school partnerships, learning communities, and online-shared knowledge areas could all be used for collaborative professional learning. Goddard and Kim (2018) and Byrd (2017) found that collaboration in professional development can lead to the sharing of best practices, increasing self-efficacy, and instructors feeling challenged.

There are other ways that connectivism and professional development align. The second principle mainly deals with how individuals do not necessarily need human interaction in order to learn. This principle aligns with self-paced, self-taught professional development activities. The seventh principle deals with using current and accurate knowledge, this is applicable to maintaining up-to-date professional development activities. Connectivism has a common thread in the focus on collaboration and technology and this is why it was chosen for this research. This common thread was why connectivism was targeted for this study on collaborative technologies and professional development.

This study was grounded in the connectivism framework. Nine recent studies have shown that collaboration is a foundation of effective practices in professional development activities (Carpenter & Sherretz, 2012; Kelly & Cherkowski, 2015; Many, Fisher, Ogletree, & Taylor, 2012; Mottier Lopez & Pasquini, 2017; Shaffer & Thomas-Brown, 2015; Shroyer & Yahnke, 2012; Steeg & Lambson, 2015; Trent, 2012; Upitis & Brook, 2017). According to Byrd (2017), having structured time in professional development for collaborating with peers is important because this allows for the sharing of best practices and increasing self-efficacy. Effective practices in professional development that involve the use of technology cannot be fully described without discussing the importance of collaboration. This study benefited from the theory of connectivism because it was used as the lens to analyze and interpret the findings for this study in relation to technology use in professional development.

Stahl et al. (2014) define computer-supported collaborative learning (CSCL) as an approach to learning where the sharing of knowledge among participants via social interaction takes place using technology as the primary form of communication. It was initially thought that a model of CSCL would fit with connectivism for this study. However, it was found that a model of CSCL that fit the study could not be found, although a few studies that included some cross over between professional development, CSCL, and collaboration were found and included in the literature review.

Evidence of Professional Development Effective Practices

This review of the literature was organized around three critical topics relevant to this study. These topics included collaboration in professional development, implementation in professional development, and improving professional development. These topics were selected because they provided a cross section of the current professional development environment for educators in institutions at the K-12 and collegiate levels. Some K-12 professional development studies were included in this review because of their parallels with community college professional development.

Collaboration in Professional Development

According to the studies included in this section, collaboration across institutions through professional development activities helps teachers improve their instruction and other professional abilities required of them. In a qualitative study about collaboration between universities and public schools, Many et al. (2012) proposed that individuals, known as boundary spanners, are able to work across institutional boundaries, improve educational partnerships, and increase the information netted in professional development

schools. Many et al. (2012) interviewed a total of twelve people across universities and public schools during this study. Upitis and Brook (2017), in a qualitative study of interviews with students, teachers, and an advisory board for the school, discussed how in webinars and face-to-face workshops networking, collaboration, professionalism, and collegiality were cornerstones of the success of the professional development. Upitis and Brook (2017) proposed that both content and pedagogy needed to be explored for the professional development to be successful. In related research, Carpenter and Sherretz (2012) also explored professional development school partnerships through a qualitative case study. Carpenter and Sherretz (2012) examined the partnership between a K-5 school and a university that intended to help teachers become leaders within their own schools through interviewing administrators, staff, and teachers. Carpenter and Sherretz (2012) proposed that collaborative partnership activities empower instructors. Turner et al. (2018) performed a qualitative study of a group of 32 individuals that included the principal and teachers at a middle school about professional learning communities (PLCs). Turner et al. (2018) discussed how PLCs could be areas where teachers can learn from one another but that they can be difficult to develop. These studies highlighted the importance of supporting appropriate collaboration as a critical component in successful professional development. Learning communities were a common example of how collaboration was implemented for professional development activities.

Collaboration within institutions also created more productive learning communities. In an examination of productivity and pleasure in a writing group, Dwyer, Lewis, McDonald, and Burns (2012) described how participating in writing groups

increases the amount of pleasure that early career academics find in writing and review. Dwyer et al. (2012) discussed that participation in these groups improve student writing and reviewing abilities. Wright (2017) detailed how three teachers who were given a choice on professional development all the participants chose a collaborative option. Wright (2017) continued by discussing how participants viewed the collaborative option as making them equal partners in their professional development. In a qualitative study about shared journaling as peer support in teaching qualitative research methods, Humble and Sharp (2012) stated that shared peer journaling contributes to increased clarity of concepts and enhanced confidence in teaching. Humble and Sharp (2012) examined two years of peer journaling but the credibility of their findings is under question because they never state how many students they examined over this time period.

Collaboration was an important component of effective practices in professional development as detailed by the following studies. Steeg and Lambson (2015) detailed that collaborative professional development fosters inquiry and supports risk-taking in lessons. Steeg and Lambson (2015) also proposed that collaborative professional development builds community and creates opportunities for teachers to look closely at their own practices. In related research about improving teacher competency through co-teaching and embedded professional development, Shaffer and Thomas-Brown (2015) discussed that co-teaching professional development allows for collaboration between disciplines. Shaffer and Thomas-Brown (2015), through a qualitative study, including three teachers and 48 students, proposed that instructors learned more information about

other disciplines and specializations while participating in co-teaching professional development. In a qualitative study of 13 teachers from eight schools, Mottier Lopez and Pasquini (2017) discussed how collaboration can be a successful form of professional development. Mottier Lopez and Pasquini (2017) also found that there can be controversies between teachers with contradicting viewpoints when trying to reach a consensus. Zheng, Li, and Huang (2017) qualitative study included sixty-six undergraduate students. Zheng et al. (2017) detailed how teachers should increase their attention during CSCL to focus on socially shared regulations. Zheng et al. (2017), further argued that teachers must actively encourage shared responsibility among group members during CSCL. Additionally. Afacan Adanir (2017), through a qualitative study of eleven graduate students, speculated that if a CSCL environment is structured properly, then once one member solves one aspect of a problem, a transfer of knowledge and experience to the other members could occur. In a qualitative case study about professional development for K-12 teachers, Kelly and Cherkowski (2015) examined collaboration, collegiality, and collective reflection in relation to instructional practices through a professional development initiative. The study of 14 teachers and six literacy intervention teachers by Kelly and Cherkowski (2015) found that collaborative activities could be an effective model of professional development. Kelly and Cherkowski (2015) also concluded that collaborative professional development can be elusive but is obtainable. These studies were significant because they support collaboration as an important component of effective practices in professional development.

Learning communities also can be effective tools for reducing faculty resistance and developing stronger faculty support for professional development activities. Furco and Moely (2012) studied 221 faculty members from eight different higher education institutions in a mixed methods study. Furco and Moely (2012) discussed that learning communities can be used to develop competency in service learning. In a mixed methods study of 46 higher education staff about collaborative creation in an online professional learning community, Gray and Smyth (2012) discussed how multiple online spaces for learners is problematic and that a single sign-on for these multiple spaces is key to the education of staff members who participated in the study. Glazier et al. (2017) detailed how not every instructor is ready for collaboration in professional development from their qualitative study. Glazier et al. (2017) discuss how these instructors need more training in order to participate in proper collaboration. In related research, Hardman (2012) explored the creation of web-based professional learning communities for K-12 special education teachers and detailed that the ability to instantly communicate and interact via Web 2.0 tools allows for the growth of the learning community. Hardman (2012) discussed that strong leadership leads to the development of a learning community that is knowledge-centered, community-centered, and learning-centered. In a qualitative study, Engin and Atkinson (2015) discussed how a university faculty learning community can be a successful form of professional development. The faculty learning community that Engin and Atkinson (2015) studied consisted of nine teaching faculty that used chat rooms and webcasts. In a qualitative study about developing a faculty learning community for five nontenure-track college

professors, Bond (2015) detailed how faculty learning communities fostered colleagueship and learning from others. Bond (2015) also discussed that these faculty learning communities improve teachers' instructional skills, confidence, and their feelings of connection to the institution.

Collaboration in professional development can also minimize some of the isolation that teachers often experience. In a qualitative study about the increasing focus of higher education on social justice topics, Ness, George, Turner, and Bolgatz (2010) examined collaborative professional development in higher education and found that learning communities remove higher education faculty members from the isolation of teaching and bring them into the collaborative sphere. Additionally, Ness et al. (2010) detailed that learning communities encourage teachers to share their knowledge and experiences related to teaching. In a mixed methods study, Czerniawski, et al. (2017) discussed that instructors want opportunities to work with colleagues in their professional development. Additionally Czerniawski et al. (2017) stated that learning communities could provide the opportunity to work collaboratively. In a qualitative study about collegial learning and professional growth through learning communities for K-16 teachers, Owen, S. (2014) found that engagement within a professional learning community supported professional growth and improved student learning. In another qualitative study about collaboration as professional development, Voogt, Laferrière, Breuleux, Itow, Hickey, and McKenney (2015) described how partnerships between institutions could not be realized and sustained without proper use of technology. Additionally, Voogt et al. (2015) detailed that different school environmental factors

often hinder the continued use of knowledge and skills gained through partnerships between institutions. In a qualitative case study of six science teachers from four schools, Ngcoza and Southwood (2015) discussed how a continuous, collaborative professional development network helped faculty gain knowledge and feel empowered. Ngcoza and Southwood (2015) detailed that this type of professional development network helped participants increase their pedagogical and content knowledge and increase healthy interactions between colleagues. In a qualitative study, Chow, Chu, Tavares, and Lee (2015) detailed how 36 primary school teachers who participated in a partnership with a university reported growing in their professional knowledge and skills as a result of the collaborations. Additionally, Chow et al. (2015) discussed that these participants believed that these collaborations improved the effectiveness of their teaching. The research studies shared in this section provided strong evidence that collaboration was a key component of successful professional development.

Collaboration has been a cornerstone of professional development across institutions because individuals often learn better in groups (Carpenter & Sherretz, 2012; Many et al., 2012; Shroyer & Yahnke, 2012; Trent, 2012). The types of collaboration described in the literature vary across professional development participants and settings. Carpenter and Sherretz (2012) explored professional development school partnerships as an instrument for teacher leadership and found that these partnership activities empower instructors in their teaching. Dick, Sztajn, White, and Heck (2018) in a qualitative study of collaboration between 17 female teachers across 8 elementary schools had discussions about their own and other teachers' instruction. Dick et al. (2018) found that a level of

intentionality needs to be done when planning collaboration between teachers in a professional development settings so that the collaboration can further teacher learning. Many et al. (2012) examined the professional development collaboration that occurred at universities and public schools and found that individuals who provide leadership spanning the boundaries between the institutions minimize conflicts and strengthen relationships. In a qualitative study including 3 years of data from a professional development program at a university, Boyd and Glazier (2017) discussed how developing with individuals in the same discipline allows for collaboration and reflective conversations. Furthermore, Boyd and Glazier (2017) stated that this discipline specific development may not be encouraging critical colleagueship as much as it could be. In related qualitative research, Shroyer and Yahnke (2012) examined a well-established professional development school partnership and found that these partnerships create a collegial community of learners that is a foundation for learning and change. In a qualitative study, Trent (2012) investigated professional development for teachers through a school-university partnership and found that teacher identity, or how they describe themselves professionally, is an important aspect in partnership activities that needs to be fostered.

Collaboration has also been important to the success of educational institutions because collaboration both internally and externally within institutions allows for learning to take place that normally might not occur (Alvarez-Alvarez, Fernandez-Diaz, & Osoro-Sierra, 2012; Dwyer et al., 2012; Furco & Moely, 2012; Gray & Smyth, 2012; Hardman, 2012; Humble & Sharp, 2012). Grau et al. (2017) found that school

partnerships help to foster reflection when used for professional development. Grau et al. (2017) also found that these school partnerships helped instructors to find the possibilities of the impact of their teaching on their students' learning. Johnson, Prescott, and Lyon (2017) found that professional development can consist of deep discussions and inquiries. Additionally Johnson et al. (2017) found that these aspects of professional development depend on interpersonal trust and shared expectations. Alvarez-Alvarez et al. (2012) explored learning communities and teacher training between a K-12 school and a university and found a clear improvement in relationships between teachers and students with increased collaboration. Dwyer et al. (2012) explored productivity in writing groups for early career academicians and found that individuals in these writing groups which utilized collaboration viewed academic writing as a pleasure. In a multicampus study, Furco and Moely (2012) also explored how to use learning communities to build faculty support for instructional innovation. Furco and Moely discovered that participants in these learning communities improved their understanding of the information provided as a result of collegial learning. Goddard and Kim (2018) conducted a quantitative study across 95 elementary schools and included 1,623 elementary teachers and 4,167 students. Goddard and Kim (2018) concluded that when teachers collaborated on curriculum, instruction, school improvement, and professional development then they felt as though they were being thoughtful and challenged. Goddard and Kim (2018) also found that through this collaboration that there was a positive impact on student instruction.

Mentoring is a process that is often used to support the collaboration of individuals who are engaged in professional development activities. With the addition of technology, mentoring in professional development has the potential to expand exponentially. In a qualitative study, Deaton and Deaton (2012) detailed how the use of mentoring to foster professional development among undergraduate instructional leaders could be used to provide professional development on a large scale more effectively than one individual providing professional development. Deaton and Deaton (2012) also discussed how mentoring allowed for more collaboration than scheduled professional development and that participants should have received more training about instructional strategies, how to communicate properly with one another, and how to collaborate with other participants by using digital communications. Brace, Baiduc, Drane, Flores, Beitel, and Lo (2018), in a mixed methods study of 64 graduate student mentors, detailed how workshops in mentoring, hands-on experience mentoring, and reflection of mentoring philosophies can be useful activities in training mentors. In a qualitative study about using technology to mentor listening and spoken language specialists, DeMoss, Clem, and Wilson (2012) described how advanced technologies eliminate barriers in mentoring by supporting continuing connectivity between the mentor and mentee. DeMoss et al. (2012) also recommended that advanced technologies, such as live synchronous meetings, video recordings, and asynchronous meetings, be incorporated in the mentoring process to allow for mentoring across distances and better hybrid forms of mentoring.

Not all college-level instructors are ready to mentor individuals; some instructors require professional development before becoming mentors. In a mixed methods study,

Fletcher (2012) described the perspectives of university supervisors in business education about the competencies of teachers who serve as mentors and found that mentors may be equipped to handle some aspects of mentoring, but they may also need further training to be able to fully mentor individuals. Fletcher (2012) recommended that mentors participate in pre-training classes about mentoring and expectations to prepare them to mentor. Fletcher (2012) called for these mentoring classes because mentors stated that they needed to be made more aware of the common concerns of their mentees before becoming mentors. This research is relevant to my study because a mentor's comfort and experience with the technologies used in a particular professional development activity may be another element critical to the success of the mentoring process. In other related qualitative research, Helyer and Lee (2012) conducted a study of university academic faculty about mentoring for business engagement as continuing professional development, using focus groups and electronic surveys as data collection instruments. Helyer and Lee (2012) detailed how the traits needed in mentors can include, but are not limited to, self-awareness, good listening skills, honesty, encouragement, coaching skills, and availability. This research was relevant for this study because it provided some evidence that a relationship exists between mentoring as a form of professional development and the use of technologies to ensure collaboration and create opportunities for connections to develop.

Therefore mentoring, collaboration across institutions, and collaboration within institutions for professional development could be enhanced through the improved use of technology. The studies detailed above suggest that proper use of technology could

expand the reach and success rates of professional development activities and programs, specifically ones focused on collaboration. The studies detailed above also showed that collaboration is a key component to successful professional development. The types of collaboration described in the literature vary across professional development participants and settings. These studies include important examples of the positive impact of collaboration on professional development. However, these studies were not focused on the impact of collaborative professional development on instructional faculty across diverse disciplines at the community college level, which is the focus of the proposed study.

Implementation of Professional Development

Professional development can be implemented digitally in many formats and these formats continue to expand as new technologies reach the marketplace. One of the ways to implement professional development is to create an open online course that has rolling enrollment. In a qualitative study about an open, online class to prepare faculty to teach online, Lane (2013) detailed how the online class can be an effective format for professional development for college instructors because it mirrored the way that most interactions occur between faculty and students in contemporary college settings. In a related mixed methods study about virtual professional learning and development for K-12 instructors, Owen, H. (2014) found that virtual professional learning encourages individuals to participate socially at the same time as they advance their knowledge and skills. Thus, open online courses could be an option for instructional faculty at the community college level who are trying to increase their opportunities for access to

professional development. In a qualitative study, Dean et al. (2017) stated that an intentionally designed online space can foster a sense of community for instructor. Additionally Dean et al. (2017) stated that for the community to be successful it must be properly supported and sustained. In a qualitative study, Eriksson (2017) detailed how mentoring group conversations could be a tool for professional development that helps in developing deeper knowledge about teaching. Eriksson (2017) stated that in this group discussion most of the questions were directed toward the mentor while only some of them were directed towards other instructors in their group. In a study about technology integration for instructional improvement, Potter and Rockinson-Szapkiw (2012) discussed how the prior experiences with technology of K-12 teachers needed to be taken into account when creating professional development. Potter and Rockinson-Szapkiw (2012) also discussed that mentoring assists teachers in feeling safe to try the various technologies that are presented in professional development.

Reaching college instructors on a personal level is important when implementing online professional development because face-to-face interactions in that environment may be limited. In a mixed methods study, Kennedy, Rodgers, Romig, Lloyd, and Brownell (2017) discussed how multimedia and multicomponent professional development can be effective in professional development. Additionally, Kennedy et al. (2017) stated that this form of professional development can be time consuming on the facilitator's side. In a mixed methods study, Korthagen (2017) detailed how professional development must focus on multidimensional and multilevel learning. Korthagen (2017) expands on this point by discussing that practice, theory, and person must all be focuses

of professional development. In a mixed methods study of 138 higher education librarians, Robinson et al. (2017) discussed how online-shared knowledge areas can be an effective professional development tool. Robinson et al. (2017) also detailed how these online-shared knowledge areas should not be the only form of professional development available. In a qualitative study, Seifert and Bar-Tal (2017) detailed how social-professional networks can support and empower individuals in their professional development. Additionally, Seifert and Bar-Tal (2017) discussed how the social-professional network needs a solid base and continuous cultivation in order to be effective. In a qualitative study, Tour (2017) detailed how personal learning networks can be used for professional development. Tour (2017) discussed how these networks can be used for information retrieval, cooperation, resource aggregation, collaboration, socialization, and reflection. In a qualitative study about using a personal learning system for continuous professional development, Chesney and Benson (2012) focused on the use of PebblePad by five staff members at a university. PebblePad is a web-based personal learning system that allows individuals to plan, reflect on, and share teaching experiences while also providing digital tools for presentations, communication, and collaboration for users. Chesney and Benson (2012) discussed how increased communication with other staff members via blogs and sharable journals was a motivating factor for using an individualized learning system.

In related research about implementing professional development, Owen, S. (2014) explored professional learning communities for secondary teachers that provided opportunities for challenging debates, collegial learning, and professional growth, and

they found these opportunities support professional growth. Owen, S. (2014) recommended that leaders support alternatives to face-to-face professional development activities such as online professional learning communities. In a qualitative study, Lofthouse and Thomas (2017) discussed how using video recording allowed for focused reflection with mentors. Lofthouse and Thomas (2017) also detailed how having the mentoring program last for a whole year helped in the collaboration and reflections. In a qualitative case study, Sorensen (2017) discussed how there is a diversity of expertise with instructors. Also Sorensen (2017) detailed how this diversity of expertise can be used in professional development towards generative principles rather than reductive principles. In a quasi-experimental design study, Taylor, Roth, Wilson, Stuhlsatz, and Tipton (2017) discussed how professional development that focuses on an analysis-of-practice of the instructor could be more effective than content focused professional development. Taylor et al. (2017) also detailed how this conclusion could possibly be applicable to instructors outside of Colorado elementary schools. In a qualitative study, Park, Roberts and Stodden (2012) examined the perspectives of seven higher education faculty regarding professional development that was provided to help them teach students with disabilities. Park et al. (2012) described a professional development summer institute that consisted of three days of training to enhance the attitudes, knowledge, and skills of instructors in meeting the needs of students with disabilities. Park et al. (2012) discussed how learning communities formed during the summer institute continued after the three days and that more institutional support was needed for these professional development meetings to be successful. Thus, these studies suggested that reaching

college instructors on a personal level was important when implementing online professional development.

When implementing professional development activities digitally, support is needed to assure the delivery system works. This support may include software support, hardware support, and/or training on software and hardware. In a study about virtual professional learning development for K-12 teachers and some principals, Owen, H. (2014) recommended that hardware, bandwidth, and connectivity for participants needed to be addressed to successfully implement virtual professional development. In an examination of using a personal learning system for professional development, Chesney and Benson (2012) found that ease of use is a major factor in the continuing use of a digital system for professional development. Carl and Strydom (2017) in a qualitative case study, detailed how when teaching people in professional development that one must take into account the level of digital skills and that they should not be ignored or assumed. Carl and Strydom (2017) also stated that when individuals are learning, the institution is responsible for constant technical support, designing sustainable learning opportunities, and creating appropriate training opportunities. In a quantitative study by Blau et al. (2017), technologies could be leveraged more aggressively in professional development content to reach more individuals. Additionally, Blau et al. (2017) stated that having synchronous and asynchronous options for professional development opportunities could reach more individuals. In other related quantitative research, Alsofyani, Aris, Eynon, and Majid (2012) conducted an evaluation of a short, blended, online training workshop for technological, pedagogical, and content knowledge

development using the TAM (Davis, 1989) and discussed how providing swift technical support to individuals is vital to the success of online professional development. Thus, these studies indicated that technology used for professional development needs to be relatively easy to use, technical support for each technology needs to be swift, and hardware must be able to handle the professional development software.

Communication between faculty members, presenters, and administrators in relation to digital implementation of professional development was also important. In a preliminary evaluation of a short, blended, online training workshop, Alsofyani et al. (2012) found that clearly communicating expectations was vital to helping participants focus on the training content. In a mixed methods case study of faculty development, deNoyelles, Cobb, and Lowe (2012) examined 116 faculty at a university to understand the impact of reduced seat time on teacher satisfaction and their perceptions of their course development goals. deNoyelles et al. (2012) discussed how providing varying degrees of autonomy and support gave faculty members the ability and motivation to learn in professional development settings. deNoyelles et al. (2012) also recommended that grouping faculty members by subject matter or department allowed for the maximization of relevant and practical collaboration within professional development activities focused on helping faculty transition to teaching online. In addition, deNoyelles et al. (2012) concluded that offering a range of professional development options, including leadership support, virtual professional learning, and frequent communication, helped faculty members become invested in their learning. Thus, these studies suggested

that communication was key to developing collaboration in digital implementations of professional development.

The delivery system was also an important factor in the success of a professional development activity. In a mixed method study about professional learning communities in an online environment with university faculty, Gray and Smyth (2012) discussed how multiple online spaces for learners is problematic and a single sign-on for these multiple spaces is key to participation. Hardman (2012) examined, through a mixed methods study, support for professional development in special education through web-based professional learning communities and then found that the ability to instantly communicate and interact via Web 2.0 tools allows for the growth of community.

Analog professional development activities are implemented face-to-face with instructors but may include the use of digital technologies. This type of professional development is also implemented in a variety of formats. Khan and Chishti (2012), through a qualitative study of 60 faculty members, explored the effects of training on the professional skills of university teachers in online educational systems and discussed how professional development activities helped teachers refresh prior knowledge and introduced them to new trends in their field. Makoe (2012) conducted a qualitative study to identify competencies for mobile learning facilitators in distance education, and then detailed how both the context and content of professional development should be considered. Makoe (2012) also noted that professional development activities should include opportunities for individuals to engage in a dialogue about the importance of the activity and how it would improve their practice. In qualitative research about technology

and the scholar-teacher, Brantmeier, Havard, and Sancho (2012) discussed how professional development activities needed to be grounded in substantial, relevant research and theory in order for them to successfully convey knowledge. Brantmeier et al. (2012) also noted that because a technology is available does not mean that teachers will fully realize its potential. These studies were relevant because they suggested that professional development activities should be grounded in research, discussed among participants, and involve planning when technology is used.

Another common form of analog professional development was the book club. In their exploratory qualitative study, Burbank, Kauchak, and Bates (2010) examined book clubs as a form of professional development that could be used for both novice and veteran teachers. Burbank et al. (2010) detailed how book clubs provided a semi-structured environment that allowed for in-depth discussions that moved beyond reviewing the text. They also discussed how varying levels of teaching experience across the book club members made a difference in what teachers looked for in a professional development opportunity. Novice teachers focused primarily on practical applications that would improve their teaching that day or week. Veteran teachers focused on applications that could improve their practice over the long term. This study was important because it emphasized how proper communication and collaboration, in the form of a book club, can be used as a professional development option.

In other qualitative research related to analog implementation of professional development, Hutchins and Friedrichsen (2012) described how science faculty beliefs about inquiry-based teaching changed through professional development. They discussed

how some content areas, like science, could have more meaningful professional development if it is subject specific. Hutchins and Friedrichsen (2012) recommended that professional development programs include learning experiences that are individualized for participants. Hutchins and Friedrichsen (2012) also recommended that faculty members continue to be supported after the professional development has concluded. This study is significant because it provides support for differentiation and specification of professional development activities in order to increase participation and learning. In a case study about learning to teach, Chalies, Escalie, Stefano, and Clarke (2012) discussed how when working with new K-12 instructors in professional development, their experiences should be considered so that professional development is substantial and relevant for these novice teachers. In a quantitative longitudinal panel study of 1,191 teacher educators, Peeraer and Van Petegem (2012) examined professional development related to ICT and discussed how training achieves little if it is only voluntary. Peeraer and Van Petegem (2012) also discussed how many professional development activities included individuals who had attended training sessions every time they were offered, and therefore, they already knew the material. Peeraer and Van Petegem (2012) discussed how appropriate training needs to be aligned to the needs of individuals within the organization. These studies were relevant because they provided recommendations about how to properly plan, differentiate, and create specific professional activities for identified groups so that participation, satisfaction, and learning are increased.

In a qualitative study, Humble and Sharp (2012) investigated shared journaling as peer support in the instruction of qualitative research methods. Humble and Sharp (2012)

detailed how shared peer journaling contributes to an increase in clarity of concepts and an enhanced confidence in teaching. Humble and Sharp (2012) discussed how a lot of journaling in educational research focuses on the individual and recommended that shared journaling could increase its value.

Thus, the studies about implementing professional development in the digital age described in this section suggest that digital collaboration was an important component in supporting or enhancing connections with peers and in successful professional development. These studies included discussions about how effective professional development activities serve to refresh prior knowledge, increase knowledge, improve attitudes, and increase skill sets. Studies regarding analog implementations of professional development often included findings that are helpful to other forms of implementation. These studies lead to the development of the first and second research questions within this proposed study.

Improving Professional Development

Many different areas such as increasing different modalities that activities were available in, alignment to evaluations, and needs of instructors needed to be considered in relation to improving professional development for teachers. One of these areas is the alignment of professional development activities and the needs of instructors. In a qualitative ethnographic case study about professional development reforms for higher education teachers in Pakistan, Chaudary and Imran (2012) discussed how the current professional development activities were sporadic and incongruent with what was happening within the classrooms. Chaudary and Imran (2012) recommended that

professional development could be improved by creating continuing and reflective opportunities for learning. Chaudary and Imran (2012) also recommended that professional development activities include a social aspect, such as collaboration, and that leadership and participant buy-in are also important in improving professional development. In a qualitative study Ciampa (2017), detailed how a mentor could help in creating an environment to help foster professional development. In a qualitative study, Livingston and Hutchinson (2017) discussed how change is a process and not just an event. Additionally Livingston and Hutchinson (2017) detailed how mentoring, leadership, relationship building, knowledge building, reflection, and constructive conversations should occur in professional development activities. In a qualitative study, Van der Klink, Kools, Avissar, White, and Sakata (2017) discussed how instructors perceived research-related activities to be an important tool for their professional development. Van der Klink et al. (2017) detailed how conferences, courses, workshops, collaborations, and/or trainings were all found to be meaningful forms of professional development. In a mixed methods study, van der Sluis, Burden, and Huet (2017) discussed how recognizing participants in professional development help to contribute to engagement in professional development. van der Sluis et al. (2017) also detailed how cultivating a retrospective and reflective approach to professional development will help cultivate success. Yurtseven (2017) discussed how it is important to not limit professional development activities to seminars. Yurtseven (2017) also discussed how instructors must be provided resources, time, and budget for their professional development. In related research, Picower (2015) explored teacher-driven professional development within a 500-

member educational community in New York City and found that including participants in the planning of professional development activities increases buy-in and effectiveness of the professional development. In a mixed methods study, Makunye and Pelser (2012) examined the apathy of academic staff at a university in South Africa toward professional development programs and recommended that professional development opportunities need to be a collaborative effort with all parties involved in planning and implementation. Additionally, Makunye and Pelser recommended that professional development opportunities need to be appealing in order to achieve participant buy-in. They also recommended that professional development activities need constant review and revision. These studies were significant because they emphasized the finding that continuous improvement for professional development activities and participation from participants in planning increases the effectiveness and satisfaction for participants.

A second area to consider in improving professional development is related to alignment between professional development activities and evaluations. If faculty members are evaluated, professional development needs to be provided to support improvements in the areas in which faculty are evaluated. In a discussion about how to be a good professional, Mulvey (2013) contended that professional development was an important part of an individual's professional life and needed to be continuous. McCullough and Robinson (2014) investigated the role of an assessment committee in professional development initiatives for college faculty and found that professional development opportunities needed to include hands-on practice, appropriate pedagogical

strategies, and personal organizational methods. Brown (2017) detailed how faculty having continuous opportunities of appropriate and relevant professional development helps to improve their teaching craft. In other related research, Smylie (2014) examined teacher evaluations that administrators completed in relation to professional development and found that evaluations conducted without professional development were not effective. Smylie (2014) cautioned that any systems put in place for evaluation would fail if professional development opportunities were not working in concordance. According to these researchers, some educational institutions do not create effective professional development activities or do not provide any professional development at all. Even though the studies in this literature review, document the notion that professional development activities were a key element for successful and effective evaluation of faculty.

A third area to consider in improving professional development is to make more forms of professional development available to all instructors. In a study about professional development for university teachers in Libya, Suwaed and Rahouma (2015) found that universities must provide formal and informal forums of professional development for faculty, which means all faculty, not just full-time faculty. Suwaed and Rahouma also found that the success of a university requires educators to support all faculty with professional development designed to help all faculty members improve their teaching skills and meet challenges in their classrooms. In a study about student gains related to online professional development, Shaha, Glassett, and Copas (2015) found that continued participation in professional development activities resulted in

sustained and continued academic gains for students. Shaha et al. also found a correlation between sustained participation in professional development activities across years and sustained improvements in student performance. In a qualitative study about higher education instruction, Malik, Nasim, and Tabassum (2015) examined the perceived effectiveness of professional development programs for teachers in higher education and found that professional development about daily classroom problems was not effective. Malik et al. (2015) also found that more reflective practices are needed in professional development planning in order for these sessions to be effective. In a study about designing professional development to meet the needs of online faculty, Elliott, Rhoades, Jackson, and Mandernach (2015) found that professional development is often differentiated for online faculty members. Elliott et al. (2015) found that many online faculty members had geographic separation from the campus, and therefore, face-to-face options for professional development were not possible. Elliott et al. (2015) concluded that face-to-face and online faculty differed in their teaching and technological experiences and so should their professional development activities.

Thus, from the research it is clear that improvements are needed in professional development activities. One of the improvements could be that needs of instructors need to be taken into account when planning professional development activities. Another one of the areas that could be improved is that if instructors are evaluated then professional developments need to be available that align with the areas within which they are evaluated. The last area that could be improved in is that professional development

should be available across many different modalities. The studies detailed in this section led to the creation of the third research question in the proposed study.

Themes in Literature Review

A number of themes were found in this review of the literature. Throughout the exploration of these themes, research studies are presented from 2012 to 2019 in order to establish trends from recent research about these topics. The first theme was that collaboration across institutions through professional development activities helped teachers improve their instruction. Many et al. (2012), Carpenter and Sherretz (2012), Seifert and Bar-Tal (2017), and Tour (2017) have some promising speculation from their findings. Many et al. (2012) found that improved partnerships could be developed through liaisons between universities, which increased the information learned in these collaborations. Carpenter and Sherretz (2012) found that instructors were empowered by establishing partnerships between educational institutions. In a study of a social professional network, Seifert and Bar-Tal (2017), found that these networks can support and empower individuals in their professional development. In a study of personal learning networks, Tour (2017) found that they could be used for professional development, specifically for information retrieval, cooperation, resource aggregation, collaboration, socialization, and reflection. Kelly and Cherkowski (2015), Steeg and Lambson (2015), and Grau et al. (2017) had some findings that could be true, if confirmed by more research. Kelly and Cherkowski (2015) found that collaborative professional development activities could be worthwhile environments, even though developing such environments could be challenging. Steeg and Lambson (2015) found

that collaboration could be used to build community and fostered inquiry. In a study of school partnerships, Grau et al. (2017) found that these partnerships can help foster reflection and help instructors find the possibilities of the impact of their teaching on their students' learning. Voogt et al. (2015), Chow et al. (2015), and Robinson et al. (2017) had some credible findings. Voogt et al. (2015) found that the appropriate use of technology was vital to collaborations between educational organizations. Chow et al. (2015) found that collaborations across institutions could help individuals grow in their professional knowledge and skills and improved the effectiveness of their teaching. In a study of an online-shared knowledge area, Robinson et al. (2017) found these areas can be used as an effective professional development tool but should not be the only form of professional development.

The second theme was that collaboration within institutions through professional development activities helps teachers improve their instruction. Dwyer et al. (2012), Afacan Adanir (2017), Humble and Sharp (2012), Wright (2017), Hardman (2012), and Owen, S. (2014) have some promising speculation from their findings. Dwyer et al. (2012) found that writing groups increase the amount of pleasure that participants experience in writing and improves their abilities in writing. Afacan Adanir (2017) found that that if a CSCL environment is structured properly, then once one member solves one aspect of a problem, a transfer of knowledge and experience to the other members could occur. Humble and Sharp (2012) found that peer journaling as a form of professional development activity improves confidence in teaching. In a study of only 3 teachers, Wright (2017) found that when three teachers were given a choice on professional

development, that all the participants chose a collaborative option and that participants viewed the collaborative option as making them equal partners in their professional development. While using Web 2.0 tools to communicate and interact, Hardman (2012) found that a need exists for strong leadership within a web-based professional learning community. Owen, S. (2014) found that learning communities improve student learning and support professional growth.

Engin and Atkinson (2015), deNoyelles et al. (2012), Ngcoza and Southwood (2015), Byrd (2017), Czerniawski et al. (2017), and Bond (2015) had some findings that could be true, if confirmed by more research. deNoyelles et al. (2012) found that when grouping participants for professional development activities, they should be grouped by subject matter or department to maximize collaboration. Engin and Atkinson (2015) described how a learning community, supported by appropriate technology use, provides a successful format for professional development. Byrd (2017) found that having structured time in professional development for collaborating with peers is important because this allows for the sharing of best practices and increasing self-efficacy. Ngcoza and Southwood (2015) found that continuous, collaborative professional development increases the possibility of healthy interactions between colleagues. Czerniawski et al. (2017) found that instructors want opportunities to work with colleagues in their professional development and that learning communities could provide the opportunity to work collaboratively. Bond (2015) found that learning communities foster colleagueship, learning from others, and improved skills and confidence in teaching. Furco and Moely (2012), Goddard and Kim (2018), Gray and Smyth (2012), Shaffer and Thomas-Brown

(2015), Ness et al. (2010), and Turner et al. (2018) had some credible findings. Furco and Moely (2012) found that learning communities could be a tool for reducing faculty resistance and developing stronger faculty support for professional development activities. In a study of 1,623 elementary teachers and 4,167 students across 95 elementary schools, Goddard and Kim (2018) found that when teachers collaborated on curriculum, instruction, school improvement, and professional development then they felt as though they were being thoughtful and challenged. Gray and Smyth (2012) found that having a single sign-on location for online collaborative spaces alleviates some of the stressors of online collaboration. In a study of 32 individuals that included the principal and teachers at a middle school about PLCs, Turner et al. (2018) found that PLCs could be areas where teachers can learn from one another but that they can be difficult to develop. Ness et al. (2010) found that learning communities are a way for teachers to minimize their isolation and increase their sharing of knowledge and experiences. Shaffer and Thomas-Brown (2015) found that professional development between disciplines that includes co-teaching increases knowledge across disciplines.

The third theme was that technology has the potential to improve mentoring at the college level, mentoring is an effective option for professional development, and that mentors need more training to support the collaboration of college-level instructors. Mentoring, through the interactions and growth between colleagues, is another form of collaboration. Fletcher (2012), Potter and Rockinson-Szapkiw (2012), and Ciampa (2017) have some promising speculation from their findings. Fletcher (2012) found that mentors need more training before they can become active mentors. Ciampa (2017) found that a

mentor could help in creating an environment to help foster professional development. Potter and Rockinson-Szapkiw (2012) discovered that when creating professional development opportunities, an instructor's prior experience with technology should be considered. Deaton and Deaton (2012) and Eriksson (2017) had some findings that could be true, if confirmed by more research. Deaton and Deaton (2012) found that mentoring individualizes a large-scale professional development program, even though some participants in the mentoring program may need more training about how to collaborate using digital communications. Eriksson (2017) found that mentoring group conversations could be a tool for professional development that helps in developing deeper knowledge about teaching. DeMoss et al. (2012), Helyer and Lee (2012), Lofthouse and Thomas (2017), and Brace et al. (2018) had some credible findings. DeMoss et al. (2012) found that some technologies, such as live synchronous meetings, video recordings, and asynchronous meetings, could be used to eliminate barriers in the mentoring process. In other related research, Helyer and Lee (2012) described successful mentors as self-aware, good listeners, honest, encouraging, in possession of strong coaching skills, and available. Brace et al. (2018) found that workshops in mentoring, hands-on experience mentoring, and reflection of mentoring philosophies can be useful activities in training mentors. Lofthouse and Thomas (2017) found that using video recording allowed for focused reflection with mentors and that having the mentoring program last for a whole year helped in the collaboration and reflections.

The fourth theme was that digital professional development can be successfully implemented in many formats and can also be implemented in tandem with face-to-face

offerings. Chesney and Benson (2012) and Blau et al. (2017) have some promising speculation from their findings. Chesney and Benson (2012) found that a web-based personal learning system, specifically PebblePad, allows individuals to plan, reflect, and share teaching experiences while also serving as a platform to provide digital tools for presentations, communication, and collaboration. Blau et al. (2017) found that technologies could be leveraged more aggressively in professional development content to reach more individuals and that having synchronous and asynchronous options for professional development opportunities could reach more individuals. Owen, H. (2014), Lane (2013), and Dean et al. (2017) had some findings that could be true, if confirmed by more research. Owen, H. (2014) found the importance of providing increased opportunities for professional development through the use of digital professional learning communities. Lane (2013) found that a free, open, year-long online class is an effective format for professional development. Dean et al. (2017) found that an intentionally designed online space can foster a sense of community for instructor and that for the community to be successful it must be properly supported and sustained. deNoyelles et al. (2012), Upitis and Brook (2017), Alsofyani et al. (2012), and Zheng et al. (2017) had some credible findings. deNoyelles et al. (2012) found that offering a range of professional development options is vital to the success of professional development and that reduced seat time is also important in these options. Zheng et al. (2017) found that teachers should increase their attention during CSCL to focus on socially shared regulations and that teachers must actively encourage shared responsibility among group members during CSCL. Alsofyani et al. (2012) also noted

that online training workshops require swift technical support if used for professional development. Upitis and Brook (2017) found that webinars and face-to-face workshops networking, collaboration, professionalism, and collegiality were cornerstones of the success of the professional development but also that both content and pedagogy needed to be explored for the professional development to be successful.

The fifth theme was that the participant(s) should be taken into account when planning professional development activities. Livingston and Hutchinson (2017) have some promising speculation from their findings. Livingston and Hutchinson (2017) found that mentoring, leadership, relationship building, knowledge building, reflection, and constructive conversations should occur in professional development activities. Hutchins and Friedrichsen (2012), Korthagen (2017), and Makoe (2012) had some findings that could be true, if confirmed by more research. Hutchins and Friedrichsen (2012) discussed how individualizing learning experiences for participants and their subject matter improves professional development programs. Korthagen (2017) found that professional development must focus on multidimensional and multilevel learning and that practice, theory, and person must all be focuses of professional development. Makoe (2012) found that the context and content of professional development opportunities should be considered. Mottier Lopez and Pasquini (2017), Chalies et al. (2012), and Sorensen (2017) had some credible findings. Mottier Lopez and Pasquini (2017) found that collaboration can be a successful form of professional development and that there can be controversies between teachers with contradicting viewpoints when trying to reach a consensus. Chalies et al. (2012) found that professional development is more substantial

and relevant for instructors when the instructors' experiences are considered. Sorensen (2017) found that there is a diversity of expertise with instructors and that this diversity of expertise can be used in professional development towards generative principles rather than reductive principles.

The sixth theme was that researchers often made specific recommendations related to improving professional development, regardless of the delivery form or technologies used. Chaudary and Imran (2012), Carl and Strydom (2017), Mulvey (2013), Glazier et al. (2017), Smylie (2014), Taylor et al. (2017), and van der Sluis et al. (2017) have some promising speculation from their findings. Chaudary and Imran (2012) found that professional development is improved by creating continuing and reflective opportunities for learning and that professional development activities are too often sporadic and incongruent with what is happening in the classroom. Carl and Strydom (2017) found that when teaching people in professional development that one must take into account the level of digital skills and that they should not be ignored or assumed. Carl and Strydom (2017) also found that when individuals are learning, the institution is responsible for constant technical support, designing sustainable learning opportunities, and creating appropriate training opportunities. Mulvey (2013) contended that professional development activities are an important part of an individual's professional life and need to be continuous. Glazier et al. (2017) found that not every instructor is ready for collaboration in professional development and that some instructors need more training in order to participate in proper collaboration. Smylie (2014) concluded that evaluation without related professional development is not effective and cautioned that

any systems put in place for evaluation will fail if professional development opportunities are not in concordance. Taylor et al. (2017) found that professional development that focuses on an analysis-of-practice of the instructor could be more effective than content focused professional development. van der Sluis et al. (2017) found that recognizing participants in professional development help to contribute to engagement in professional development and that cultivating a retrospective and reflective approach to professional development will help cultivate success.

Picower (2015), Makunye and Pelser (2012), Suwaed and Rahouma (2015), McCullough and Robinson (2014), and Yurtseven (2017) had some findings that could be true, if confirmed by more research. Picower (2015) found that including participants in the planning of professional development activities increases buy-in and the effectiveness of professional development. Makunye and Pelser (2012) found that professional development activities need to be a collaborative effort with all parties involved in planning and implementation. Suwaed and Rahouma (2015) found that all faculty require realistic professional development opportunities to help them improve their teaching skills and meet challenges in their classrooms, as opposed to only full-time faculty. McCullough and Robinson (2014) found that hands-on practice, appropriate pedagogical strategies, and personal organizational methods need to be included in professional development opportunities. Yurtseven (2017) found that it is important to not limit professional development activities to seminars and that instructors must be provided resources, time, and budget for their professional development. Malik et al. (2015), Shaha et al. (2015), Boyd and Glazier (2017), Elliott et al. (2015), and Dick et al. (2018) had

some credible findings. Malik et al. (2015) found that the planning of professional development activities needs to be a more reflective process. Shaha et al. (2015) found that continued professional development across years could result in sustained improvements for both faculty member and students. Elliott et al. (2015) found that professional development for online faculty members should be differentiated from their face-to-face counterparts. Boyd and Glazier (2017) found that developing with individuals in the same discipline allows for collaboration and reflective conversations and that this discipline specific development may not be encouraging critical colleagueship as much as it could be. Dick et al. (2018) found that discussions about their own and other teachers' instruction were a good form of collaborative professional development and that a level of intentionality needs to be done when planning collaboration between teachers in professional development settings so that the collaboration can further teacher learning.

These themes connected with the proposed study through a variety of ways. The first and second themes aligned with the first research question because they all explored collaboration in professional development. The third and fourth themes aligned with the second research question because of the focus on ICT with and without human interaction. The fifth and sixth themes loosely aligned with the research questions of the proposed study, specifically with the themes including improvement and planning of professional development.

Summary and Conclusions

In this chapter, a description of the strategy used to conduct this review was presented as well as a review of the conceptual framework of connectivism in order to describe how it is related to effective practices in technology use for professional development. A review and analysis of current research literature was presented in relation to collaboration in professional development, implementation of professional development, and improving professional development. In relation to these topics, this review of the literature also included an analysis of research about various aspects of professional development in relation to how specific technologies are used or how specific types of professional development are implemented (Alsofyani et al., 2012; Brantmeier et al., 2012; Hardman, 2012; Lane, 2013; Owen, H. 2014; Potter & Rockinson-Szapkiw, 2012). In this review of the literature, no studies were found about how professional development activities for community college instructors across academic disciplines reflect effective practices in technology use through the lens of connectivism.

A number of gaps were identified by this review of the literature. Specifically, no examples were found in the research about how professional development activities for community college instructors across academic disciplines reflect effective practices in technology use. Some studies were found that examined specific technologies or activities (e.g., Alsofyani et al., 2012; Brantmeier et al., 2012; Hardman, 2012; Lane, 2013; Owen, H. 2014; Potter & Rockinson-Szapkiw, 2012), but they were limited. Therefore, my study addresses these gaps by exploring how professional development for

instructional faculty from varied disciplines at the community college level reflect effective practices in technology use.

Chapter 3: Research Method

This chapter is about the research method that I used to conduct this study. In this chapter, I cover the following topics: research design and rationale, role of the researcher, participant selection, instrumentation; the procedures for recruitment, participation, and data collection; the data analysis plan, the issues of trustworthiness and ethical procedures for qualitative research.

The purpose of this exploratory qualitative study was to describe the perspectives of instructional faculty at one community college on ICT and collaboration opportunities in professional development activities and the perceived effectiveness of these activities. To do so, I described the beliefs that these instructional faculty members held about professional development activities that used technologies. I also explained how these instructional faculty members reflected on their use of technologies in their instruction. In addition, I described what the documents at the research site revealed about professional development activities related to effective practices in technology use that were designed for these instructional faculty members.

Research Design and Rationale

The research questions that guided this study are based on the conceptual framework, collaboration, and a review of the existing literature.

RQ1: What are the opportunities for collaboration within professional development activities for instructional faculty members at a community college that allow for a diversity of opinions?

RQ2: What are the perspectives of instructional faculty members at a community college about the effectiveness of professional development activities that incorporate ICT with and without human interaction?

RQ3: How do instructional faculty members perceive their teaching shifted after participation in the professional development activities that allow for connections between ideas or concepts?

A single, exploratory, case study design was selected for this qualitative study. Yin (2014) defined a case study in a two parts. In the first part, Yin wrote that a case study investigates a phenomenon, called a case, in depth, and within its real-world context. In the second part, Yin wrote that a case study inquiry is used when there are many variables of interest than they are data points, the data will then be analyzed using triangulation. Yin described that a case study is uniquely designed to include data collection from multiple sources, which allows for a detailed description of the phenomenon under investigation.

This design was selected because it investigates a phenomenon, in depth and in context (Yin, 2014). The phenomenon for this study was the professional development program at a community college and the faculty perspectives of their experiences within it. The boundaries between this phenomenon and the context, which are the beliefs and reflections that instructional faculty express about the use of technology concerning to their instruction, are often not clear. In addition, case study design relies on multiple sources of evidence to uncover convergent lines of inquiry. An exploratory case study design was also selected because of multiple sources of evidence that were collected,

including individual face-to-face interviews with 14 instructional faculty members at one community college, electronic reflective journals that these same faculty members completed, and institutional documents. These institutional documents included a list and description of each of the professional development activities given throughout the year, the modality of the professional development activities (online, hybrid, or face-to-face), a list of all the professional development activities that each participant took, and completion requirements for various certificates that the professional development department of the community college has developed.

Role of the Researcher

The role of the researcher in qualitative research is that of the primary instrument for data collection and analysis (Merriam, 2009). In my role as the sole researcher and observer who was conducting this study, I was responsible for selecting the research site, recruiting potential participants, determining the final participants, and obtaining consent from them. Using instruments that I have designed, I also was responsible for conducting initial and follow-up interviews with these participants and obtaining their online reflective journal responses. In addition, I was responsible for analyzing all the data to determine the major themes and findings of this study. Because I was the sole person responsible for data collection and analysis, the potential for researcher bias existed. The strategies for limiting researcher bias, including reflexivity and member checks, were described in more detail later in this chapter.

In terms of personal or professional relationships with participants, I was employed as an instructional designer at the community college that I selected for this

study during the time of the study. I interacted with instructional faculty on a daily basis, providing instructional design and learning management system support. However, I do not have supervisory responsibilities for the instructional faculty, and I did not select participants who were enrolled in professional development activities that I delivered. I have not been previously or during this study the facilitator of any of the professional development activities, other faculty members generally do the facilitating of the professional development activities. Sometimes people outside of the institution and other people besides faculty are brought in to facilitate professional development activities. This study was separate from my professional role at the institution.

Participant Selection Logic

The participants for this study included 14 instructional faculty members. A purposeful sampling strategy was used to obtain the richest data possible. A list of instructional faculty that met the following criteria was obtained from one of the directors that work in professional development. Potential participants were contacted via email that met the following inclusion criteria: (a) participants must be currently employed as full-time or part-time instructional faculty at the community college selected for this study, (b) participants have visited the campus professional development center throughout the past academic year and a half, and (c) participants must be currently participating in or have participated in at least one professional development activity involving technology within the last one and a half academic years. The 14 participants were selected based on their diverse experience and from various departments out of the individuals that responded that they would participate in the study. Potential participants

were identified from the visitation data from the campus professional development center, and they were contacted by sending them an invitational email and an attached consent form. The first 14 individuals who return signed consent forms and meet the criteria to me were selected as participants.

The relationship between saturation and sample size required constant assessment throughout data collection. The researcher continually assessed saturation or the adequacy of the sample size. During data collection, if the current sample size were not found to be adequate, I would have needed to add a few more participants. This did not happen. If more participants were needed, then another round of invitations would have been sent out. This would then be repeated until the number of participants was obtained. This was not needed.

Instrumentation

For this study, I designed three instruments. The first instrument was an interview guide that I used to complete the face-to-face interview, and the second instrument was an online reflective journal that I asked participants to maintain for a short period of time for them to reflect on their professional development. The third instrument was a document data collection form that I used to collect the various documents pertaining to professional development at the institution. As a validity check, I also asked an expert panel of two colleagues with advanced degrees in education to review these instruments for alignment with the research questions before I collected the data. These individuals were not participants in the study, and the instruments were the only facet of the study to which they had access. These colleagues held the same position as I did and did not have

supervisory responsibilities for instructional faculty; they have not been previously or currently the facilitator of any of the professional development activities. In addition, I aligned these instruments to the research questions in the tables presented in this section.

Interview Guide

This instrument was based on Merriam's (2009) recommendations for conducting effective interviews for qualitative research. The interview was semi structured because the interview questions and the order of the questions were predetermined. The questions were open-ended, flexible, and exploratory in nature. I selected a neo-positive philosophical orientation for the interview design to emphasize the neutral stance of the interviewer, minimize bias, collect quality data, and produce valid findings. The types of interview questions that I designed included experience/behavior questions and opinion/value questions. I also used probing questions if needed throughout the interviews to ask for more details, clarification, and examples. The interview guide included an opening and closing script, as well as the six open-ended interview questions. This guide is presented in Appendix D. Table 1 describes the alignment of the interview questions with the research questions.

Table 1

Alignment of Interview Questions to Research Questions

Interview Questions	RQ1	RQ2	RQ3
1. What are some opportunities that you had while in a professional development activity to collaborate with your colleagues? Explain.	X		
2. Were collaborative opportunities in the professional development activities in online, face-to-face, or hybrid courses? Explain.	X		
3. After the professional development activities, what did you change in your classrooms in regard to collaboration? Explain.	X		
4. When you took a course that used Information and Communication Technology did you find that it used it effectively? Explain.		X	
5. What Information and Communication Technologies were used in the professional developments activities that you participated in?		X	
6. After completion of professional development activities, did you experience a shift in your teaching practice?			X
7. After participating in professional development activities, do you feel any differently about your teaching or choice of instructional approaches?			X

After the transcription of the interview, I worked with each participant in what is called member checking to minimize the misunderstanding of each of the answers and enhance the credibility (Merriam, 2009). This included sending each participant an outlined list of the initial findings from their responses. The participants then responded with whether or not there were erroneous conclusions. There was then an opportunity to correct or change anything. The questions for the interview are aligned with the research questions in Appendix C. I also asked an expert panel of two colleagues with advanced degrees in education to review these instruments for content validity and alignment with

the research questions before I collected the data. These two colleagues were the same individuals described above, and this occurred at the same time as the review of the reflective journal instrument.

Reflective Journal

This instrument was an online questionnaire that asked participants to reflect on their use of various technologies in their instruction. This instrument was based on Siemens (2004) principles of connectivism. The connection with this instrument and the conceptual framework is primarily with this specific principle of connectivism; diversity of opinion helps the process of learning and knowledge acquisition. This instrument included directions for completing the open-ended questions. This instrument is presented in Appendix F. Table 2 describes the alignment of the reflective journal questions to the research questions.

Table 2

Alignment of Reflective Journal Questions to Research Questions

Reflective Journal Questions	RQ1	RQ2	RQ3
1. In your classroom do you have collaborative chances for your students?	X		
2. Were these informed by professional development activities? Explain.	X		
3. After the professional development activities, did your use of information and communication technology change? Explain.		X	
4. In your classrooms, did the use of information and communication technology increase, decrease, or stay about the same? Explain.		X	
5. After the completion of professional development activities did anything that effected students shift? (Examples: Activities, Assessments, Integrated Technologies, etc.)			X
6. Do you perceive a shift in your teaching after completion of			X

these professional development activities or was it a more gradual shift?

Participants received a link on via email that is specific to only them where they were able to complete the questionnaire via Google Documents. The questions for the reflective journal are aligned with the research questions in Appendix C. I also asked an expert panel of two colleagues with advanced degrees in education to review these instruments for content validity and alignment with the research questions before I collected the data. These two colleagues are the same individuals described above, and this occurred at the same time as the review of the Interview Guide instrument.

Document Data Collection Form

This instrument was designed in relation to Merriam's (2009) recommendations for conducting a content analysis for documents that were collected as a part of a qualitative research study. I used this form to collect data related to specific criteria, including the purpose, structure, content, and use for each of the documents that were collected. This form is presented in Appendix H. Table 3 describes the alignment of the criteria for the document data collection form with the research questions.

Table 3

Alignment of Data Collection Criteria with the Research Questions

Criteria	RQ1	RQ2	RQ3
Interview	X	X	X
Reflective Journal	X	X	X
List of Professional Development Activities	X		
Descriptions of Professional Development Activities	X		
Requirements of Professional Development Certificates	X		

Procedures for Recruitment, Participation, and Data Collection

After approval from the Walden Institutional Review Board (IRB) and then the approval of the community college's IRB, I began the process of recruiting potential participants. IRB approval was then given, 07-11-19-0321014. After IRB approval has been obtained, I asked the individual designated by the school for a list of potential participants who meet the inclusion criteria. I then contacted these individuals by sending them a letter of invitation and an attached consent form via their institutional emails that were provided in the public domain. The list of faculty who visited the center for faculty development was obtained from the director of the center. The campus director had given tentative permission for the data collection contingent on the IRB approvals.

In relation to participation, I sent out an invitational email to all potential participants, asking them to reply that they consent to study within 5 business days if they are interested in participating in this study (Appendix A). I then selected the first 15 community college faculty who sent me the reply. To account for attrition, I accepted three to five more faculty members than I needed for the final study. Both selected and nonselected individuals were informed via email of their status.

Concerning data collection, I began the process by scheduling individual interviews with participants through email and in-person. I conducted these interviews on the campus of the community college in a private location such as a private office or conference room once permission was granted via IRB approval and the letter of cooperation. I also conducted these interviews after the workday ends at 5:00 p.m. or during noninstructional time. I recorded these interviews using two different audio

recording devices to safeguard against equipment failures. Each interview lasted around 30 minutes. At the end of each interview, I explained the procedures for collecting data from the online reflective journals. I emailed the questions for the online reflective journals to participants after the completion of their interviews. Participants were then asked to return their responses to me within two weeks. I also collected documents related to the professional development activities related to technology that was offered at this community college for instructional faculty during the 2018-2019 school year. These institutional documents include a list and description of each of the professional development activities given throughout the year, the modality of the professional development activity (online, hybrid, or face-to-face) and a list of all the professional development activities that each participant took via the participant providing their transcript of professional development. To maintain the privacy of participants, I was the only one with access to each of their lists of professional development activities. Also, another institutional document would be the requirements for various professional development certificates that the professional development department of the community college has developed. The documents include the title, descriptions, and modalities of all of the professional development activities in 2018-19. All of these documents that were not in the public domain were obtained with the permission of the director of the center.

Data Analysis Plan

Data analysis for this single exploratory case study was conducted at two levels. For the first level of analysis, I used an automated transcription service to transcribe the interview data. I then verified the accuracy of the transcript by listening to the recording

and reading through the transcript multiple times. I then coded the interview data and reflective journal data using a line-by-line method that Charmaz (2006) recommended, and categories were constructed from this coded data for each data source, using the constant comparative method that Merriam (2009) recommended. A content analysis that Merriam (2009) recommended for qualitative research was used to review the related professional development documents from the community college. This content analysis included a description of the purpose, structure, content, and use related to each document. For the second level of analysis, the categorized data across all data sources were analyzed to identify themes and discrepant data, which informed the key findings for this study. Discrepant data were analyzed in relation to the theoretical proposition (Yin, 2014) of this exploratory case study, which is professional development for instructional faculty at this community college with their reflection on effective practices in technology use. These findings from the collected data were analyzed in relation to the research questions and interpreted with regard to the conceptual framework and literature review. The analysis centered around collaboration and diversity of opinions in regards to research question one, with research question two used to focus on the incorporation of ICT with or without human interaction, and research question three was analyzed from the connections between ideas or concepts aligns directly with connectivism. If a faculty member did not complete all of the parts of the data collection process, what was received from them was kept for record-keeping purposes but will not be included in the findings. After each participant completes the interview, reflective journal, and I have completed the data analysis of their responses, I worked with each of them in what is

called member checking to minimize the misunderstanding of each of the answers and to enhance the credibility (Merriam, 2009). This included sending each participant an outlined list of the initial findings from their responses. The participants then respond with whether or not there are erroneous conclusions. There was then an opportunity to correct or change anything.

Issues of Trustworthiness

For qualitative research, Merriam (2009) noted that trustworthiness is important if educators and researchers want to replicate a study or implement any of the recommendations. To replicate qualitative research, rigorous data collection and analysis procedures must be and were closely followed. Therefore, in this section, I described the strategies that I used to improve the trustworthiness of this study in relation to the constructs of credibility, transferability, dependability, and confirmability.

Credibility

Credibility, Merriam (2009) noted, is about whether or not the research findings match reality. Merriam recommended that the following strategies be considered to improve the credibility of qualitative research: triangulation, member checks, adequate engagement in data collection, and peer examination or peer review. For this study, I used the strategy of triangulation by comparing and contrasting data sources in this study. I also used the strategy of member checks (Birt, Scott, Cavers, Campbell, & Walter, 2016) by asking participants to review my tentative findings for their credibility. I included in an email a summary of the findings I developed based on their interview. I then requested that they send any corrections or identify any misconceived conclusions

within seven days. In addition, I used the strategy of adequate engagement in data collection by collecting the interview data, reflective journal data, and documents over the course of a few weeks.

Transferability

Transferability, Merriam (2009) noted, concerns whether or not the research findings are applicable to other situations. Merriam recommended the following strategies to improve the transferability of qualitative research: rich, thick description, and maximum variation. For this study, I used the strategy of rich, thick description by describing the setting, participants, and findings in detail. I also used the strategy of maximum variation of the sample by purposefully selecting participants who teach across different modalities (such as online, face-to-face, and hybrid) and departments. This study was being conducted at one community college; therefore, the findings were limited in this issue of transferability.

Dependability

Traditionally, Merriam (2009) noted, dependability is about whether or not the research findings can be replicated. In qualitative studies, dependability involves presenting data that is consistent so that conclusions can be drawn. Merriam (2009) recommended the following strategies to improve the dependability of qualitative research: triangulation, peer examination, investigator's position, and audit trail. For this study, I used the strategy of triangulation by comparing and contrasting multiple data sources. I also used the strategy of an audit trail by maintaining a research notebook that consisted of reflections and decisions that I made during the research process.

Confirmability

To address confirmability or objectivity in qualitative research, Merriam (2009) noted that qualitative researchers must be able to clearly articulate any assumptions, biases, dispositions, assumptions, and experiences that they may have about the phenomenon under investigation. Articulation of these aspects is essential for researchers so that they are aware of their own potential biases and assumptions in relation to the phenomenon. For this study, I used the strategy of the researcher's position or reflexivity by reflecting critically about myself as a researcher in a notebook that I maintained during the research process. I did this by journaling after each interview to capture my reflections.

Ethical Procedures

Conducting ethical research is particularly important to qualitative research because, to a large extent, the trustworthiness of a study depends upon the ethics of the researcher. Merriam (2009) noted, for example, that although qualitative researchers privately conduct interviews, this privacy does not give interviewers the right to be therapists or judges. Merriam contended that the researcher must remain objective. Merriam also contended that interviewing must be done with the intention of gathering data, but that does not mean that the interviewer is an unresponsive and insensitive individual. Yin (2014) added that data collection must be done correctly, or it could jeopardize the whole study. Merriam also noted that to remain ethical in the document collection, qualitative researchers must be aware of their theoretical positions and biases about the phenomenon under investigation.

To ensure that I conducted an ethical study, I submitted an application to the Institutional Review Board (IRB) at Walden University. After I received Walden IRB approval to collect data, I then also obtained IRB approval and a letter of cooperation from the required staff member(s) at the community college. The name, title, and office of the staff member are not included in the study to maintain the confidentiality of the community college, staff member, and the participants from any other individuals except myself, the primary and only researcher. I also sought informed consent from all participants. Any faculty members participating are not named, and any additional identifying information was and will not be shared. I will keep all of the data confidential and store all data in a locked file cabinet in my home or on a password-protected computer for at least 5 years. After the requisite amount of time, the data will be disposed of. For any paper data, it will be shredded, and for any digital data, it was deleted.

Summary

This chapter was about the research method that I used to conduct this study. In this chapter, I discussed the research design and rationale, the role of the researcher, participant selection, and instrumentation. I also described the procedures for recruitment and participation and data collection. In addition, I discussed issues of trustworthiness and ethical procedures for qualitative research.

A single, exploratory, case study design was selected for this qualitative study. An exploratory case study design was also selected because of multiple sources of evidence that were collected, including individual face-to-face interviews with 14 instructional faculty members at one community college, electronic reflective journals

that these same faculty members completed, and institutional documents. These institutional documents included a list and description of each of the professional development activities given throughout the year, the modality of the professional development activities (online, hybrid, or face-to-face), a list of all the professional development activities that each participant took, and completion requirements for various certificates that the professional development department of the community college has developed.

Chapter 4 will include the findings of the single exploratory case study; a description of the setting, the participants, and the data collection procedures; a discussion of the evidence of trustworthiness for this qualitative research and an analysis of the findings in relation to the research questions.

Chapter 4: Findings

The purpose of this exploratory qualitative study was to describe the perspectives of instructional faculty at one community college about the use of collaboration opportunities and ICT use in professional development activities and the perceived effectiveness of these activities. The conceptual framework on which this study and the research questions were based was connectivism. I centered the study on the following three research questions.

RQ1: What are the opportunities for collaboration within professional development activities for instructional faculty members at a community college that allow for a diversity of opinions?

RQ2: What are the perspectives of instructional faculty members at a community college about the effectiveness of professional development activities that incorporate ICT with and without human interaction?

RQ3: How do instructional faculty members perceive their teaching shifted after participation in the professional development activities that allow for connections between ideas or concepts?

This chapter presents the findings of this study. It includes a description of the setting, participant demographics, and the data collection process. The chapter then includes the data analysis, detailing the evidence of trustworthiness, and then the findings. At the end of this chapter, there is a summary of the chapter.

Setting

The single case, or unit of analysis, was the professional development program at one community college in the southeast region of the United States during the 2018-2019 academic year. The professional development program offers courses to both full-time and part-time instructional faculty members. This program also provides multiple professional development certifications that are recognized within the institution. The participants detailed professional development certifications they had worked on.

Demographics

The participants included 14 instructional faculty members from one community college, representing a variety of departments and disciplines. Of the 14 faculty members, five were part-time and nine were full-time. Table 4 details the departments and/or disciplines of the faculty members.

Table 4

Participant Demographics by Departments/Disciplines

Departments/Disciplines	Quantity
Business, Communication, and Education	3
Health Science	2
Humanities	2
Math and Science	4
Orientation and General Studies	3

Data Collection

Data collection took place in July 2019. To begin data collection, I asked the campus director for a list of individuals who could be potential participants who may meet the inclusion criteria. The inclusion criteria were:

1. Participants must be currently employed as full-time or part-time instructional faculty at the community college selected for this study
2. Participants have visited the campus professional development center throughout the past academic year
3. Participants must be currently participating in or have participated in at least one professional development activity involving technology within the last one and a half academic years.

The list of individuals that met the inclusion criteria included 280 full- and part-time instructional faculty. I then contacted these individuals by sending them a letter of invitation (Appendix A) and an attached consent form (Appendix B) via their institutional emails that are provided in the public domain. I asked them to reply if they consented to be included in the study. I then set up interviews with the 15 instructional faculty who

replied. To account for attrition, I accepted 15. This was advantageous because one individual had to stop during the study for personal reasons unrelated to the study. Of the 14 that completed the study, 9 were full-time instructors, and 5 were part-time instructors. Ten different subjects and departments were represented.

Face-to-Face Interview

The first data point collected for the study from the participants was the face-to-face interview. I conducted these interviews on the campus of the community college in a private meeting room. These were scheduled around each instructor's teaching schedule. During the interviews, I recorded them using two different audio recording devices to safeguard against equipment failures. At the end of these interviews, I explained the reflective journal and that I would need them to send me their professional development transcript to complete their participation. It was during this time that the initial few participants asked me to send them reminder emails; this was in addition to the plan outlined in chapter three, I added a prompt to the interview guide. At the end of the interview, I added the prompt, asking if they wanted an email reminder to complete the reflective journal and for sending me their professional development transcript. After completion of these face-to-face interviews, I transcribed the interviews. I then listened to the interviews again but read the transcriptions with them to verify the accuracy of the transcriptions.

Reflective Journals

Each participant was then asked to complete a reflective journal. I emailed each participant the questions for the online reflective journals to participants after the

completion of their interviews. They were then asked to return their responses to me within two weeks (Appendix F).

Professional Development Transcript and Institutional Documents

Participants also provided a copy of their professional development transcript. I also collected other institutional documents related to the professional development activities associated with technology that was offered at this community college for instructional faculty during the 2018-2019 school year. These institutional documents included a list and description of each of the professional development activities given throughout the year, the modality of the professional development activity (online, hybrid, or face-to-face). Another institutional document I obtained was the requirements for various professional development certificates that the professional development department of the community college has developed. All of these documents were obtained from the campus director, except for participants' professional development transcript, which they provided.

Data Analysis

After each of the data collection steps was completed, I began analyzing the data by looking at the transcribed interviews and answers to the reflective journals. This review of the interviews and reflective journals allowed for the establishment of patterns and themes that began to emerge. To analyze the data, digital highlighting was done within the word processor. This was used to identify themes. Common patterns became identifiable due to using the color-coding process. To limit definitional drift in the

coding, coding only began after all of the data were collected. Common patterns were discerned by the use of the following steps:

1. Read through the transcripts of the interviews and the reflective journals and then review for patterns.
2. After reviewing the transcripts and reflective journals, identify commonalities amongst the participants.
3. Cluster the patterns to identify any themes by looking at commonalities within them first into preliminary codes and then into the final codes (Appendix K).
4. Compare the themes back to the transcripts and reflective journals for validity and to ensure that they correspond directly with what was stated.

These steps were followed to find the final codes or themes in the participant responses. The themes that emerged from the data were usefulness, specific technologies, mode of instruction, and specific collaborative activities/opportunities. There were not any discrepant cases that were notable that factored into the data analysis.

Each participant's professional development transcript was compared to the other participants to look for patterns of enrollment. The other documents collected included a list and description of each of the professional development activities, modalities of the professional development activities, and the requirements of the various professional development certificates for the professional development department. These additional documents allowed for a more in-depth look into the courses that participants had taken over the 2018-19 academic year.

Evidence of Trustworthiness

In qualitative research, Merriam (2009) noted that trustworthiness is important if educators and researchers want to replicate a study or implement any of the recommendations. To replicate qualitative research, rigorous data collection and analysis procedures must be closely followed. In chapter 3, strategies were detailed to help ensure that there was evidence of trustworthiness. In this section, I will detail these strategies that I implemented and any adjustments that were needed in relation to the constructs of credibility, transferability, dependability, and confirmability.

Credibility

Credibility, Merriam (2009) noted, is about whether or not the research findings match reality. Merriam recommended that the following strategies be considered to improve the credibility of qualitative research: triangulation, member checks, adequate engagement in data collection, and peer examination or peer review. For this study, I used the strategy of triangulation by comparing and contrasting data sources in this study. I also used the strategy of member checks (Birt et al., 2016) by asking participants to review my tentative findings for their credibility. I included in an email a summary of the findings I have developed based on their interview. I then requested that they send any corrections or identify any misconceived conclusions within seven days. No one told me that they had any corrections or felt I misconstrued any of their responses. In addition, I used the strategy of adequate engagement in data collection by collecting the interview data, reflective journal data, and documents over the course of a few weeks, and the findings are in the findings section below.

Transferability

Transferability, Merriam (2009) noted, concerns whether or not the research findings are applicable to other situations. Merriam recommended the following strategies to improve the transferability of qualitative research: rich, thick description, and maximum variation. For this study, I used the strategy of rich, thick description by describing the setting, participants, and findings in detail within reason, to keep responses confidential. I also used the strategy of maximum variation of the sample by purposefully selecting participants who teach across different modalities (such as online, face-to-face, and hybrid) and departments. There were 14 total participants, 9 of them were full-time instructors, 5 were part-time instructors. The 14 instructional faculty members represent a variety of departments and disciplines, as detailed in Table 4 above. This study was conducted at one community college; therefore, the findings were limited on the issue of transferability.

Dependability

Traditionally, Merriam (2009) noted, dependability is about whether or not the research findings can be replicated. In qualitative studies, dependability involves presenting data that is consistent so that conclusions can be drawn. Merriam (2009) recommended the following strategies to improve the dependability of qualitative research: triangulation, peer examination, investigator's position, and audit trail. For this study, I used the strategy of triangulation by comparing and contrasting multiple data sources. I also used the strategy of an audit trail by maintaining a research notebook that consisted of reflections and decisions that I made during the research process.

Confirmability

To address confirmability or objectivity in qualitative research, Merriam (2009) noted that qualitative researchers must be able to clearly articulate any assumptions, biases, dispositions, assumptions, and experiences that they may have about the phenomenon under investigation. Articulation of these aspects is essential for researchers so that they are aware of their own potential biases and assumptions in relation to the phenomenon. For this study, I used the strategy of the researcher's position of reflexivity by reflecting critically about myself as a researcher in a notebook that I maintained during the research process. I did this by journaling after each interview to capture my reflections.

Findings

In this section, I present the findings of this study in relation to the research questions. While examining the three data sources, four specific themes emerged. They were usefulness, specific technologies, mode of instruction, and specific collaborative activities/opportunities. The themes are shown with a table 5 of the preliminary codes that lead to their creation.

Table 5

Coding

Preliminary Codes	Final Codes
immediately used, found useful activities, helpful examples, immediate shift in teaching, gradually implemented, shift in teaching, increased use of technology, small tweaks	usefulness

Classkick, Canvas, Kahoot, tablets, phones, laptop, Powtoon, screencasting, publisher content, Kaltura, FlipGrid, videos, surveys, social media, Quizziz, ThingLink, Padlet, infographics, Google Documents, class polling	specific technologies
online, face-to-face, hybrid	mode of instruction
discussions, think-pair-share, shared journaling, jigsaw, shared problem solving, group projects, peer reviews, quiz-quiz-trade, jeopardy-adjacent games	specific collaborative activities/opportunities

These themes and their findings will be discussed as they correspond with the research questions.

Research Question 1

Research Question 1: What are the opportunities for collaboration within professional development activities for instructional faculty members at a community college that allow for a diversity of opinions?

The theme related to this research question was *specific collaborative activities/opportunities*. The preliminary codes were *discussions*, *think-pair-share*, *shared journaling*, *jigsaw*, *shared problem solving*, *group projects*, *peer reviews*, *quiz-quiz-trade*, and *jeopardy-adjacent games*. This theme was selected because of the participants sharing the various activities and opportunities that they had to collaborate in professional development activities. During the interviews and reflective journals, all the participants detailed at least one specific collaborative activities/opportunities they had in professional development courses. While comparing the comments among the participants in the interviews and reflective journals to the documents gathered, I found that 12 of 14 of the participants took at least one course that they, other participants, or the description of the course explicitly detailed as having collaborative activities/opportunities. Most of the

participants ($N = 13$) described at length about how they implemented these activities or opportunities to their student-facing classes. After review of the professional development transcripts and other documents, 12 out of 14 of the participants took at least one course that they, other participants deemed to be collaborative courses in the reflective journal or interview or the description of the course explicitly detailed that it was a course that was collaborative.

Participant 1 in the reflective journal wrote, "While in professional development activities, other faculty members shared their most effective collaborative activities, and I decided to implement a few of those in my own classroom." In the interview, Participant 10 stated, "The variety of activities allowed us to evaluate which ones would be best suited for our class as well as collaborate with one another from different disciplines as to which point we could utilize the activity within our lessons." Participant 7 stated, in the interview, "After some of the professional development activities, the use of digital technology increased." These three participants mirrored the general remarks by other participants, while in professional development activities, they were able to see other faculty members' activities and technology use.

While in these professional development activities, the participants of this study stated multiple times how their interactions with other faculty and different technologies allowed them to grow. In the reflective journal, Participant 8 wrote about enjoying being able to "provide feedback to each other." Participant 8 also detailed how this helped them to grow professionally. Participant 3, in the reflective journal, wrote, "Seeing how others utilize these tools and techniques is essential." Participant 3, also detailed how this helped

them then try out those tools and techniques in their own courses.

Research Question 2

Research Question 2: What are the perspectives of instructional faculty members at a community college about the effectiveness of professional development activities that incorporate ICT with and without human interaction?

One of the two themes related to this research question was *specific technologies.* This emerged because participants wanted to discuss specific technologies they had used in a professional development course and then implemented in their student-facing courses. The theme *specific technologies* was chosen to distinguish between technologies mentioned and specific activities The preliminary codes that were used in this theme were *Classkick*, *Canvas*, *Kahoot*, *tablets*, *phones*, *laptop*, *Powtoon*, *screencasting*, *publisher content*, *Kaltura*, *FlipGrid*, *videos*, *surveys*, *social media*, *Quizziz*, *ThingLink*, *Padlet*, *infographics*, *Google Documents*, and *class polling*. During the interviews and reflective journals, all the participants shared at least one technology that they learned in a professional development course and then implemented in their student-facing courses.

Participant 11, in the interview, stated, “Professional development activities have definitely increased my use of information and communication technology.” In the reflective journal, Participant 14 wrote, “After I completed professional development, I began to use the information that I learned in professional development in terms of technology.” According to the interviews, reflective journals, and the transcripts, all of the participants took at least one professional development course where they learned about at least one specific technology. Some participants stated that it was not only the

facilitator that they learned the specific technologies from; multiple participants stated that they learned technologies from other individuals that were participating in the professional development activity.

The second theme related to this research question was the *mode of instruction*, and it emerged because participants discussed the modes of instruction that they took professional development courses. All of the participants had taken at least one professional development course in each of the three modalities, online, face-to-face, and hybrid, they either stated this in their interviews, reflective journals, or it was detailed in their professional development transcripts. The preliminary codes were *online*, *face-to-face*, and *hybrid*. This theme was chosen because of the participants mentioning the ways that they took specific courses. After review of the professional development transcripts and other documents, all of the participants took at least one course that they or other participants detailed as being effective professional development activities that incorporated ICT. Every participant also described how they had taken professional development activities across all three modes of instruction: online, face-to-face, and hybrid. There were various perspectives on the degree of usefulness of professional development activities; most participants (N=12) spoke about this via how they would implement what they learned into their own student-facing courses.

Participant 13 wrote in the reflective journal, “This institution has a wide range of professional development offerings so we can take them online, face-to-face, or a mixture to help fit our schedules.” In the interview, Participant 5 echoed this, “We have the chance to take professional development any way that works for us, meaning online,

face-to-face, or hybrid, so most of us try it many different ways." In the reflective journal, Participant 9 wrote, "I have the opportunity to use these resources immediately as a student. Then, we discuss how best to use them as a professor." Participant 4, in the reflective journal, wrote, "With each new professional development course I took, I would slowly integrate the new idea or activity into my courses." In the interview, Participant 6 stated, "The actual changes I made were minor and more tweaking than anything, but it was the courses which had me reexamine how I set material up for students and assess them."

Research Question 3

Research Question 3: How do instructional faculty members perceive their teaching shifted after participation in the professional development activities that allow for connections between ideas or concepts?

The theme related to this research question was *usefulness*. This emerged because participants had various responses as to how useful the content was that was covered in the professional development activities that they took. Participants detailed how they believed it would help their student-facing classes. The preliminary codes that were used in this theme were *immediately used*, *found useful activities*, *helpful examples*, *immediate shift in teaching*, *gradually implemented*, *shift in teaching*, *increased use of technology*, and *small tweaks*. The theme of *usefulness* was chosen because of the constant mention of it throughout the data collection process. After review of the professional development transcripts, interviews, and reflective journals, all 14 participants took at least one course that they detailed as being useful in some way to their teaching. One finding after review

of the professional development transcripts and other documents was that 12 of the 14 participants took at least one course that they or another participant had detailed that the course was instrumental in shifting their teaching. All of the participants perceived shifts in their teaching after professional development activities, but there were varying degrees to which they felt this shift occurred.

Participant 12, in the interview, stated, "Many of the activities I use came from the various professional development courses I have taken." In the reflective journal, Participant 5 wrote, "I definitely have shifted my teaching and have opened up to new teaching strategies. I believe the shift has been gradual because it takes time to open up to new ideas and to learn how to design, develop, and implement." Participant 2, in the reflective journal, echoed Participant 5, "The shift in my teaching was immediate after completing professional development activities." In the interview, Participant 9 stated, "I would say it was more of a gradual shift from a cumulative impact with contributing factors."

Summary

In this chapter, I presented the findings of this study. I detailed the setting, the participants, and the data collection process. I presented the data analysis process, the evidence of trustworthiness, and the findings of this study. The four themes that emerged from the data were *usefulness, specific technologies, mode of instruction*, and *specific collaborative activities/opportunities*. Participants specifically addressed research question 1 with responses in the themes of usefulness and specific collaborative activities/opportunities. Research question 2 was addressed by participants with the

themes of usefulness and mode of instruction. Finally, research question 3 was addressed by the theme of usefulness.

Chapter 5 includes an interpretation of the findings in Chapter 4. The research questions are used as the framework to interpret the findings. Chapter 5 will also include limitations of the study, implications for social change, any recommendations, and a conclusion about the importance of the study.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this qualitative study was to describe the perspectives of instructional faculty at one community college about the use of ICT and collaboration opportunities in professional development activities and the perceived effectiveness of these activities. I used an exploratory case study design. Although specific technologies have been studied individually, few studies examine the perspectives of instructional faculty collaboration in the context of the implementation of ICT use in the professional development courses offered at their institution. Thus, the problem for this study was to discover what instructional faculty members at a community college believe about the collaboration surrounding ICT used in professional development, mainly focusing on effective practices, as viewed through the lens of connectivism.

Three research questions guided this study.

RQ 1: What are the opportunities for collaboration within professional development activities for instructional faculty members at a community college that allow for a diversity of opinions?

RQ 2: What are the perspectives of instructional faculty members at a community college about the effectiveness of professional development activities that incorporate ICT with and without human interaction?

RQ 3: How do instructional faculty members perceive their teaching shifted after participation in the professional development activities that allow for connections between ideas or concepts?

Interpretations of Findings

In this section, I interpret the findings for the research questions. I interpret the findings based on the themes that emerged from the research questions. I also interpreted the findings to confirm, disconfirm, or extend the findings from the literature.

Research Question 1

Research Question 1: What are the opportunities for collaboration within professional development activities for instructional faculty members at a community college that allow for a diversity of opinions?

In examining the literature, it was found that collaboration within institutions through professional development activities helps teachers improve their instruction. Goddard and Kim (2018) found that when teachers collaborated on curriculum, instruction, school improvement, and professional development, then they felt as though the collaboration allowed them to be thoughtful and challenged. Czerniawski et al. (2017) found that instructors want opportunities to work with colleagues in their professional development, and those professional development learning communities could provide the opportunity to work collaboratively. Byrd (2017) found that having structured time in professional development for collaborating with peers is important, because it allows for the sharing of best practices and increasing self-efficacy.

The conceptual framework of connectivism states that diversity of opinion helps the process of learning and knowledge acquisition. The participants of this study echoed the literature and conceptual framework in that all of them detailed at least one specific collaborative activity/opportunity that they participated in and enjoyed. While in these

professional development activities, the participants of this study stated multiple times how their interactions with other faculty and different technologies allowed them to grow. Participant 3 even went as far as to say, “Seeing how others utilize these tools and techniques is essential.” The sixth principle of connectivism is that learning and knowledge reside in a diversity of opinions. The findings related to research question one show that in this instance, the faculty members felt that they could learn and gain knowledge from a diversity of opinions.

Research Question 2

Research Question 2: What are the perspectives of instructional faculty members at a community college about the effectiveness of professional development activities that incorporate ICT with and without human interaction?

One of the themes that emerged from the literature was that digital professional development can be successfully implemented in many formats and can also be implemented in tandem with face-to-face offerings. Blau et al. (2017) found that technologies could be leveraged more aggressively in professional development content to reach more individuals and that having synchronous and asynchronous options for professional development opportunities could reach more individuals. Dean et al. (2017) found that an intentionally designed online space can foster a sense of community for instructors and that for the community to be successful, it must be properly supported and sustained. Upitis and Brook (2017) found that webinars and face-to-face workshops networking, collaboration, professionalism, and collegiality were cornerstones of the success of the professional development but also that both content and pedagogy needed

to be explored for the professional development to be successful. The conceptual framework, connectivism, detailed the following principles that learning is possible without human interaction and that diversity of opinions help with the process of learning/knowledge acquisition. During this study, the findings echoed the literature and the conceptual framework. During the interviews and reflective journals, all the participants shared at least one technology that they learned in a professional development course and then implemented in their student-facing courses. Participant 11, in the interview, stated, "Professional development activities have definitely increased my use of information and communication technology." All of the participants had taken at least one professional development course in each of the three modalities, online, face-to-face, and hybrid. Participant 4, in the reflective journal, wrote, "With each new professional development course I took, I would slowly integrate the new idea or activity into my courses." The second principle of connectivism is that information to be learned often resides in nonhuman appliances, which means that an individual does not necessarily need human interaction to learn. The findings related to research question two show that in this instance, the faculty members felt that they could learn across different modalities of professional development activities. These spanned face-to-face, online, and hybrid modalities of content. Some of which included no synchronous interactions with other individuals.

Research Question 3

Research Question 3: How do instructional faculty members perceive their teaching shifted after participation in the professional development activities that allow

for connections between ideas or concepts?

One of the principles of connectivism is that finding connections between ideas or concepts is an important skill. During the literature review, it was found that connections could occur with the proper set up of professional development activity. Afacan Adanir (2017) found that if a CSCL environment is structured properly, then once one member solves one aspect of a problem, a transfer of knowledge and experience to the other members could occur. Byrd (2017) found that having structured time in professional development for collaborating with peers is important because this allows for the sharing of best practices and increasing self-efficacy. During this study, after review of the professional development transcripts, interviews, and reflective journals, all 14 participants took at least one course that they detailed as being useful in some way to their teaching. In the reflective journal, Participant 5 wrote, "I definitely have shifted my teaching and have opened up to new teaching strategies. I believe the shift has been gradual because it takes time to open up to new ideas and to learn how to design, develop and implement." The fifth principle of connectivism is that a core skill is the ability to see connections between fields, ideas, and concepts. As participants participated in professional development activities, they stated that they felt they started to see connections with the concepts within them to their teaching practices.

Research Questions and Connectivism

I believe the findings of this study further the conceptual framework, connectivism. Specifically, I think it confirms the second, fifth, and sixth principles of connectivism or at least adds to the research that confirms those principles. More research

will, of course, be needed to further confirm, disconfirm, or elaborate on connectivism as a whole. Connectivism was selected as the conceptual framework for this study because of the focus on collaboration. To that end, I believe that connectivism was useful in understanding a case like this. The problem for this study focused on instructional faculty members' beliefs about collaboration and technologies used in professional development activities; connectivism was uniquely suited for this case and study.

Limitations of the Study

There were several limitations to the study. To control for researcher bias—I was the only person responsible for data collection, analysis, and interpretation—I used specific strategies to address the trustworthiness of this exploratory case study: data triangulation, member checks, and reflexivity. Another limitation of this study is related to the number of cases. Yin (2014) also noted that theoretical replication of case study research is possible only when four to six cases are conducted, which may be an additional limitation. Yin (2014) contended that only literal replication is possible with a single case. Therefore, the data that is collected from participant faculty members may not be as deep as if it were collected from multiple interviews and reflective journals that were maintained over a more extended period of time.

In qualitative research, Merriam (2009) noted that trustworthiness is important if educators and researchers want to replicate a study or implement any of the recommendations. To replicate qualitative research, rigorous data collection and analysis procedures must be closely followed. In chapter 3, strategies were detailed to help ensure that there was evidence of trustworthiness. In this section, I will detail these strategies

that I implemented and any adjustments that were needed in relation to the constructs of credibility, transferability, dependability, and confirmability.

Credibility, Merriam (2009) noted, is about whether or not the research findings match reality. Merriam recommended that the following strategies be considered to improve the credibility of qualitative research: triangulation, member checks, adequate engagement in data collection, and peer examination or peer review. For this study, I used the strategy of triangulation by comparing and contrasting data sources in this study. I also used the strategy of member checks (Birt et al., 2016) by asking participants to review my tentative findings for their credibility. I included in an email a summary of the findings I have developed based on their interview. I then requested that they send any corrections or identify any misconceived conclusions within seven days. No one had any corrections or felt I misconstrued any of their responses. In addition, I used the strategy of adequate engagement in data collection by collecting the interview data, reflective journal data, and documents over the course of a few weeks, and the findings are in the findings section below.

Transferability, Merriam (2009) noted, concerns whether the research findings are applicable to other situations. Merriam recommended the following strategies to improve the transferability of qualitative research: rich, thick description, and maximum variation. For this study, I used the strategy of rich, thick description by describing the setting, participants, and findings in detail within reason, to keep responses confidential. I also used the strategy of maximum variation of the sample by purposefully selecting participants who teach across different modalities (such as online, face-to-face, and

hybrid) and departments. There were 14 total participants, nine of them were full-time instructors, and five were part-time instructors. The 14 instructional faculty members represent a variety of departments and disciplines, as detailed in Table 1 above. This study is being conducted at one community college, so the findings were limited in this issue of transferability.

Traditionally, Merriam (2009) noted, dependability is about whether or not the research findings can be replicated. In qualitative studies, dependability involves presenting data that is consistent so that conclusions can be drawn. Merriam (2009) recommended the following strategies to improve the dependability of qualitative research: triangulation, peer examination, investigator's position, and audit trail. For this study, I used the strategy of triangulation by comparing and contrasting multiple data sources. I also used the strategy of an audit trail by maintaining a research notebook that consisted of reflections and decisions that I made during the research process.

To address confirmability or objectivity in qualitative research, Merriam (2009) noted that qualitative researchers must be able to clearly articulate any assumptions, biases, dispositions, assumptions, and experiences that they may have about the phenomenon under investigation. Articulation of these aspects is essential for researchers so that they are aware of their own potential biases and assumptions in relation to the phenomenon. For this study, I used the strategy of the researcher's position or reflexivity by reflecting critically about myself as a researcher in a notebook that I maintained during the research process. I did this by journaling after each interview to capture my reflections.

Recommendations

For future research, this study could be expanded to more than one campus. Additionally, expanding the study to include colleges, K-12, and universities would add to this study, not just a community college. Using a larger sample size could increase the number of perspectives given. A future study could also include administrators and deans to add their perspectives. A future study could examine other principles of connectivism; this study focused on the second, fifth, and sixth with the research questions that were crafted. Additionally, a future study could focus even further on collaboration opportunities and the faculty members' beliefs of their effectiveness.

Implications for Social Change

This study is expected to impact social change by providing educators, instructional designers, and researchers with a deeper understanding of the perspectives of faculty members on the effective practices in technology use within staff development activities across multiple disciplines at the community college level. Society benefits from improved instruction at the community college level when students receive better instruction and when other faculty, professional development designers, and administrators have access to contemporary research related to effective practices for technology use in teaching. Each improvement that is made in instruction has an impact on however many lives that instructor interacts with using that improved instruction. Social change may also occur if faculty have chances to collaborate in professional development opportunities and have access to professional development in a variety of modalities, which should lead to improved instruction (Goddard & Kim, 2018; Upitis &

Brook, 2017). Community colleges are the nation's primary workforce development mechanism and also serve as a lower entry cost to college education (O'Banion, 2019) For this population of students, in particular, increasing the quality of the instruction they receive from faculty has wide-ranging potential for social change. The limitations by the scale and scope of this study may lessen the amount of transferability to other institutions.

Conclusion

The results of this study were interpreted from a connectivism conceptual framework perspective. This conceptual framework was chosen because it aligned closely with collaboration, which is vital in describing effective practices for technology use in professional development. The problem for this study was to discover what instructional faculty members at a community college believe about the collaboration surrounding ICT used in professional development, mainly focusing on effectives practices, as viewed through the lens of connectivism. I think this study did address this problem. I believe I was able to learn the beliefs of faculty members regarding collaboration and ICT used in professional development activities, focusing on effective practices and connectivism. But I believe additional studies should increase the number of participants.

To improve teaching and learning, instructional faculty at community colleges participate in professional development activities, most using information and communication technology. Prior studies examined specific technologies being used in professional development activities but did not examine multiple technologies from the

instructional faculties' perspectives. This study was needed because it explored how professional development for instructional faculty at one community college reflects effective practices in technology use that apply the principles of connectivism for instructional faculty. Few studies examine the perspectives of instructional faculty collaboration in the context of the implementation of ICT use in the professional development courses offered at their institution. The purpose of this qualitative study was to describe the perspectives of instructional faculty at one community college about the use of collaboration opportunities and ICT in professional development activities, and the perceived effectiveness of these activities.

This qualitative study of the professional development program at one community college located in the southeast region of the United States included 14 instructional faculty members representing a variety of departments and disciplines. Since I was the lone researcher on this study, that limited the number of cases to a single case, a single community college that is not representative of all community colleges across the United States. Therefore, findings may only be generalizable to similar cases. During this study, from the literature and participants, it was found that collaboration within institutions through professional development activities helps teachers improve their instruction. Every participant detailed at least one specific collaborative activity/opportunity that they participated in and enjoyed. The participants of this study stated multiple times how their interactions with other faculty and different technologies allowed them to grow. The literature ad participants also detailed how digital professional development can be successfully implemented in many formats and can also be implemented in tandem with

face-to-face offerings. All the participants of this study shared at least one technology that they learned in a professional development course and then implemented in their student-facing courses. Additionally, all of the participants had taken at least one professional development course in each of the three modalities, online, face-to-face, and hybrid. All participants detailed how collaboration was a core component of them feeling that they had a successful professional development activity experience.

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Appendix A: Invitational Email

Hello,

My name is Hunter Looney, and I am currently a doctoral student at Walden University, an accredited institution of higher education. I am conducting a dissertation study titled "*Instructional Faculty Perspectives on Connectivist Practices in Professional Development Activities*" at this community college. I am also a Faculty Developer/Instructional Designer at this institution. This study is separate from my professional role at the institution.

You have been invited to participate in this study because you have met all of the inclusion criteria, which are:

(a) participants must be currently employed as full-time or part-time instructional faculty at the community college selected for this study

(b) participants have visited the campus professional development center throughout the past academic year

(c) participants must be currently participating in or have participated in at least one professional development activity involving technology within the last one and a half academic years.

If you are interested in participating, meet all of the criteria above, and have read the attached letter of consent, then you can reply to this email within 2 weeks of receiving this invitation with 'I Consent'. I can be contacted via email at garywayne.looney@waldenu.edu, this email was used throughout the study if you have any question.

Appendix B: Letter of Consent

Dear Faculty Member,

You are invited to take part in a research study titled "*Effective Practices for Technology Use in Professional Development at Community Colleges*" at this community college. You have been invited to participate in this study because you are an instructional family member at this community college and because you have participated in a professional development activity involving technologies within the last year. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether or not to take part.

A researcher named Gary Wayne Hunter Looney, who is a doctoral student at Walden University, is conducting this study. You might already know the researcher as an employ at this community college, but this study is separate from that role. As you may already know, this researcher has no supervisory responsibility for you at this community college and does not facilitate the professional development courses that you have participated in.

Background Information:

The purpose of this qualitative study is to describe the perspectives of instructional faculty at one community college about the use of collaboration opportunities and information communication technologies use in professional development activities and the perceived effectiveness of these activities.

Procedures:

If you agree to be in this study, you was asked to:

- Participate in one individual interview that will take place in a private conference room on the campus of this community college during non-instructional hours and was about 30 to 45 minutes in length. An audio recording was made of this interview.
- Respond to questions in an online reflective journal that will take about 30 to 45 minutes to complete.
- The researcher will share a summary of the data from your interview and reflective journal with you to insure accuracy. You can then respond with whether there are erroneous conclusions and there will then be an opportunity to correct or change anything. This will take about 30 to 45 minutes to complete.
- Share the professional development activities you have taken (also known institutionally as your faculty development transcript).

Sample Interview Questions:

- What are some opportunities that you had while in a professional development activity to collaborate with your colleagues? Explain.
- Were collaborative opportunities in the professional development activities in online, face-to-face, or hybrid courses? Explain.

Sample Reflective Journal Questions:

- In your classroom do you have collaborative chances for your students?

- Were these informed by professional development activities? Explain.

Voluntary Nature of the Study:

This study is voluntary. No one at this community college will treat you differently if you decide not to participate in this study. If you decide to participate in this study now, you may change your mind later, and disengage from the study. You may stop at any time without penalty.

Compensation:

There is no compensation for participation in this study.

Risks and Benefits of Participating in this Study:

Participating in this study will not pose a risk to your safety or wellbeing. However, you may find some of the questions challenging to answer. All research activities place some degree of burden on you the participant by asking you to share personal information, volunteer time, and assume some risks. The benefit of participating in this study is that your responses could help the larger educational community possibly gain a deeper understanding of how professional development for instructional faculty at this community college reflects effective practices in technology use.

Privacy:

Reports related to this study will not include the identities of individual participants, the school, or the state. The researcher will not use your personal information for any purpose outside of this research project. Data were kept secure through the use of a password protected computer database, use of pseudonyms for participants and the school, and storing print data in a locked file cabinet in the

researcher's home. Data were kept for a period of at least 5 years, as required by the university.

Contacts and Questions:

You may ask any questions you have now. Or if you have questions later, you may contact the researcher via email at garywayne.looney@waldenu.edu. If you want to talk privately about your rights as a participant, you can contact the Research Participant Advocate for Walden University at 612-312-1210 or email IRB@waldenu.edu. Walden University's approval number for this study is 07-11-19-0321014 and it expires on 07/10/2020. The participating institution's IRB approval number for this study is 20-0002 and it expires on 06/19/2020. You may print or save a copy of this consent form for your records.

Obtaining Your Consent:

If you feel you understand the study well enough to make a decision about it, please indicate your consent to participate by replying to this email 'I Consent'.

Appendix C: Interview and Reflective Journal Protocol

Demographic Questions

- How long have you taught at the collegiate level?
- What department or subject matter do you teach?
- What course(s) are your primary teaching responsibility?
- Are you full-time or part-time?

Interview and Reflective Journal Questions by Research Question Alignment

RQ 1: What are the opportunities for collaboration within professional development activities for instructional faculty members at a community college that allow for a diversity of opinions?

- What are some opportunities that you had while in a professional development activity to collaborate with your colleagues? Explain.
- Were collaborative opportunities in the professional development activities in online, face-to-face, or hybrid courses? Explain.
- After the professional development activities, what did you change in your classrooms in regard to collaboration? Explain.
- In your classroom do you have collaborative chances for your students?
- Were these informed by professional development activities? Explain.

RQ 2: What are the perspectives of instructional faculty members at a community college about the effectiveness of professional development activities that incorporate ICT with and without human interaction?

- When you took a course that used Information and Communication Technology did you find that it used it effectively? Explain.
- What Information and Communication Technologies were used in the professional developments activities that you participated in?
- After the professional development activities, did your use of information and communication technology change? Explain.
- In your classrooms, did the use of information and communication technology increase, decrease, or stay about the same? Explain.

RQ 3: How do instructional faculty members perceive their teaching shifted after participation in the professional development activities that allow for connections between ideas or concepts?

- After completion of professional development activities, did you experience a shift in your teaching practice?
- After participating in professional development activities, do you feel any differently about your teaching or choice of instructional approaches?
- After the completion of professional development activities did anything that effected students shift? (Examples: Activities, Assessments, Integrated Technologies, etc.)
- Do you perceive a shift in your teaching after completion of these professional development activities or was it a more gradual shift?

Appendix D: Interview Guide

Opening script:

Thank you for participating in this interview. This interview should be about 30 to 45 minutes. I was recording this interview using two separate recording devices to ensure that I capture your responses accurately. I wasgin this interview by asking you some demographic questions, and then I will proceed to the interview questions. If you need clarity on a question or time to think about a question, please feel free to ask. I have also provided you with a copy of the questions. Are you ready to proceed? [Wait for response.] Let's get started.

Demographic questions:

- How long have you taught at the collegiate level?
- What department or subject matter do you teach?
- What course(s) are your primary teaching responsibility?
- Are you a full- or part-time teacher at this institution?

Interview questions:

- What are some opportunities that you had while in a professional development activity to collaborate with your colleagues? Explain.
- Were collaborative opportunities in the professional development activities in online, face-to-face, or hybrid courses? Explain.
- After the professional development activities, what did you change in your classrooms in regard to collaboration? Explain.

- When you took a course that used Information and Communication Technology did you find that it used it effectively? Explain.
- What Information and Communication Technologies were used in the professional developments activities that you participated in?
- After completion of professional development activities, did you experience a shift in your teaching practice?
- After participating in professional development activities, do you feel any differently about your teaching or choice of instructional approaches?

Closing script:

Thank you for participating in this interview. You was receiving an email from my @waldenu.edu email address with the reflective journal questions. Please read and reflect on these questions over a 2-week period. If you wish to continue participating in this study, I would like your responses back at the end of that 2-week period. If you wish to remove yourself from this voluntary study, you can indicate this at any time or choose to not complete the reflective journal questions. Do you have any questions? [Wait for response.] Thank you for your time, and have a wonderful day.

Appendix E: Reflective Journal Guide

Directions: Please write a paragraph or two in response to each question. Please return your responses digitally to Hunter Looney via email within 2 weeks from the date that you received this reflective journal. Thank you for your time.

- In your classroom do you have collaborative chances for your students?
- Were these informed by professional development activities? Explain.
- After the professional development activities, did your use of information and communication technology change? Explain.
- In your classrooms, did the use of information and communication technology increase, decrease, or stay about the same? Explain.
- After the completion of professional development activities did anything that effected students shift? (Examples: Activities, Assessments, Integrated Technologies, etc.)
- Do you perceive a shift in your teaching after completion of these professional development activities or was it a more gradual shift?

Appendix F: Document Data Collection Form

Document Title: List of Professional Development, Descriptions of Professional Development Activities, and Requirements for Professional Development Certificates.

Date Collected: During Interviews and Reflective Journal

Source: Professional Development department of college, college website, and the participants

Criteria: The list of professional development courses will only include those taken by the participants.

Purpose: To examine the descriptions, requirements, and the list of courses taken by the participants to realize any commonalities.

Structure: The list of professional development courses will come in a pdf as their transcript. The descriptions and requirements was copy and pasted from the website of the college.

Content: List of courses taken, description of those courses, and which of those courses are a part of professional development certificates at the college.

Use: Finding any commonalities between the certificates, activities, and the perspectives of the faculty.