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ABSTRACT

TEACHER PREFERENCE IN PROFESSIONAL DEVELOPMENT

Teacher professional development (PD) is seen as best ways to ensure teacher quality and guarantee positive student achievement outcomes; however, there is a lack of appropriate and effective PD. This quantitative study examined teachers' preferences in PD content and delivery. Teachers from a K-12 public school district in Northwest Arkansas were invited to participate in a cross-sectional survey, and 292 teachers responded. The measured variables were the professional development preferences of the teachers, the teachers' years of experience, the grade level at which teachers teach, gender, the content of preferred PD, and the delivery or format of preferred PD. The researcher adapted questions from the 2018 Teaching and Learning International Survey (TALIS) after receiving permission to do so, and, utilizing the information in the literature review created additional questions for the survey. Survey data were disaggregated using IBM's SPSS software to conduct t-tests and One-way ANOVAs. The data indicates that there are differences in teacher preferences based upon their years of experience and the level at which they teach. Understanding teacher preferences based on their career stages and their professional needs as adult learners can facilitate more appropriate and effective teacher PD.

Key words: teacher preference, professional development, teacher career stage models

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Chapter I: Introduction

Teaching is a complex profession, and teachers must balance competing demands for their time. They are expected to know about content, psychology, child development, effective communication, pedagogy, and a host of other skills. One way to combat the wide-ranging demands placed on teachers is professional development (PD). Because of all of the manifold and varied things that a teacher must be proficient at doing, it is imperative that teachers stay current in their practice. Thus, they have a “need to constantly update and upgrade themselves." (Tan et al., 2015, p. 1584). Few would argue against ongoing PD, but the question becomes what offerings best serve teachers.

There is a growing body of research into effective PD for educators. One theme that emerges across all of the research is the idea that teacher PD cannot be an on-size-fits- all program. Teachers are at varying stages in their careers and serve students in a plethora of contexts. "Teacher professional development must recognize that teachers have different needs and appreciate that practice is unique for each teacher with each class" (Beavers, 2009, p, 29). Having teachers attend PD that does not benefit their practice is not the best use of educational resources. Teachers must have PD that is not only aligned to the goals of policymakers, their districts, and best practice but is also customized to meet their individual goals.

One explanation for the differences in teacher needs is the notion that teacher careers have stages and the skills and knowledge of the professional change with each stage. "Within the adult development and career development literatures, there are theories and studies that acknowledge that teachers have different attitudes, knowledge, skills, and behaviors at various points during their career" (Lynn, 2002, p. 179). Teachers

with varying degrees of experience require differing PD because what they know, can do, and are interested in improving their practice changes as they progress through their careers.

The professional development of teachers has been studied for many different reasons. Two important reasons and interrelated reasons teacher PD is researched is because it has a direct impact on student learning, and the teaching profession has a large amount of turnover. "While teacher shortage has become a global issue, investigating how highly skilled teachers become demotivated and frustrated can lead to an understanding of how personal and contextual factors influence teachers' postulation of their professional development outcomes" (Kwee, 2020, p. 4004). Simply put, teachers whose PD needs are not met (for a host of reasons) can become frustrated. This frustration leads to a loss of expertise in the field as teachers either leave the profession or remain but exhibit signs of burnout.

There are numerous studies linking teacher PD to student achievement and various education reform initiatives. Numerous studies delineate the characteristics of effective PD. Some studies have examined the stages of teacher careers and the teachers' needs at each stage. However, one major gap in the research is to examine teachers' preferences in PD. An important missing component is to look at what types of PD teachers would like to engage in and how those PD preferences or requirements change over time.

This quantitative research study aimed to ask teachers what PD they would like to engage in. In which types of PD would teachers like to engage? What formats and contents do they prefer when participating in PD. The study examined the following

questions whether the teachers' preferences vary with years of experience, if the grade level of the teacher (elementary, middle, junior high, or high school) affects their preferred content, and if a preference for in-person or online delivery of the PD is affected by years of experience or grade taught. The quantitative study asked teachers to participate by filling out a survey that utilized a Likert scale to indicate their preferences.

Background of the Problem

Professional development (PD) for teachers is a huge cost to school districts. This cost plays out both in terms of financial investments, but it is also a large investment in time. Researchers Wei et al. (2010) studied trends in teacher professional development in the United States. They concluded, "Based on this analysis, we found that the average reported number of hours of professional development across the national sample was 43.9 hours during the previous 12 months" (Wei et al., 2010, p. 34). Those more than forty hours represent at least one week of work.

Because so much time is given to teacher PD, the time needs to benefit teachers. In light of this, Garet et al. (2001) suggest "(I)n order to provide useful and effective professional development that has a meaningful effect on teacher learning and fosters improvements in classroom practice, funds should be focused on providing high-quality professional development experiences" (p. 937). This investment is undertaken because stakeholders see it as a way to improve student learning.

Continued learning for teachers is not only important for teachers but it is also identified as vital for student outcomes. Darling-Hammond (1996) writes, "Students' right to learn is directly tied to their teachers' opportunities to learn what they need to know to teach well" (p. 3). When teachers know more content, acquire better classroom

management skills, learn new or better teaching strategies, and understand new learning research, they are more effective in the classroom. Heller et al. (2012) add to this notion by stating, "(T)he literature contains clear evidence of the critical role that teacher content knowledge plays in raising student achievement (p. 335). Simply put, teachers who continue to learn or develop as practitioners are better able to facilitate student learning.

Because PD is seen as having such a profound impact on student achievement and districts want to steward their often limited resources, it has become important to identify the characteristics or components of high quality or effective PD. Hill et al. (2013) write that over the past twenty years, "(S)cholars have identified program design elements thought to maximize teacher learning, including a strong content focus, inquiry-oriented learning approaches, collaborative participation, and coherence with school curricula and policies of credible, usable knowledge within the professional develop (p. 476). When designing effective professional development, it is important to consider what is being taught, how long it is taught and supported, the context in which it is learned, and how it fits with other initiatives.

Not only is it important to consider the components of effective PD, but it is also important to consider how changes in technology have affected and are affecting the delivery or format for PD. Increased availability and use of technology are new issues. It is creating a demand for teachers to learn about the technology and to learn how to further student learning by using it. Online platforms for PD are increasingly seen as a cost-effective way to deliver PD.

Not only is the format of teacher PD changing, but also increasing attention is being paid to teachers as learners and their unique requirements as adult learners. Adults

often learn with other adult learners. Levine and Marcus (2007) write that PD "may be undertaken in ways that either foster or prevent teachers' collegial learning, with implications for what teachers internalize: that is, what they know and can do on their own after support for a specific intervention fades" (p. 133). If the needs of teachers as adult learners are not met PD initiatives are less likely to be sustained.

In addition to the aspiration for collegial support and internalization of learning, adult learners must balance their learning with their obligations to ensure student learning. Time is a major barrier to ongoing quality PD. Garet et al. (2001) state "Institutes, courses, and conferences are other traditional forms of professional development that share many of the features of workshops, in that they tend to take place outside of the teacher's school or classroom; and they involve a leader or leaders with special expertise and participants who attend at scheduled times" (p. 920). Teachers seem reluctant to prioritize their own learning over time spent in the classroom with students.

Many see this as a losing situation. If the teacher is not in the classroom, the students' learning is interrupted or delayed. If the teacher does not attend ongoing PD, he/she is not as able to assist students with their learning. Grover et al. (2016) address this issue by stating, "One of the most important aspects of a professional development program is to find how to motivate faculty to attend despite increasing demands for their time" (p. 7). The loss of time with students is both a reason that teachers may turn to online and asynchronous platforms and a reason that teachers may opt out of PD opportunities.

Research on adult learners and teachers suggests that engagement increases when participants have choice and/or voice in PD offerings. Levine and Marcus (2007) offer a

critique of PD that does not take into account the wants of teachers by writing, "Such approaches seem less likely to help teachers internalize new values or new practices that they might later use on their own" (p. 119). Allowing this input honors the unique needs and expertise of teachers, and they are ineffective due to a lack of sustainability. Teachers are more likely to engage if they can participate in decisions about the content, format, and timing of PD.

Another important aspect of teachers as adult learners is that the aims and goals of teachers are difficult to categorize. Teachers vary widely in their experiences, expertise, skill, pedagogical knowledge, and motivations. Byman et al. (2020) state, "Different occupational groups have different professional development interests. This must be kept in mind when teacher educators are studied" (p. 16). Ignoring the wishes of teachers as individuals results in one-size-fits-all PD that is less expensive, but it is also less effective.

Problem Statement

Much research has been done to establish links between student learning and elements of effective teacher PD (Heller et al., 2015), to determine the characteristics of effective teacher PD (Girma et al., 2019, Starkey et al., 2009), and to examine the ways that technology has changed the PD landscape (Grover et al., 2016, Hahn & Lester, 2012). While it is seen as one of the best ways to ensure teacher quality and guarantee positive student achievement outcomes, there is a lack of appropriate and effective PD.

Purpose of the Study

The purpose of this study was to identify the preferences of teachers when engaged in PD. The study asked teachers to self-report their likes and dislikes in the

content and the format of PD. This quantitative study examined the PD preferences of public school teachers in Northwest Arkansas by using a survey to ask teachers to identify which PD components and formats they prefer as indicated on a Likert scale.

Research Question

This quantitative study sought to determine teachers' preferred professional development needs at various stages in their careers and various contexts. The teachers who participated in this quantitative study had varied years of experience and different grade levels at which they teach. All of them work in a K-12 public school district in Northwest Arkansas. The variables that were measured are the professional development preferences of the teachers, the teachers' years of experience, the grade level at which teachers teach, gender, the content of preferred PD, and the format of preferred PD. A cross-sectional survey, using a Likert Scale will be used to solicit teacher preferences. The research questions used for this study were as follows:

R1: Is there a significant difference in PD content preferences based on gender?

R2: Is there a significant difference in PD content preferences based on the highest academic degree the teacher has obtained?

R3: Is there a significant difference in PD content preferences based on the school-level where the teacher teaches (elementary, middle, high school, etc.)?

R4: Is there a significant difference in PD content preferences based on years of teaching experience?

R5: Is there a significant difference in PD delivery preferences based on gender?

R6: Is there a significant difference in PD delivery preferences based on the highest academic degree the teacher has obtained?

R7: Is there a significant difference in PD delivery preferences based on the school-level where the teacher teaches (elementary, middle, high school, etc.)?

R8: Is there a significant difference in PD delivery preferences based on years of teaching experience?

Theoretical Framework

Teacher professional development is often described in terms of teacher learning or in terms of continuous professional learning. In light of that, several interrelated learning theories provided a framework for the basis of this study. Piaget and Vygotsky's work Cognitivism make up the first. Cognitivism is important in studying teacher preferences in PD because it says that there are stages in learning and those stages have distinct characteristics. The second major theory is Malcolm Knowles' Andragogy. He is the best-known early proponent of Andragogy, which is the study of how adults learn. Adult learning and the conditions that best support adult learning are the crux of teacher PD. The final theoretical framework that informed the creation of this study is Developmental Stage Theory. Developmental Stage Theory is important in light of this study because it attempts to describe the stages of teacher careers, and it categorizes the concerns of teachers at each stage. Understanding what teachers want to learn about and how they learn best is a crucial part of researching their preferences in PD.

Significance of the Study

This study explored the content and formats that teachers are more inclined to choose. Teachers are adult learners and as such, they have unique and specific needs. To maximize the effectiveness of teacher PD, those areas of concern must be addressed. Because the learning of teachers is firmly situated in their own experiences and

understandings, it is important to understand their preferences in the context in which they work. The goal of studying teachers' preferences is to better plan meaningful and targeted PD offerings in Northwest Arkansas.

Research Design

This quantitative research study examined the preferences of teachers in the content and format of PD, and the study attempted to determine the relationship between teachers' careers' characteristics and the type of preferred PD. The research focused on looking at the patterns of the data that is self-reported by teachers concerning the PD in which they would like to participate in a cross-sectional survey using a Likert scale to rate PD offering and formats.

Definition of Terms

In this study, the key terms will be defined as follows:

Andragogy: The study of adult learning

Career Stage Theories: Categories or characteristics of teachers at various stages in the teaching career process (Fessler, 1995, p. 171)

Cognitivism: Learners move through stages of development (Trotter, 2006, p. 10)

Content Knowledge: The teachers' understanding of "the materials and programs that serve as 'tools of the trade' for teachers" (Darling-Hammond, 1990, p.34).

Formal PD: Teacher learning that includes "workshops, in-house courses, and other activities organized by external agents" (Jansen, 2018, p. 19).

Informal PD: Teacher learning opportunities that are "organized by teachers themselves based on their own learning goals" (Jansen, 2018, P. 19). These included conversations and collaborations.

Pedagogy: "The art and science of teaching children" (Knowles et al., 2015, p. 41).

Pedagogical Knowledge/Pedagogical Content Knowledge: The teachers' understanding of "how to teach a particular subject matter content" (Leithwood et al., 2004, p.13).

Professional Development: It is any activity that is intended partly or primarily to prepare paid staff members for improved performance in present or future roles in the school districts" (Little, 1987, p. 491).

Reform PD: Professional development include study groups, networking, mentoring, and coaching (Lee, 2005, p. 40)

Traditional PD: Professional development that includes activities such as workshops, seminars, and conferences (Lee, 2005, p. 40)

Assumptions

In the undertaking of this study, the researcher made four types of assumptions. The first are ontological assumptions. For this quantitative study, it is assumed that teachers have preferences in PD, and those preferences can be measured. The second type of assumptions are epistemological. This study assumes that learning about or acquiring knowledge about teacher PD preferences is an objective process. Knowledge about teacher PD preferences, stages of careers, and years of experience can be measured. The third assumption is axiological, and it is that the scoring of teacher preferences for PD will objectively inform what type of PD teachers would like to engage in, and these ratings will give valuable information. The final type of assumption is methodological. The assumptions in this quantitative study are that no subjective data are necessary and the closed-ended survey will give the needed information.

Limitations

The limitations of this study vary. First, the study is limited in the scope of responses. Only teachers in Northwest Arkansas will participate. Of those invited to participate a convenience sample will participate. Another limitation is time. The study will describe the responses of teachers in the fall of 2021. Finally, the study cannot determine causation. Teaching and the motivations behind why teachers choose the PD that they choose are complex and convoluted. The study examines the correlation between teacher PD and other job-related factors, and it does not address causation.

Delimitations

The delimitations of the study are the available resources and the time constraints. The study will be conducted using a cross-sectional survey that will be given in the fall of 2021 because it is being conducted as a doctoral dissertation. The results must be gathered, disaggregated, and reported in the spring of 2022. Since a graduate student is conducting the study, there are no sources of funding with which to expand the study. The study is limited to online survey results from teachers in Northwest Arkansas in the fall of 2021.

Summary and Organization of the Remainder of the Study

This quantitative study has five chapters. Best practices in education provided the contextual framework for this study that will examine teacher PD preferences. This research writing follows the conventional organization of contents, which includes the title with chapters, and introduction with a background of the study, a statement of the problem, and the significance of the study on teachers' preferences in PD and the

relationship between those preferences and the teachers' career stage (Creswell & Creswell, 2018).

Consequently, the literature review gave credence to several teacher belief systems and perceptions, the importance, and components of effective teacher PD, barriers to teacher engagement, adult learning theories and their importance in teacher learning, career stage theories, a brief history of policy that has informed PD, and major reform movements in teacher PD.

Chapter II: Literature Review

Teacher professional development represents a cost both in terms of financial expense and in terms of time commitment. Several themes emerged in the literature. Teacher PD is adult learning. Adult learning theory is steeped in cognitivism and developmental stage theory.

Adult learning has emerged as a specific and new learning category. Because of the huge investment that teacher PD represents, it is important to examine why continued teacher learning is so crucial. It is also vital to study the components that make it effective. The literature also delineates the history of policy and reforms in teacher PD. It is important to look at policy and reform changes to understand the historical context of current teacher PD. Finally, previous research examined the reasons teachers either participate or choose not to engage in PD and the changes in delivery format.

Importance of Effective Professional Development

Not only is there a large investment of money and time, but many other things are riding on effective PD. Many believe that the success of programs and educational initiatives hinge on whether or not teachers are properly trained. Desimone (2009) writes that "understanding what makes professional development effective is critical to understanding the success or failure of many education reforms" (p. 181). The key to teachers enacting reforms is the training that the educators have received. If teachers are not properly trained, implementation of new policies or reforms is much less likely to occur.

Over time, professional literature has detailed this connection between teacher effectiveness and teacher PD. "Research increasingly has identified the continuing development and learning of teachers as one of the keys to improving the quality of U.S. schools" (Borko & Putnam, 1995, Darling-Hammond, 1996, Desimone, 2009). The quality of student learning depends on the quality of the schools. Teachers' professional growth underpins both student learning and school quality.

Teacher learning continues to be at the heart of many proposed changes in schools and school systems. One of the most important aims of teacher PD is better student learning. "In addition to improving students' learning, professional development for teachers aims at changing and improving the current practices, notions, knowledge, and opinion to make them reach the required standards" (Girma et al., 2019 p. 36). Poorly trained educators or those who have not continued their professional learning are not as effective at teaching students. Ineffective or inappropriate professional development is costly because it affects student learning.

Professional Development Policy

The policies that lawmakers have enacted have forged and shaped teacher PD in American schools. From the 1960s to the 1990s there was a strengthening of the control over schools by the federal government due to the allocation of funds.

This top-down view of schooling and how best to improve education in America played out in the policy in the resulting teacher PD. The 1990s ushered in some large initiatives which rippled into changes in the content and format of PD.

Modern teacher professional development has its foundation in the Cold War. In 1957, Russia seemed to be winning in the areas of mathematics and science because of

the launch of Sputnik. American schools looked as if they were lagging behind schools in Russia. The response was quick and decisive. "Within a year, President Eisenhower signed into law the National Defense and Education Act (NDEA), which originally aimed to improve the quality of teaching in science and mathematics and later included foreign languages, social sciences, and English" (Lieberman & Miller, 2014, p. 4). This program was designed to fix the deficits in teachers' understanding of the material and was hoped to result in more learning for students.

The next major law that affected teacher professional training and development was the Elementary and Secondary Act (ESEA) of 1965. This legislation was part of Lyndon B. Johnson's War on Poverty. The law allocated funds for professional development. Title I was the largest allocation of funds in this law. The inception of the Title I funds was to improve the quality of education for poor students. Critics of this law did not approve of the expansion of the federal government's role in education. Teacher PD researchers and policy analysts continue to argue against top-down or federally mandated professional development due to the lack of personalization and the absence of local control that this type of policy creates.

In 1983, the National Commission on Excellence in Education published a report titled, *A Nation at Risk*. The report detailed several areas that needed to be improved in American schools. These included a lack of course requirements, the necessity of academic standards, and an emphasis on the lack of teacher training.

The focus of this report was to identify and focus on deficit areas in education in the United States. One major criticism of this report and the resulting policy changes was the lack of input from educators about the best ways to improve education. "As was the

case in the Sputnik era, school districts depended on outside experts to conduct workshops for classroom teachers on how to implement the practices the report recommended" (Lieberman & Miller, 2014, p. 5). The resulting PD did not take into account teacher skill, prior knowledge, or experiences.

In 1988, Title I was amended. At that time, states were required for the first time to focus on the academic achievement of disadvantaged pupils. "Public schools across the nation were required to annually assess student academic progress on the basis of standardized test scores" (Thomas & Brady, 2005, p. 54). ESEA funds were contingent on the academic achievement of the disadvantaged students. The results for public schools and teacher PD were an increased concentration on academic standards and on identifying what students should know and be able to do.

The federal dominance in education reform continued until 1991. That year, America 2000 failed and was not passed into law. "Nevertheless, the significance of America 2000 in relation to ESEA was that the legislation acted as a catalyst for education reform based on the activism of states and the development of academic standards common to all students" (Thomas & Brady, 2005, p. 54). At this time, education reformers were calling for teacher PD to be bottom-up initiated instead of top-down driven.

In 1994, the Goals 2000: Educate American act placed a greater focus on teacher education for pre-service teachers and professional development. "In 1994, reauthorization of the Elementary and Secondary Education Act (ESEA) mandated states to use a combination of mandates and inducements to force the Goals 2000 standards-based reforms across the fifty states" (Bales, 2015. P. 305). These initiatives resulted in

teacher PD that was heavily focused on content and strategies to raise test scores that would persist.

In 2001, ESEA was reauthorized and became commonly known as No Child Left Behind (NCLB). This new version of the law "tied state compliance of the Goals 2000 policy changes to a series of public reporting systems and essential public and higher education funding. NCLB also put forward the expectation that every child would have access to a Highly Qualified Teacher (HQT)" (Bales, 2015, p. 305).

NCLB would usher in a new age of accountability for educators.

Critics were quick to point out that teacher PD was not necessarily positively affected. NCLB "focused on the implementation of policies and practices that were aimed at raising student scores on the mandated state tests. The result was more teacher workshops, more prescribed skills and content, more scripted curriculum, more activities geared to teaching to the test, and a continued use of a training approach" (Lieberman & Miller, 2014, p. 6). The impetus for the teacher training was to fix what was wrong with teachers and thereby improve student learning. The policies and resulting PD did not consider the skills and knowledge base of teachers nor the learning contexts of students.

In 2009, the American Recovery and Reinvestment Act offered the opportunity to improve teacher PD with the Race to the Top Fund (RTT). The monies were awarded to states to carry out projects in four areas: adopting rigorous standards and assessments, recruiting, developing, retaining, and rewarding effective teachers and principals, building data systems to measure student data and inform practice, and turning around the lowest-performing schools (U. S. Department of Education, 2016). The goal of these

funds was to foster innovation. Many districts used this money to facilitate teacher learning as they adopted new curricula, programs, and strategies.

To meet the goal of the adoption of rigorous standards, many states implemented Common Core State Standards (CCSS). These standards were designed to homogenize the information and skills that students were expected to master. Tied to the use of the RTT funds was the need to be able to demonstrate student growth. The measures of student growth were to be used to evaluate teacher (and principal) effectiveness. Teacher professional development continued to be viewed from a deficit model and to be driven by top-down policy implementation.

The ESEA was revised. In 2015, it was named the Every Student Succeeds Act (ESSA). Many saw the revision of ESEA as a return of control over educational policy to the states. "The new ESSA law includes shifting the power of designing and implementing tests to state governments. Thus, it represents a significant return of educational authority from the federal government to the state and local level" (Fránquiz & Ortiz, 2016, p.1). Because ESSA (2015) called for multiple measures of student success, so standardized test scores were no longer the only measures for academic improvement.

A shift toward more tailored and context-specific teacher PD can also be seen. However, even after more than forty years of policy changes teacher PD still does not meet the needs of teachers. The policy can mandate certain specifics about PD, but it cannot act as a panacea. "For example, although state statutes can regulate the number of hours of professional development teachers are required to complete for license renewal,

they cannot ensure that those hours are spent fruitfully in high-quality professional development activity likely to improve instruction" (Jaquith et al., 2010, p. 3). We still lack PD that gives priority to teachers' voice, choice, and objectives.

Many education specialists have advocated for PD that is less about policy implementation but that addresses the stated desires of teachers. "We need a wider understanding of professional development that transforms its sense to connote professional learning. The policy-making bodies (Congress, US ED, state education agencies, and local school districts) must change their understanding of what is effective. Decisions about professional learning must be made by individual professionals, in cooperation with their colleagues and their administrators" (Long, 2011, p. 30). Teachers' needs, experience, and knowledge should all inform the PD that they receive.

Professional Development Reforms

The story of education is one of initiatives and reforms. As early as the 1990's, Darling-Hammond (1996) was calling for changes in PD that targeted adult learning and that focused (ultimately) on student learning. "We must work with policymakers to develop strategies for professional development that will infuse greater knowledge in schools and with schools of education to strengthen their ability to transmit and develop knowledge for practice" (p. 4). Educational reforms and their corresponding teacher learning and student outcomes have not always been the primary basis for teacher PD.

However, reform movements like No Child Left Behind, have begun to shift the emphasis of teacher PD. Desimone (2009) describes this change. "Education policy documents within the past several years are beginning to reflect this research consensus on critical features of professional development" (Desimone, 2009, p. 184). High-quality

professional development encompasses teachers' knowledge of content, academic content standards, student achievement, assessments. It also is of sufficient length/duration to allow teachers to learn pedagogy, to learn the teaching strategies, and to be supported as they implement new strategies, programs, initiatives, or curricula.

Because of an increased focus on teacher knowledge of content standards, there has been a greater emphasis on core student learning targets. "A substantial proportion of the funding available for professional development has been directed towards ensuring that they are able to implement specific policy initiatives such as the national literacy and numeracy strategies" (Poulson & Avramidis, 2002, p. 543). Research has proven that these initiatives are of great benefit to student learning. However, as previously delineated, these types of top-down education initiatives are often criticized.

One major criticism of reform movements is that teachers are disconnected from the reform process, and they are disconnected from the professional development that results. "Prescriptive reforms that reduce teachers to technicians are not likely to facilitate teachers' understanding of their work or their ability to adapt it to new circumstances or specific students. Such approaches seem less likely to help teachers internalize new values or new practices that they might later use on their own" (Levine & Marcus, 2007, p. 119). Teaching cannot be reduced to steps in a process. To effectively teach using a new curriculum, changed pacing, or new strategies, teacher PD must allow teachers to explore the motivations for the change, how the changes fit/do not fit with current practice, and how the changes will affect the students in their classrooms.

Sadly, much of the PD is created without input from teachers. Often those who make decisions about what PD should be given are not in the classroom and have not

been in the classroom for some time. "The decision-makers setting policy and planning professional development programs are usually no longer in the classroom, and often teacher input is not sought" (Sauer, 2011, p. 2). Teachers understand their concerns better than policymakers. PD that does not address teachers' needs for continued learning is not effective.

This lack of teachers' input results in a misuse of funds and squanders time. Not only is the time spent in that PD wasted, but this type of ineffective PD continues to waste time and energy even after the meetings conferences, or other activities are finished. A top-down "approach makes the professional development of teachers intellectually superficial, disconnected from deep issues pertaining to the curriculum and learning, and causes it to be fragmented" (Girma et al., 2019, p. 34). Because teachers' wishes are either ignored or marginalized, many initiatives fail. This is due to the lack of buy-in that would result from teacher understanding an input.

Components of Effective Professional Development

Knowing the criteria for effective PD is the first step toward designing programs that meet the needs of teachers. Guskey (2003) writes that by "agreeing on the criteria for 'effectiveness' and providing clear descriptions of important contextual elements, we can guarantee sure and steady progress in our efforts to improve the quality of professional development endeavors" (p. 750). To achieve the aforementioned progress, research has identified key elements of effective PD.

Effective or relevant PD has particular characteristics. Hill et al. (2013) explain that the past two decades of educational research has identified them as "a strong content focus, inquiry-oriented learning approaches, collaborative participation, and coherence

with school curricula and policies . . ." (p. 476). Teacher PD must address the desire to gain further knowledge of academic content. It also must address the needs of adult learners to be able to work with colleagues. Finally, the PD must be part of a larger coherent program by aligning with local and national policy and content standards.

Time is a precious commodity, and teachers often feel the short amount of time that is allotted to affect student learning in each school year. Thus, professional development must not waste time, yet it must last long enough to support new teacher learning. Guskey, (2003) states, "So while effective professional development surely requires time, it's clear that the time must be well organized, carefully structured, and purposefully directed" (p. 749). Time for PD must be well-focused, coherent, well arranged, and free of distractions.

The research suggests how to structure PD time. The most effective use of PD time is that which "incorporates time for instructional planning, discussion, and consideration of underlying principles of curriculum" (Penuel et al., 2007, p. 931). More traditional lecture-style or sit-and-get type PD is not as effective in changing teacher behaviors or affecting learning outcomes. Adult learners process the information better if they can discuss and work collaboratively. They also need time to situate the new learning in their classroom contexts and to examine connections to prior knowledge.

Engagement in Professional Development

The reasons that teachers choose to participate in, engage in, or refuse PD are as varied as the teachers themselves. These differences continue even though the job conditions are similar or the same. It is important to address teachers' PD engagement because it gives insight into the differing levels of commitment to professional learning.

Jansen et al. (2018) advise that "school leaders should acknowledge differences in the content of teachers' autonomous motivations for learning and take them into account in the organization and support of learning activities" (p. 35). By exploring the underlying motivations, PD planners can better address the needs of teachers and provide learning that is timely and relevant.

As previously stated, time is an important factor in PD. It can be a deterrent to engagement. "One of the most important aspects of a professional development program is to find how to motivate faculty to attend despite increasing demands for their time" (Grover et al., 2016, p. 7). Not only do teachers have concerns about the amount of time that they are in PD, but they also have concerns about spending time away from their students.

These time concerns are among the reasons that teacher PD is seeing an upsurge in online offerings. In light of the changing technology, teacher educators should continue to pay attention to the formats that teachers prefer (Liao et al., 2017, p. 523). Online PD allows teachers to receive training while balancing the other demands for their time. It also allows teachers to remain current in their field without losing classroom time.

The research on teacher PD engagement repeatedly circled back to one theme. Teachers are not a uniform group. "Different occupational groups have different professional development interests. This must be kept in mind when teacher educators are studied" (Byman et al., 2020, p. 16). To adequately meet the needs of teachers, it is important to look at their varied experiences and teaching contexts.

One of the main reasons that teachers are so varied is that they teach under variable conditions. Simply put, many teachers do not have access to the same resources as others. This is true in terms of facilities, pay, and teaching materials. It is also true in terms of PD. "While consensus on the nature of effective PD is growing, there remain two primary challenges to providing high-quality programs to all teachers: expense and access" (Masters et al., 2010, p. 358). When teachers do not have access to high-quality, effective PD, their practice suffers.

Teacher practice also suffers when the PD does not meet their goals or objectives. Nir and Bogler (2008) write that teachers are more satisfied (and therefore willing to participate in) PD when "supervisory processes are constructed and designed to serve teachers' actual needs rather than to meet procedural requirements determined by higher-level bureaucrats, often presenting schools with top-down programs" (p. 384). To create more effective teacher PD, teachers must be involved in the PD planning processes. They should be asked what types of PD they prefer.

Epistemological Basis

In conjunction with the critiques of the career stage models, it is important to remember that these models and the concerns of teachers at the various stages can inform PD planning. However, it is also important to note that teachers are not a homogenous group. Even teachers at the same school and stage of their careers have widely different needs. Girma (2019) writes, "[I]t is preferable for multiple approaches to be integrated with one another and address the complex and dynamic characteristics of specific program contents and learner needs" (p. 36). These varied learning objectives and deficit

areas in teacher learning make it important to study teacher preferences to examine to what extent the years of experience and career stages affect the teachers' choices in PD.

Career stage models offer some guidance in teacher PD, and adult learning theories inform PD choices. Specifically, adults must see the relevance of what they are being asked to learn. Terehoff states, "According to the andragogical model, understanding the difference between children and adults in their readiness to learn is important because the concept of a developmental task for adults is connected to their own choice of time and learning content" (p. 69). Adults learn best when they require the information or skill that they are learning and when they have a voice in what and how they are learning.

Finally, not only do adults learn best when they have a choice in what they learn, but there are PD conditions that work against adult learning. "Adult learners tend to resist learning that is in conflict with the direction they believe their learning should go" (Beavers, 2009, p. 27). If teachers feel that PD does not address a problem they are facing, they will not learn as effectively. They may actively resist participating in the learning process.

Teacher PD comes at an enormous cost. Schools and districts invest time and money into the ongoing training or development of teachers. Research is clear about the characteristics that comprise effective PD. It should be context-specific, serve an immediate need, be of sufficient duration to support the teachers as learners, and be part of a coherent and cohesive learning plan that is aligned to local, state, and federal learning standards. Adult learning theories and teacher career stage models offer some

additional insight into how to structure and conduct effective PD. However, teachers and their objectives are varied. It is important to investigate teacher preferences in PD.

Theoretical Framework

The three interrelated theories used to inform the creation of this study are Cognitivism, Andragogy, and Developmental Stage Theory. Jean Piaget receives the credit for developing Cognitivism. Vygotsky furthered it. Andragogy is the study of adult learning; its best-known proponent is Malcolm Knowles. These two theories in conjunction with trends in adult learning have led to the creation of Developmental Stages of Teaching,

Cognitivism

Cognitivism is about how we learn and gain knowledge. Piaget theorized that there are four stages in cognitive development. He posited that there are four stages in cognitive development, and he attached ages to each. They are sensorimotor stage (birth to 2 years), preoperational (ages 2 to 7 years), concrete operational (ages 7 to 11 years), and formal operational (ages 12 and up). Vygotsky expanded on Piaget's idea. His Cognitive Development Theory holds that social interaction is at the heart of cognitive development. Vygotsky believed that learning was dependent on its context. The idea that there are stages of development with specific characteristics and that each stage can be attached to a particular age and/or context is important when looking at patterns in teacher learning and career development.

Adult Learning Theory

Three major adult learning theories reoccurred in the literature review and that had an impact on the organization of this study. They are Andragogy, Self-Directed

Learning Theory, and Transformational Learning Theory. Each of them has shaped adult education. Each of them has implications for the components of effective teacher PD. Literature on teacher PD is replete with references to andragogy, the study of adult learning. Andragogy assumes several key constructs. Adult learners are self-directed, they learn best when the learning meets an immediate need, they have unique experiences which enhance and frame their learning, and their learning moves toward competence. (Knowles, 2015).

The first know use of "andragogy" was by a German educator, Alexander Knapp in 1833. Knapp used it to make a distinction between adult learning and the learning of children, pedagogy (Knowles et al. 2015). Peterson and Ray (2013) describe andragogy's journey from that first mention to popular use. After Knapp's initial use, the term does not reappear until 1921 when German social scientist, Eugen Rosentack used it. From that point on, various European countries used the term, but Anderson Linderman brought it to the United States in 1927. Malcolm Knowles is often credited for bringing the concept to the US. He popularized it in 1968 and is the most known proponent of it.

Andragogy, according to Knowles (1980), is "the art and science of teaching adults" (p. 43). Throughout his career, he identified, and other theorists refined five tenants of andragogy (Knowles et al., 2015; Merriam, 2001; Anji, 2019; Webster-Wright, 2009). First, the adult learner is independent with a self-concept and can guide his/her own learning. Second, adults have life experiences that inform and provide a resource for learning. Third, their learning needs affect their roles in society. Fourth, they approach learning from a problem-centered approach; they want the learning to apply to current

issues they are facing. Finally, adult learners are intrinsically motivated; children are extrinsically motivated to learn.

A foundational concept in Knowles' andragogy is that adults' learning becomes increasingly self-directed (Merriam, 2001). Self-directed Learning Theory is taking ownership over ones' own learning. SDL possets that adults engage in learning projects, which allow the learner to gain skill or knowledge (Tough, 1979; Roberson, 2005; Merriam, 2009; Knowles et al. 2015).

Cyril Houle was a professor who taught and mentor to Malcolm Knowles and Alan Tough. Tough is the best-known proponent of self-directed learning (SDL); a title he earned because he is the first researcher to provide a comprehensive description of SDL (Merriam, 2001; Guskey, 2003, Beavers, 2009). The concept was born out of Tough's work with research subjects that Houle had interviewed for his study of the motivations of adult learners.

Tough (1979) believed that in self-initiated learning projects of adults, the teacher occupied the role of a helper or facilitator. The helper would ideally have high confidence in the learner's ability to plan the learning and would be motivated to assist the learner out of affection or concern for the pupil. This helper would engage in dialogue in which both parties contribute to the conversation and move the learning process forward. The perfect helper has a growth mindset and is open to new experiences and change. (Knowles et al., 2015). Beavers (2015) noted that Tough thought that adult learners should be respected due to the life experiences that they bring to the learning situation, they are not dependent on the teacher for growth to occur, and learning is part of the everyday life of adults.

Transformational Learning Theory expanded on the components of both andragogy and self-directed learning to include "ways of knowing" and to examine how learning becomes the foundation for change in practice (Rohlwing & Spelman, 2019). The adult's prior knowledge and experience are key. In transformational learning (TL), the teacher assists the adult learner in the process of self-directed learning by continuing to engage in dialogue with the learner and by fostering collaborative discourse with other learners. TL also utilizes adults' need for critical reflection (Merriam, 2001).

Jack Mezirow is the best-known champion for TL. He proposed that the goal of learning was to change or transform the learner. "Transformative learning is learning that transforms problematic frames of reference—sets of fixed assumptions and expectations (habits of mind, meaning perspectives, mindsets)—to make them more inclusive, discriminating, open, reflective, and emotionally able to change" (Mezirow, 2003. p. 58). Anjani (2019) adds that adults are motivated by what they can adopt or put into practice; the ability to adapt learning to new situations or use the learning from varied situations in the foundational in TL.

Not only do the premises of these three theories (andragogy, self-directed learning, and transformational learning) underpin adult learning theories, they are also key factors in designing effective development. Examining the cognitive frameworks in which teachers work and learn should inform the creation and design of future learning. How teachers think and what they learn to have a direct effect on what they do in the classroom and their students.

Teacher Career Stages and PD

From the 1960s through the 1980s, many different education researchers and theorists put forth teacher career stage models. Each of them discusses teacher careers in terms of a beginning or initial stage, middle or maturing stage, and a final or exiting stage. Each of the theories examines the characteristics of teachers in each phase of their careers and identified the needs of the teachers at each stage. Fuller and Gregorc did not specify timeframes for the stages in their models; Burke, Fessler, and Christensen only specify a time for the first stage of their model. A summary of the various theories is as follows:

In 1969, Frances Fuller published her Stages of Concern Model. Even though her research concentrated on pre-service teachers and their concerns through the early years of teaching, her research is worth investigation because it paved the way for future career stage models. In Fuller's model, there are four categories of concerns, which are Preteaching Concerns, Early Teaching Concerns, Teaching Situations Concerns, and Concerns about Pupils (Fessler, 1995). Originally, she proposed three categories, but she revised her model after additional research and added the fourth in 1975 (Rinaldi, 2007).

In the Preteaching Concerns group, preservice teachers typically have little or very low involvement with teaching (Fuller, 1969; Fessler, 1995). The preservice phase is the timespan the first contact with students in the classrooms (student teaching) and the teachers' first on-the-job experience. Preteaching is characterized by an over-identification or focus on the role of the students in the observed classroom(s) and criticism or even hostility toward the teachers with whom they are working (Fessler,

1995). This preservice teacher has not experienced teaching, so he/she does not have concerns that center on that role.

At the Early Teaching phase, preservice teachers begin to have "concerns for self." In this stressful time, preservice teachers begin to teach; they are responsible for carrying out teaching tasks. This teacher is concerned about survival, which includes control of the classroom, content mastery, and performance evaluation (Fuller, 1974, Fessler, 1995; Kwee, 2020; Rinaldi 2007).

In the Teaching Situations Concerns classification, teachers begin to add to their survival concerns by attempting to integrate the teaching theories and strategies into practice with students. At this point, the teacher is dealing with the limitations and stresses of the profession (Fessler, 1995). Fuller (1974) points out that the teacher at this phase remains immature and focused self; this teacher has not developed a concern for what the students are learning but is still concentrating on looking and sounding good.

However, in the fourth set, Concerns about Pupils, the teacher makes the transition to a whole child view. The teacher begins to be concerned about the social and emotional needs of the students (Rinaldi, 2007). At this stage, the teacher begins to look at what students are learning and which students need additional support.

Adolph Unruh and Harold Turner (1970), proposed the first career stage model for teachers. Their model delineates three stages and specified time spans for each. The stages are the following: Initial, Building Security, and Maturity (Fessler, 1995; Leugers, 2018).

The initial phase is a period of attempting to earn the respect of colleagues and administration, which lasts 1 to 5 years. The teacher in this phase is concerned with

acceptance by colleagues and administration, learning the rules, mastering content, and understanding the makeup of the organization (Unruh & Turner, 1970). Teachers in this phase are accruing the teaching skills that they will need throughout their careers.

The second phase, Building Security, is the time at which the teacher has a growing sense of student needs, and it lasts from 6 to 15 years (Unruh & Turner, 1970; Fessler, 1995). In this stage, the teacher knows what to do. It is one of professional growth. The teacher will find ways to further his/her career by taking engaging in additional professional development or acquiring advanced degrees. It is also a time when teachers feel job satisfaction (Fessler, 1995). This teacher is confident and secure in the profession.

The final stage in Unruh and Turner's model is Maturity, which lasts from years 16 forward. The teacher in this phase participates in outside interests. They are willing to take on additional roles such as mentoring (Unruh & Turner, 1970; Fessler, 1995). It is a time of security in the life of the professional.

In 1973, Anthony Gregorc published the next widely regarded career stage model which contained four stages. Those stages are Becoming, Growing, Maturing, and Fully Functioning. His model did not include timeframes for each stage.

In the becoming stage, teachers are not fully committed to the profession, and they are just starting to form their concepts about their role, the purpose of education, and the role of education in society. In the second phase, growing, teachers are acquiring the skills and knowledge to be proficient at their jobs. The teacher at this phase has minimal expectations for himself or herself and school administrator support/guidance. This is the time when teachers can form ideas about educational processes and their role in them.

The third of Gregorc's phases is maturing. In the maturing phase, teachers have a strong commitment to their vocation, and they go beyond minimal expectations to contribute. In the final state, fully functioning, teachers examine their beliefs about education. Teachers at the fully functioning phase are immersed in the process of education and are attempting to realize their full potential as educators. (Leguers 2018; Fessler, 1995; Rinaldi 2007).

Peter Burke, Judith Christensen, and Ralph Fessler expanded the career stage model for teachers in 1984. Their model, named Teacher Career Cycle Model contains eight stages, which are Preservice, Induction, Competency Building, Enthusiasm and Growth, Career Frustration, Career Wind Down, and Career Exit. This model incorporates stages from preservice to retirement. The creators acknowledged that the cycles were not linear and may be repeated. This model was the first to differentiate levels within the mature or experienced teacher's career.

The first phase in this model is preservice which is when the teacher is preparing and engaging in student teaching. The second phase is induction, which lasts one to three years. Teachers socialize into the system of education in this stage. The third is competency building which is a period of improving professional skills and strategies. The fourth stage is enthusiasm and growth at which level the teacher has a high level of proficiency. Teachers at this stage join professional organizations and are involved in leadership activities. If a teacher reaches career frustration, he/she will be experiencing burnout and disillusionment. When teachers reach stability and stagnation, they can feel inert and as though they are merely going through the motions. At this point, they can choose to maintain at that level, or they can choose to reengage and return to stage four,

enthusiasm and growth. The next stage is career wind down which is a time of reflection as the teacher prepares to leave the vocation. The eighth and final stage is career exit or the stage when teachers retire or change careers (Christensen et al., 1983; Fessler, 1995; Kwee, 2020; Rinaldi, 2007).

Each of the career stage models has a hierarchical progression from ignorance and incompetence to skillful and knowledgeable practitioners. A major criticism is that the stages are too rigid. Learning is not always linear. Teachers may not move through all of the stages. They may return to a stage, repeat a stage or stages, or skip a stage or stages altogether. Another criticism that later models attempted to address is that the models tend to lump teachers in later stages of their careers into broad categories. Many of the models for example stop differentiating by experience once a teacher reaches five or six years of experience (Christensen et al.; 1983, Fessler, 1995; Kwee 2020; Rinaldi, 2007).

Chapter III: Methodology

The purpose of this quantitative study was to examine the PD preferences of public school teachers in a Northwest Arkansas school district. Participating teachers responded to a survey. The survey asked teachers to identify which PD components and formats they prefer utilizing a Likert scale. The focus of the study was to determine if there is a correlation between teachers' stages in their careers and their stated preferences for PD.

In this section, the research process will be described. The process includes the methodology, design, sample procedures, and instrument. It will also discuss the data analysis and data management procedures of the study.

Research Questions/Hypotheses

This study gathered information from teachers about what type of professional development components, activities, and format teachers prefer? The following questions were addressed:

R1: Is there a significant difference in PD content preferences based on gender?

R2: Is there a significant difference in PD content preferences based on the highest academic degree the teacher has obtained?

R3: Is there a significant difference in PD content preferences based on the school-level where the teacher teaches (elementary, middle, high school, etc.)?

R4: Is there a significant difference in PD content preferences based on years of teaching experience?

R5: Is there a significant difference in PD delivery preferences based on gender?

R6: Is there a significant difference in PD delivery preferences based on the highest academic degree the teacher has obtained?

R7: Is there a significant difference in PD delivery preferences based on the school-level where the teacher teaches (elementary, middle, high school, etc.)?

R8: Is there a significant difference in PD delivery preferences based on years of teaching experience?

Research Design

This research was conducted using a survey design. Surveys allow for anonymous input from the participants, and due to the uncertainty surrounding COVID-19 prevention procedures, it was thought to be best to conduct data collection in a manner that limited face-to-face interactions. Arkansas Tech University's Institutional Review Board (IRB) approved the study. See Appendix A for a copy of the IRB approval.

The survey utilized a Likert-type survey, which collected quantitative data from teachers in a Northwest Arkansas school district. Creswell and Creswell (2018) describe survey research as providing "a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. This methodology allowed for statistical analysis of the data. The study used a cross-sectional data collection since the survey was administered once.

The researcher adapted questions from the 2018 Teaching and Learning International Survey (TALIS) after receiving permission to do so, and, utilizing the information in the literature review created additional questions for the survey. The concerns of teachers at various stages in their careers are apparent in the literature. The survey questions mirror these reported needs and ask teachers to provide specific

demographic data. The demographic data asked about level of education, years of experience, and level/grade at which the teacher works.

The research was relational. The purpose of the study was to determine if there was a relationship between the years of experience (or stage/cycle of the teachers' career) and the type of professional development that they prefer or need. Data will be compared by gender, years of experience, level of teacher education, and grade level taught.

Population and Sample Selection

This study examined the professional development preferences of K-12 public school teachers in a Northwest Arkansas school district. According to ADE My School Info (n.d.), there were 1195 licensed teachers working in the target district. The district's website provided the names and addresses of potential participants. Permission was obtained to ask teacher to participate in the survey. See Appendix B for a copy of the permission letters. After faculty who do not have teaching roles and duplicate faculty members (those who served in multiple settings) were removed, 1145 teachers were asked to participate in the survey. The sample size was calculated using a power analysis. When the confidence level is 95% and the desired margin of error is 5%, the minimum required sample size is 288. The sample was a convenience sample.

Instrumentation

A survey was created after obtaining permission to adapt selected questions from the 2018 Teaching and Learning International Survey (TALIS) produced by the Organisation for Economic Co-operation and Development (OECD). Questions were used with permission and a copy can be found in Appendix C. The researcher added questions based on the literature review and demographic questions that ask about

teachers' level of education, grade level of students they teach, gender, and years of experience. Another category of questions asked about what form of PD teachers prefer. These questions focused on online or in-person activities. The final category of questions asked teachers about the content of PD that they would prefer. These questions asked about content, pedagogy, assessment, classroom management, teaching strategies, and parent communication. A copy of the survey is included in Appendix D.

A pilot survey was conducted in the target district. Fourteen participants were recruited to take the survey and provide feedback on their experience with it. Twelve of the fourteen agreed to participate in the pilot study. See Appendix E for pilot study questions and feedback. Selection procedures were based on convenience, but care was taken to ensure that the participants were selected to represent the various dimensions that are important to the study in terms of years of experience, gender, academic degrees, and grade level taught.

There were two purposes in conducting the pilot survey and soliciting feedback. The first purpose was to ensure that the teacher PD preference survey was clear, and teachers could easily understand it. The second purpose was to determine what if any modifications needed to be made.

Because of the pilot study feedback, the final survey changed in several ways. The questions in the final survey appear in a different order. The questions with similar Likert scales were grouped together. Question number 11 which asked about the impact of particular PD on teachers' practice was changed from a "yes" or "no" answers to a Likert scale that asked how strongly they agreed or disagreed.

Data Collection and Management

Data collection is a multistep process. First, teachers were sent an introductory email, which explained the research project, gave the research questions, and invited the teachers to participate in a short survey. They received a link that invited them to participate in the survey in an online format using Google forms. The following week, an email was sent reminding them of the survey and providing the link to the survey. Three weeks after the initial contact, the survey was closed and data were downloaded into an Excel spreadsheet.

Before completing the survey respondents were aware of the informed consent process. The beginning question on the survey asked the participant to read and agree to the informed consent information. Participants were that their data is anonymous and that their participation was voluntary. Finally, they were told that they may opt out of the study at any point. A brief explanation of the opt-out procedures was included.

The data were stored in a password-protected google sheet. The data could only be accessed on a privately owned computer. Identifying information was only accessible by the researcher. As soon as the research was complete, all data were permanently deleted. No research data were maintained after the study was completed.

Data Analysis Procedures

Once the data were collected, it underwent a series of statistical processes to examine its meaning. First, the data were coded to allow respondents to remain anonymous. To code, the responses were listed in a password-protected Excel worksheet. The Google form that contained the teacher survey was set to only allow one response per participant and participants could only access the survey via their district Google accounts. No identifying information was collected by the survey.

All of the questions except the demographic question that asked about the gender of the respondent were set as required questions, which meant that participants had to answer the question to continue with the form. Therefore, there were no incomplete survey responses. This was done to ensure the correctness of statistical analysis such as mean, median, and standard deviations were not skewed.

Both descriptive and inferential analyses were applied to the data. Data were analyzed using IBM's Software Package for Social Sciences (SPSS) software. Demographic data such as gender, level of academic degrees, level at which the teacher teaches (elementary, middle school, junior high, or high school), and years of experience were used to examine teachers' preferences for professional development.

There are many variables in this study, which were coded to facilitate data disaggregation. Gender, years of experience (both total and in the current position), academic degrees, and grade levels at which teachers teach were treated as nominal variables and were coded as such.

Once the data were completely coded and entered into the SPSS program, several analyses were performed to address the research questions.

R1: Is there a significant difference in PD content preferences based on gender?

R2: Is there a significant difference in PD content preferences based on the highest academic degree the teacher has obtained?

R3: Is there a significant difference in PD content preferences based on the school-level where the teacher teaches (elementary, middle, high school, etc.)?

R4: Is there a significant difference in PD content preferences based on years of teaching experience?

R5: Is there a significant difference in PD delivery preferences based on gender?

R6: Is there a significant difference in PD delivery preferences based on the highest academic degree the teacher has obtained?

R7: Is there a significant difference in PD delivery preferences based on the school-level where the teacher teaches (elementary, middle, high school, etc.)?

R8: Is there a significant difference in PD delivery preferences based on years of teaching experience?

In conclusion, Chapter 3 delineates the research questions and hypothesis for the research study. This study examined the PD preferences of teachers. Data were collected using an adapted cross-sectional survey after receiving permission from the creators. Teachers were asked to rate their preferences for the content and format of PD, and they were asked to give demographic information. Data were managed and maintained in an ethical manner that protects the participants' private information. The research data were analyzed using descriptive statistics, T-test, and ANOVA tests utilizing the SPSS software. The quantitative format and analysis methods were chosen to collect data in a timely and efficient manner and to add to the professional body of knowledge by filling a gap in the research by asking teachers in a public school in Northwest Arkansas about their professional development preferences.

Chapter IV: Results

The researcher used the target district's staff listing to locate teachers' email addresses. One thousand forty-five certified K-12 teachers were asked to complete the survey, and 294 responded; however, two teachers indicated that they did not wish to have their answers included in the research results.

Demographic Information

Participants varied in their demographic information. The participants were certified staff who taught at elementary, middle school, junior high, and high school levels. Because the time that a teacher has been teaching, the time spent in the current role, and any prior experience inform the stage of a teacher's professional career and the content and the type of professional development they might desire, the survey collected information about the teachers' experiences.

The data included teachers' overall years of experience, the years spent in the current role, and the number of years spent in a profession that is not a K-12 educator. Demographic questions on the survey also asked participants about their gender, the grade level at which they teach, and the highest degree that they have earned. See Table 1.

Table 1

Demographic Information

Demographic Categories		n	%
Gender			
	Female	219	75.0

Note. Table 1 continues on the next page.

Demographic Categories		n	%
	Male	71	24.3
	No answer	2	0.7
Highest Degree Earned			
	Bachelor's	84	28.8
	Master's	190	65.1
	Specialist	16	5.5
	Doctorate	2	0.7
Grade Level			
	Elementary	60	20.5
	Middle School	30	10.3
	Junior High	112	38.4
	High School	90	30.8
Total Years in K-12			
	1-3 years	26	8.9
	4-9 years	76	26.0
	10-15 years	65	22.3
	16-25 years	80	27.4
	More than 25 years	45	15.4

PD Teachers Had Participated In During the Last 12 Months

Surveyed teachers answered questions about the PD that they had attended in the past twelve months. These sub-questions asked about the types of PD in which they had participated. Results indicated that the responding teachers participated in in-person

courses, online courses, and read professional literature. Fewer teachers participated in conferences, formal qualification programs, and observations to other schools. The results for teachers who participated in peer or self-evaluation programs and networks for professional development were varied. See Table 2.

Table 2

PD Attended During the Past 12 Months

Attended PD in the Past 12 Months	Attended		Not Attended	
	n	%	n	%
In-person courses/seminars	273	93.5	19	6.5
Online courses/seminars	259	88.7	33	11.3
Educational conferences	106	36.3	186	63.7
Formal qualification program	68	23.3	224	76.7
Observation visits	47	16.1	245	83.9
Observation and coaching	156	53.4	136	46.6
PD Network	172	58.9	120	41.1
Reading professional literature	219	75.0	73	25.0

PD Teachers Had Participated in By Gender

Within these sub-questions, results indicate that a high number of the female respondents participated in online and in-person courses and read professional literature. Fewer responded that they had taken part in conferences, formal qualifications, or observations at other schools. There were more evenly divided results for participation in learning networks and peer or self-evaluation programs. The male respondents also

demonstrated a high level of involvement in online and in-person courses. They indicated a low level of attendance in formal qualification programs, conferences, and observations at other schools. The male survey contributors indicated a higher level of participation in peer or self-observations, learning networks, and reading professional literature. See Table 3

Table 3

PD Attended During the Past 12 Months by Gender

Gender	Female				Male			
	Yes		No		Yes		No	
	n	%	n	%	n	%	n	%
In-person courses/seminars	209	95.4	10	4.6	63	88.7	8	11.3
Online courses/seminars	193	88.1	26	11.9	65	91.5	6	8.5
Educational conferences	80	36.5	139	63.5	25	35.2	46	64.8
Formal qualification program	57	26.0	162	74.0	11	15.5	60	84.5
Observation visits	43	19.6	176	80.4	4	5.6	67	94.4
Observation and coaching	115	52.5	104	47.5	41	57.7	30	42.3
PD Network	129	58.9	90	41.1	43	60.6	28	39.4
Reading professional literature	168	76.7	51	23.3	49	69.0	22	31.0

PD Teachers Had Participated in By Degree

When examining teachers' participation data disaggregated by the highest degree that teachers had earned, it is important to note that among the participants only two held doctoral degrees. Among teachers with bachelor's degrees, the most attended PD choices

were in-person and online seminars. Slightly less than three-fourths of the respondents answered that they had read professional literature. Teachers who held master's degrees responded in very similar ways. Those with specialist degrees also mimicked these data with the exception that nearly all of them said they had read professional literature. See Table 4.

Table 4

PD Attended During the Past 12 Months by Degree

	Bachelor's				Master's				Specialist				Doctorate			
	Yes		No		Yes		No		Yes		No		Yes		No	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
In-person courses/seminars	79	94.0	5	6.0	178	93.7	12	6.3	14	87.5	2	12.5	2	100	0	0.0
Online courses/seminars	71	84.5	13	15.5	173	91.1	17	8.9	13	81.3	3	18.8	2	100	0	0.0
Educational conferences	32	38.1	52	61.9	67	35.3	123	64.7	6	37.5	10	62.5	1	50.0	1	50.0
Formal qualification program	25	29.8	59	70.2	35	18.4	155	81.6	7	43.8	9	56.3	1	50.0	1	50.0
Observation visits	9	10.7	75	89.3	31	16.3	159	83.7	6	37.5	10	62.5	1	50.0	1	50.0
Observation and coaching	52	61.9	32	38.1	96	50.5	94	49.5	6	37.5	10	62.5	2	100	0	0.0
PD Network	51	60.7	33	39.3	113	59.5	77	40.5	7	43.8	9	56.3	1	50.0	1	50.0
Reading professional literature	59	70.2	25	29.8	143	75.3	47	24.7	15	93.8	1	6.3	2	100	0	0.0

PD Teachers Had Participated in by Level

When disaggregating the participation in PD by the level at which teachers taught, several of the trends remain the same. The categories with the highest percentages of survey respondents participated in were online and in-person courses or seminars. Elementary and junior high school teachers had higher percentages of participating teachers than in middle school and high school in online courses or seminars. Reading professional literature was the next highest area for all four school levels. Observation visits to other schools scored the lowest at each school level. See Table 5.

Table 5

PD Teachers Had Attended During the Past 12 Months by Level

	Elementary				Middle				Junior				High			
	Yes		No		Yes		No		Yes		No		Yes		No	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
In-person courses/seminars	57	95.0	3	5.0	28	93.3	2	6.7	105	93.8	7	6.3	83	92.2	7	7.8
Online courses/seminars	55	91.7	5	8.3	26	86.7	4	13.3	102	91.1	10	8.9	76	84.4	14	15.6
Educational conferences	23	38.3	37	61.7	13	43.3	17	56.7	44	39.3	68	60.7	26	28.9	64	71.1
Formal qualification program	14	23.3	46	76.7	10	33.3	20	66.7	21	18.8	91	81.3	23	25.6	67	74.4
Observation visits	6	10.0	54	90.0	10	33.3	20	66.7	17	15.2	95	84.8	14	15.6	76	84.4
Observation and coaching	33	55.0	27	45.0	17	56.7	13	43.3	66	58.9	46	41.1	40	44.4	50	55.6
PD Network	35	58.3	25	41.7	14	46.7	16	53.3	68	60.7	44	39.3	55	61.1	35	38.9
Reading professional literature	50	83.3	10	16.7	25	83.3	5	16.7	80	71.4	32	28.6	64	71.1	26	28.9

PD Teachers Had Participated In By Years of Experience

The same data examined by the teachers' years of experience showed high percentages of participation in in-person courses or seminars. However, a lower percentage of the respondents with more than 25 years of experience had participated in them in the past 12 months compared to the other categories. Each of the other categories (1 to 3 years, 4 to 9 years, 10 to 15 years, and 16 to 25 years) of survey respondents answered that they had participated in them. Participation in online courses or seminars also had two years of experience categories that were markedly different from the others. In the data for this sub question, both the categories for 10 to 15 years and over 25 years had a lower percentage of teachers who had participated in that PD.

When asked about attending educational conferences, teachers with more experience answered that they had participated in this type of PD. The percentage of participation increased with increased years of experience.

There was a distinct variation in the attendance of formal qualification courses (college classes or degree programs) for those with 1 to 3 years of experience. They had the highest percentage of participation. The sub-questions of participation in observation visits to other schools and coaching PD activities had the highest percentages.

Teachers who had participated in a PD network varied by category of experience. Those with the least and most experience had the highest percentage of responding teachers who had participated. High percentages of teachers at every level read professional literature as PD. The greatest percentages were in the 1 to 3 and 4 to 9 years categories. The lowest group for this sub question was those with 16 to 25 and those with more than 25 years of experience. See Table 6.

Table 6

PD Attended During the Past 12 Months by Years of Experience

	1 to 3 Years				4 to 9 Years				10 to 15 Years				16 to 25 Years				25+ Years			
	Yes		No		Yes		No		Yes		No		Yes		No		Yes		No	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
In-person courses/ seminars	26	100	0	0.0	73	96.1	3	3.9	62	95.4	3	4.6	73	91.3	7	8.8	39	86.7	6	13.3
Online courses/seminars	24	92.3	2	7.7	70	92.1	6	7.9	53	81.5	12	18.5	73	91.3	7	8.0	39	86.7	6	13.3
Educational conferences	6	23.1	20	76.9	26	34.2	50	65.8	20	30.8	45	69.2	35	43.8	45	56.0	19	42.2	26	57.8
Formal qualification program	17	65.4	9	34.6	15	19.7	61	80.3	12	18.5	53	81.5	15	18.8	65	81.0	9	20.0	36	80.0
Observation visits	10	38.5	16	61.5	9	11.8	67	88.2	6	9.2	59	90.8	11	13.8	69	86.0	11	24.4	34	75.6
Observation and coaching	26	100	0	0	47	61.8	29	38.2	29	44.6	36	55.4	34	42.5	46	57.0	20	44.4	25	55.6
PD Network	20	76.9	6	23.1	45	59.2	31	40.8	34	52.3	31	47.7	38	47.5	42	52.0	35	77.8	10	22.2
Reading professional literature	24	92.3	2	7.7	52	68.4	24	31.6	52	80.0	13	20.0	57	71.3	23	28.0	34	75.6	11	24.4

Topics of PD Attended in the Past 12 Months

The survey asked teachers to indicate which topics were the focus of the PD that they had attended in the past 12 months. The most attended topics were those that addressed student assessment (both student assessment practices and analysis and use of student assessments), knowledge of subject (that the teacher teaches), pedagogical competencies, knowledge of curriculum, and technology skills needed to teach. The lowest attendance percentages were in communicating with people from other countries or cultures and cooperation with parents or guardians. See Table 7.

Table 7

Topics of PD Attended in the Past 12 Months

	Yes		No	
	n	%	n	%
Knowledge of subject	237	81.2	55	18.8
Pedagogical competencies	231	79.1	61	20.9
Knowledge of the curriculum	226	77.4	66	22.6
Student assessment practices	249	85.3	43	14.7
Technology skills for teaching	207	70.9	85	29.1
Classroom management	139	47.6	153	52.4
Individualized learning	202	69.2	90	30.8
Students with special needs	170	58.2	122	41.8
Multicultural or multilingual	125	42.8	167	57.2
Cross-curricular skills	125	42.8	167	57.2

Note. Table 7 continues on the next page.

	Yes		No	
	n	%	n	%
Analysis and use of assessment	236	80.8	56	19.2
Teacher-parent/guardian co-operation	69	23.6	223	76.4
Communicating with different cultures	72	24.7	220	75.3

Topics of PD Attended by Gender

Responses examined based upon the gender of the respondents yielded varied results. The most distinct differences were in the higher percentages of those who responded that they had attended knowledge of subject, pedagogical competencies, and student assessment practices were much higher for female teachers. Male respondents, on the other hand, indicated higher attendance percentages in PD focused on multilingual or multicultural teaching and technology skills for teaching. See Table 8.

Table 8

Topics of PD Attended in the Past 12 Months by Gender

	Female				Male			
	Yes		No		Yes		No	
	n	%	n	%	n	%	n	%
Knowledge of subject	188	85.8	31	14.2	48	67.6	23	32.4
Pedagogical competencies	176	80.4	43	19.6	54	76.1	17	23.9
Knowledge of the curriculum	172	78.5	47	21.5	53	74.6	18	25.4
Student assessment practices	190	86.8	29	13.2	57	80.3	14	19.7

Note: Table 8 continues on the next page.

	Female				Male			
	Yes		No		Yes		No	
	n	%	n	%	n	%	n	%
Technology skills for teaching	151	68.9	68	31.1	54	76.1	17	23.9
Classroom management	108	49.3	111	50.7	29	40.8	42	59.2
Individualized learning	150	68.5	69	31.5	50	70.4	21	29.6
Students with special needs	127	58.0	92	42.0	41	57.7	30	42.3
Multicultural or multilingual	86	39.3	133	60.7	38	53.5	33	46.5
Cross-curricular skills	96	43.8	123	56.2	27	38.0	44	62
Analysis and use of assessment	178	81.3	41	18.7	56	78.9	15	21.1
Parent/guardian co-operation	53	24.2	166	75.8	14	19.7	57	80.3
Communicating with different cultures	56	25.6	163	74.4	15	21.1	56	78.9

Topics of PD Attended by Degree

When the data were disaggregated by the highest degree that teachers had earned, there were some variations in the percentages of teachers who attended the various topics. The largest differences were in pedagogical competencies, technology skills for teaching, classroom management, individualized learning, teaching students with special needs, teaching cross-curricular skills, and parent/guardian cooperation.

Both teachers with bachelor's and master's degrees heavily attended PD on student assessment. Those with specialist degrees highest attendance percentages were in knowledge of curriculum and in assessment practices. All four categories had

communicating with other cultures and parent/teacher cooperation as the least attended topics. Data are summarized in Table 9.

Table 9

Topics of PD Attended in the Past 12 Months by Degree

	Bachelor's				Masters				Specialists				Doctorate			
	Yes		No		Yes		No		Yes		No		Yes		No	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Knowledge of subject	66	78.6	18	21.4	156	82.1	34	17.9	13	81.3	3	18.7	2	100	0	0.0
Pedagogical competencies	63	75.0	21	25.0	155	81.6	35	18.4	11	68.8	5	31.2	2	100	0	0.0
Knowledge of the curriculum	64	76.2	20	23.8	146	76.8	44	23.2	14	87.5	2	12.5	2	100	0	0.0
Student assessment practices	72	85.7	12	14.3	162	85.3	28	14.7	13	81.3	3	18.7	2	100	0	0.0
Technology skills	62	73.8	22	26.2	135	71.1	55	28.9	9	56.3	7	43.7	1	50.0	1	50.0
Classroom management	48	57.1	36	42.9	85	44.7	105	55.3	6	37.5	10	62.5	2	100	0	0.0
Individualized learning	54	64.3	30	35.7	139	73.2	51	26.8	7	43.8	9	56.2	2	100	0	0.0
Students with special needs	39	46.4	45	53.6	122	64.2	68	35.8	7	43.8	9	56.2	2	100	0	0.0
Multicultural or multilingual	39	46.4	45	53.6	79	41.6	111	58.4	6	37.5	10	62.5	1	50	1	50.0

Note. Table 9 continues on the next page.

	Bachelor's				Masters				Specialists				Doctorate			
	Yes		No		Yes		No		Yes		No		Yes		No	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Cross-curricular skills	41	48.8	43	51.2	80	42.1	110	57.9	4	25.0	12	75.0	2	100	0	0.0
Analysis and use of assessment	67	79.8	17	20.2	156	82.1	34	17.9	12	75.0	4	25.0	1	50.0	1	50.0
Parent/guardian co-operation	21	25.0	63	75.0	47	24.7	143	75.3	1	6.3	15	93.7	2	100	0	0.0
Communicating different cultures	20	23.8	64	76.2	47	24.7	143	75.3	5	31.3	11	68.7	2	100	0	0.0

Topics of PD Attended by Level

When examining the data on topics of PD that teachers had attended by the level at which teachers work, there were some interesting similarities in all four levels (elementary, middle, junior high, and high school), and there were some interesting differences as well. Teachers in every category indicated a high level of attendance in PD that focused on student assessment practices and/or analysis of student assessment data. Elementary students also indicated a higher level of participation in classroom management PD. High school teachers indicated a higher much higher percentage of participation in technology skills for teaching and in individualized learning. The lowest percentages in all four groups were in PD on communicating with different cultures and parent/teacher cooperation. See Table 10.

Table 10

Topics of PD Attended in the Past 12 Months by Level

	Elementary				Middle				Junior				High			
	Yes		No		Yes		No		Yes		No		Yes		No	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Knowledge of subject	53	88.3	7	11.7	27	90.0	3	10.0	96	85.7	16	14.3	61	67.8	29	32.2
Pedagogical competencies	52	86.7	8	13.3	24	80.0	6	20.0	96	85.7	16	14.3	59	65.6	31	34.4
Knowledge of the curriculum	53	88.3	7	11.7	28	93.3	2	6.7	92	82.1	20	17.9	53	58.9	37	41.1
Student assessment practices	44	73.3	16	26.7	27	90.0	3	10.0	101	90.2	11	9.8	77	85.6	13	14.4
Technology skills	43	71.7	17	28.3	17	56.7	13	43.3	73	65.2	39	34.8	74	82.2	16	17.8
Classroom management	47	78.3	13	21.7	12	40.0	18	60.0	38	33.9	74	66.1	42	46.7	48	53.3
Individualized learning	39	65.0	21	35.0	20	66.7	10	33.3	70	62.5	42	37.5	73	81.1	17	18.9
Students with special needs	26	43.3	34	56.7	15	50.0	15	50.0	61	54.5	51	45.5	68	75.6	22	24.4
Multicultural or multilingual	28	46.7	32	53.3	12	40.0	18	60.0	36	32.1	76	67.9	49	54.4	41	45.6

Note. Table 10 continues on the next page.

	Elementary				Middle				Junior				High			
	Yes		No		Yes		No		Yes		No		Yes		No	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Cross-curricular skills	34	56.7	26	43.3	15	50.0	15	50.0	46	41.1	66	58.9	30	33.3	60	66.7
Analysis and use of assessment	46	76.7	14	23.3	24	80.0	6	20	98	87.5	14	12.5	68	75.6	22	24.4
Parent/guardian co-operation	16	26.7	44	73.3	6	20.0	24	80	26	23.2	86	76.8	21	23.3	69	76.7
Communicating different cultures	17	28.3	43	71.7	8	26.7	22	73.3	26	23.2	86	76.8	21	23.3	69	76.7

Topics of PD Attended by Years of Experience

When examining the topics of PD attended by years of experience, some clear differences emerged. However, all five categories of years of experience (1 to 3, 4 to 9, 10 to 15, 16 to 25, and more than 25 years) had high percentages of participation in PD about student assessment practices. Those with 1 to 3, 4 to 9, and 10 to 15 years of experience highest attendance percentages were in knowledge of subject and pedagogical competencies. Those with 1 to 3 years showed a high amount of participation in classroom management PD. Those with more than 25 years of experience also indicated that they had attended Pd on technology skills for teaching. See Table 11.

Table 11

Topics of PD Attended in the Past 12 Months by Years of Experience

	1 to 3 Years				4 to 9 Years				10 to 15 Years				16 to 25 Years				25+ Years			
	Yes		No		Yes		No		Yes		No		Yes		No		Yes		No	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Knowledge of subject	23	88.5	3	11.5	63	82.9	13	17.1	52	80.0	13	20.0	64	80.0	16	20.0	35	77.8	10	22.2
Pedagogical competencies	24	92.3	2	7.7	63	82.9	13	17.1	52	80.0	13	20.0	62	77.5	18	22.5	30	66.7	15	33.3
Knowledge of the curriculum	20	76.9	6	23.1	62	81.6	14	18.4	53	81.5	12	18.5	58	72.5	22	27.5	33	73.3	12	26.7
Student assessment practices	24	92.3	2	7.7	62	81.6	14	18.4	59	90.8	6	9.2	64	80.0	16	20.0	40	88.9	5	11.1
Technology skills	20	76.9	6	23.1	54	71.1	22	28.9	41	63.1	24	36.9	51	63.7	29	36.3	41	91.1	4	8.9
Classroom management	22	84.6	4	15.4	41	53.9	35	46.1	20	30.8	45	69.2	32	40.0	48	60.0	24	53.3	21	46.7

Note. Table 11 continues on the next page.

	1 to 3 Years				4 to 9 Years				10 to 15 Years				16 to 25 Years				25+ Years			
	Yes		No		Yes		No		Yes		No		Yes		No		Yes		No	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Individualized learning	19	73.1	7	26.9	61	80.3	15	19.7	37	56.9	28	43.1	54	67.5	26	32.5	31	68.9	14	31.1
Students with special needs	12	46.2	14	53.8	48	63.2	28	36.8	32	49.2	33	50.8	52	65.0	28	35.0	26	57.8	19	42.2
Multicultural or multilingual	15	57.7	11	42.3	33	43.4	43	56.6	25	38.5	40	61.5	35	43.8	45	56.2	17	37.8	28	62.2
Cross-curricular skills	15	57.7	11	42.3	31	40.8	45	59.2	23	35.4	42	64.6	33	41.3	47	58.7	23	51.1	22	48.9
Analysis of assessments	22	84.6	4	15.4	62	81.6	14	18.4	53	81.5	12	18.5	67	83.8	13	16.2	32	71.1	13	28.9
Parent/guardian co-operation	8	30.8	18	69.2	20	26.3	56	73.7	11	16.9	54	83.1	18	22.5	62	77.5	12	26.7	33	73.3
Communicating different cultures	8	30.8	18	69.2	22	28.9	54	71.1	16	24.6	49	75.4	17	21.3	63	78.7	9	20.0	36	80.0

Rewards or Compensation for PD Attended in the Past 12 Months

The survey asked if teachers had received any rewards or compensation for attending PD. None of these categories demonstrated high percentages of teachers who had received rewards or compensation for attending PD. The highest categories were nonmonetary professional benefits and materials needed for the activities. The lowest category was increased salary. Table 12 gives a summary of the data.

Table 12

Rewards for Attending PD

	Yes		No	
	n	%	n	%
Release from teaching during regular working hours	107	36.6	185	63.4
Non-monetary support for activities outside working hours	29	9.9	263	90.1
Reimbursement or payment of costs	63	21.6	229	78.4
Materials needed for the activities	151	51.7	141	48.3
Monetary supplements for activities outside working hours	19	6.5	273	93.5
Non-monetary rewards	70	24.0	222	76.0
Non-monetary professional benefits	173	59.2	119	40.8
Increased salary	37	12.7	255	87.3

Rewards or Compensation for PD Attended by Gender

When the data for rewards or compensations are disaggregated by gender, it is interesting to note that the lowest areas for female respondents were the lowest areas for the males. The highest areas were also matched. When comparing the percentages for each group, males' percentages were higher in every group. Table 13 gives a summary of the data.

Table 13

Rewards for Attending PD by Gender

	Female				Male			
	Yes		No		Yes		No	
	n	%	n	%	n	%	n	%
Release from duties	24	33.8	195	66.2	25	29.8	46	70.2
Non-monetary support	6	8.5	213	91.5	10	11.9	61	88.1
Reimbursement	15	21.1	204	78.9	24	26.8	47	73.2
Materials	31	43.7	188	56.3	47	56	24	44
Monetary supplements	2	2.8	217	97.2	6	7.1	65	92.9
Non-monetary rewards	15	21.1	204	78.9	15	17.9	56	82.1
Non-monetary benefits	35	49.3	184	50.7	48	57.1	23	42.9
Increased salary	9	12.7	210	87.3	14	16.7	57	83.3

Rewards or Compensation for PD Attended by Degree

The data were consistent across the groups when examined by the highest degree that teachers had earned with a few exceptions. The percentage of teachers who received

release from duties for attending PD increased with higher degrees. Teachers with master's degrees showed much lower percentages in the areas of reimbursement and increased salary. Data are summarized in Table 14.

Table 14

Rewards for Attending PD by Degree

	Bachelor's				Master's				Specialist				Doctorate			
	Yes		No		Yes		No		Yes		No		Yes		No	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Release from duties	25	29.8	59	70.2	74	38.9	116	61.1	7	43.8	9	56.2	1	50.0	1	50.0
Non-monetary support	10	11.9	74	88.1	19	10.0	171	90.0	0	0.0	16	100	0	0.0	2	100
Reimbursement	24	28.6	60	71.4	34	17.9	156	82.1	5	31.3	11	68.7	0	0.0	2	100
Material	47	56.0	37	44.0	97	51.1	93	48.9	7	43.8	9	56.2	0	0.0	2	100
Monetary supplements	6	7.1	78	92.9	13	6.8	177	93.2	0	0.0	16	100	0	0.0	2	100
Non-monetary rewards	15	17.9	69	82.1	51	26.8	139	73.2	4	25.0	12	75.0	0	0.0	2	100
Non-monetary benefits	48	57.1	36	42.9	114	60.0	76	40.0	10	62.5	6	37.5	1	50.0	1	50.0
Increased salary	14	16.7	70	83.3	18	9.5	172	90.5	4	25.0	12	75.0	1	50	1	50.0

Rewards or Compensation for PD Attended by Level

When disaggregating the data by level taught, a varied image emerges. The highest percentages were in release from duties, materials to perform activities, and non-monetary benefits. The lowest ones were in non-monetary support and monetary supplements. The percentages for release from duties were consistent except for middle school teachers. The percentage of middle school teachers who received release from duties was much higher than those in elementary, junior high, and high school. For monetary supplements, there is a sharp decline for junior high and high school. For non-monetary rewards and non-monetary benefits, there is a much lower percentage of junior high teachers who received these rewards than in elementary or middle school. Data are summarized in Table 15.

Table 15

Rewards for Attending PD by Level

	Elementary				Middle				Junior				High			
	Yes		No		Yes		No		Yes		No		Yes		No	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Release from duties	18	30.0	42	70.0	15	50.0	15	50.0	42	37.5	70	62.5	32	35.6	58	64.4
Non-monetary support	8	13.3	52	86.7	6	20.0	24	80.0	10	8.9	102	91.1	5	5.6	85	94.4
Reimbursement	15	25.0	45	75.0	8	26.7	22	73.3	21	18.8	91	81.2	19	21.1	71	78.9
Material	36	60.0	24	40.0	14	46.7	16	53.3	60	53.6	52	46.4	41	45.6	49	54.4
Monetary supplements	7	11.7	53	88.3	3	10.0	27	90.0	7	6.3	105	93.7	2	2.2	88	97.8
Non-monetary rewards	19	31.7	41	68.3	9	30.0	21	70.0	20	17.9	92	82.1	22	24.4	68	75.6
Non-monetary benefits	47	78.3	13	21.7	20	66.7	10	33.3	53	47.3	59	52.7	53	58.9	37	41.1
Increased salary	6	10.0	54	90.0	6	20.0	24	80.0	16	14.3	96	85.7	9	10.0	81	90.0

Rewards or Compensation for PD Attended by Years of Experience

When studying the rewards and compensation awarded by teachers' years of experience, a higher percentage of teachers with 1 to 3 years of experience indicated receiving rewards in almost every sub question. The most notable differences were in release from duties, non-monetary support, reimbursement, materials for the activities, and non-monetary benefits. See table 16.

Table 16

Rewards for Attending PD by Years of Experience

	1 to 3 Years				4 to 9 Years				10 to 15 Years				16 to 25 Years				25+ Years			
	Yes		No		Yes		No		Yes		No		Yes		No		Yes		No	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Release from duties	20	76.9	6	23.1	29	38.2	47	61.8	18	33.8	47	66.2	27	33.8	53	66.2	13	28.9	32	71.1
Non-monetary support	5	19.2	21	80.8	6	7.9	70	92.1	4	11.3	61	88.7	9	11.3	71	88.7	5	11.1	40	88.9
Reimbursement	14	53.8	12	46.2	18	23.7	58	76.3	17	12.5	48	87.5	10	12.5	70	87.5	4	8.9	41	91.1
Material	20	76.9	6	23.1	45	59.2	31	40.8	33	42.5	32	57.5	34	42.5	46	57.5	19	42.2	26	57.8
Monetary supplements	3	11.5	23	88.5	4	5.3	72	94.7	4	6.3	61	93.7	5	6.3	75	93.7	3	6.7	42	93.3
Non-monetary rewards	8	30.8	18	69.2	21	27.6	55	72.4	15	18.8	50	81.2	15	18.8	65	81.2	11	24.4	34	75.6
Non-monetary benefits	22	84.6	4	15.4	45	59.2	31	40.8	39	48.8	26	51.2	39	48.8	41	51.2	28	62.2	17	37.8
Increased salary	2	7.7	24	92.3	9	11.8	67	88.2	7	12.5	58	87.5	10	12.5	70	87.5	9	20	36	80

Barriers to Participation in PD

Respondents were asked to rate how strongly they agree or disagree with statements about potential barriers to their participation in PD. Responding teachers most strongly disagreed that they lacked prerequisites for PD. The most agreed upon barriers to PD attendance were work schedule conflicts and a lack of incentives for attendance. Data are summarized in Table 17.

Table 17

Barriers to PD Participation

	Strongly Disagree		Disagree		Agree		Strongly Agree	
	n	%	n	%	n	%	n	%
Lack prerequisites	132	45.2	141	48.3	15	5.1	4	1.4
PD is too expensive	48	16.4	128	43.8	93	31.8	23	7.9
Lack of employer support	49	16.8	133	45.5	77	26.4	33	11.3
Work schedule conflicts	26	8.9	80	27.4	145	49.7	41	14.0
Family responsibilities	38	13.0	111	38.0	112	38.4	31	10.6
No relevant PD offered	50	17.1	113	38.7	95	32.5	34	11.6
No incentives for participating	24	8.2	74	25.3	130	44.5	64	21.9

Barriers to Participation in PD by Gender

When the data were disaggregated by gender using a t-test, there was only one sub question that produced a statistically significant result. That question asked about the lack of incentives for participation in PD. A Mann-Whitney test was run which resulted in only one statistically significant difference in the data based upon gender. For the sub

question that asked if there were no incentives for teachers to participate in PD, males' mean rank was higher (164.9) than females (139.21). See Table 18.

Table 18

Barriers to PD Participation by Gender

	Female		Male		U	Z	p
	N	M	N	M			
Lack prerequisites	219	147.0	71	141.0	7453.5	-0.586	0.558
Too expensive	219	149.6	71	132.9	6880	-1.554	0.120
Lack of employer support	219	146.5	71	142.3	7549.5	-0.39	0.696
Work schedule conflicts	219	146.1	71	143.8	7654	-0.212	0.832
Family responsibilities	219	147.4	71	139.8	7366.5	-0.706	0.480
No relevant offerings	219	143.7	71	151.2	7373.5	-0.689	0.491
No incentives	219	139.2	71	164.9	6398	-2.383	0.017

Barriers to PD Participation by Degree

Data were examined for barriers to participation in PD by the highest degree teachers had earned. One-way ANOVAs indicated that there were no statistically significant differences in the data based on the teachers' degrees. See Table 19.

Table 19

Barriers to PD Participation by Degree

	Bachelor's		Master's		Specialist		Doctorate		F	p
	M	SD	M	SD	M	SD	M	SD		
Lack prerequisites	1.8	0.7	1.6	0.6	1.8	1.0	1.5	0.71	2.217	0.086
Too expensive	2.2	0.8	2.3	0.8	2.8	0.8	2.5	0.71	2.57	0.055
Lack of employer support	2.3	0.9	2.4	0.9	2.4	0.7	2.0	0.00	0.414	0.743
Work schedule conflicts	2.7	0.9	2.7	0.8	2.6	0.7	3.0	0.00	0.265	0.850
Family responsibilities	2.6	0.9	2.4	0.8	2.3	1.0	2.0	0.00	0.877	0.453
No relevant offerings	2.4	1.0	2.4	0.9	2.3	0.9	3.0	0.00	0.483	0.694
No incentives	2.8	1.0	2.8	0.8	2.7	0.7	3.0	0.00	0.232	0.874

For the sub-questions, no relevant PD offered and no incentive, analyses returned violations in the homogeneity of variance. Kruskal-Wallis tests showed no statistically significant differences for no relevant PD, $H(3) = 1.705$, $p = .636$ nor for no incentive , $H(3) = .757$, $p = .860$ based on the highest degree that the teacher had earned.

Barriers to PD Participation by Level

A One-way ANOVA was performed on the data by school level. The results indicated that the data for two of the sub-questions showed a statistically significant difference in the responses based upon the level at which the teacher taught. These were PD is too expensive and no relevant PD is offered. See Table 20.

Table 20

Barriers to PD Participation by Level

	Elementary		Middle		Junior		High		F	p
	M	SD	M	SD	M	SD	M	SD		
Lack pre-requisites	1.6	0.6	1.7	0.6	1.6	0.6	1.7	0.7	0.56	0.645
Too expensive	2.5	1.0	2.4	0.8	2.4	0.8	2.1	0.8	3.30	0.021
Lack of employer support	2.2	0.9	2.3	0.8	2.4	0.9	2.3	0.9	0.35	0.789
Work schedule conflicts	2.6	0.9	2.8	0.7	2.8	0.8	2.6	0.8	1.02	0.385
Family responsibilities	2.3	0.9	2.8	0.8	2.5	0.8	2.4	0.8	2.57	0.055
No relevant offerings	2.1	1.1	2.2	0.8	2.4	0.9	2.6	0.8	3.32	0.02
No incentives	2.7	0.9	2.7	0.8	2.9	0.9	2.8	0.9	0.76	0.52

Both of the sub-questions (PD was too expensive and no relevant offerings) violated the homogeneity of variance assumption. A Kruskal-Wallis test was run on PD was too expensive, $H(3) = 8.070$, $p = .045$. There was a statistically significant difference in the data between elementary teachers and high school teachers ($p = .017$) and between junior high and high school ($p = .018$). There were no statistically significant differences in teacher responses for the no relevant offerings sub question, based on the level at which the teacher works $H(3) = 1.705$, $p = .636$.

Barriers to PD Participation by Years of Experience

Data were disaggregated by the teachers' years of experience using a One-way ANOVA. None of the sub-questions' data returned a statistically significant result. One sub-questions (PD is too expensive) violated the homogeneity of variance test, so a Kruskal-Wallis test was performed, $H(4) = 19.335$, $p = .001$. The Kruskal-Wallis test showed statistically significant differences between several categories. Teachers with 1 to 3 differed from every other group: 4 to 9 years ($p = .013$), 10 to 15 years ($p = .003$), 16 to 25 years ($p < .001$), and more than 25 years ($p = .028$), There were also statistically significant differences between 4 to 9 years and 16 to 25 years ($p = .016$) and between those with 16 to 25 years more than 25 years ($p = .028$). See Table 21 for a summary of the One-way ANOVA results.

Table 21

Barriers to PD Participation by Years of Experience

	1 to 3 Years		4 to 9 Years		10 to 15 Years		16 to 25 Years		25+ Years		F	Sig.
	M	SD	M	SD	M	SD	M	SD	M	SD		
Lack prerequisites	1.8	0.9	1.7	0.6	1.5	0.6	1.6	0.6	1.6	0.6	0.98	0.420
Too expensive	1.8	0.7	2.3	0.8	2.3	0.8	2.6	0.9	2.2	0.9	4.98	0.001
Lack of employer support	1.7	0.8	2.3	0.8	2.4	0.8	2.6	0.9	2.3	0.9	4.88	0.001
Work schedule conflicts	2.8	0.9	2.7	0.8	2.7	0.8	2.6	0.8	2.7	0.8	0.18	0.948
Family responsibilities	2.2	0.9	2.7	0.8	2.5	0.8	2.5	0.9	2.2	0.7	3.91	0.004
No relevant offerings	2.3	1.0	2.4	0.9	2.3	0.8	2.5	1.0	2.4	0.8	0.39	0.813
No incentives	2.5	0.9	2.9	0.8	2.9	0.9	2.8	0.9	2.6	0.8	1.84	0.122

PD Attended That Had the Greatest Positive Impact

The survey asked respondents to rank the impact different PD activities had had on their teaching. These data were examined by gender, by highest degree, by level taught, and by years of experience using SPSS statistics. The gender data were disaggregated using Independent T-tests. The data based on teacher degrees, level taught, and years of experience were examined using One-way ANOVA. See Table 22.

Table 22

Characteristics of PD That Had the Greatest Positive Impact

	Strongly Disagree		Disagree		Agree		Strongly Agree	
	n	%	n	%	n	%	n	%
Built on prior knowledge	4	1.4	27	9.2	189	64.7	72	24.7
Adapted to professional needs	25	8.6	80	27.4	140	47.9	47	16.1
Had coherent structure	4	1.4	30	10.3	192	65.8	66	22.6
Focused on subject content	19	6.5	64	21.9	154	52.7	55	18.8
Involved active learning	14	4.8	72	24.7	132	45.2	74	25.3
Involved collaborative learning	12	4.1	54	18.5	147	50.3	79	27.1
Provided opportunities to practice	21	7.2	63	21.6	142	48.6	66	22.6
Provided follow up activities	33	11.3	142	48.6	91	31.2	26	8.9
Held at school	62	21.2	89	30.5	113	38.7	28	9.6
Involved colleagues	43	14.7	83	28.4	122	41.8	44	15.1
Lasted for an extended time	67	22.9	124	42.5	70	24.0	31	10.6
Focused on innovation	31	10.6	109	37.3	118	40.4	34	11.6

PD Attended That Had the Greatest Positive Impact by Gender

An independent t-test was conducted to compare the responses of female and male teachers when they were asked about the characteristics of the PD activities that had the greatest positive impact on their teaching. Sub-questions asked about various facets of the PD that impacted teachers' practice.

Sub-questions that asked if the PD built on prior knowledge, was adapted to personal needs, had a coherent structure, focused on subject content, provided opportunities for collaborative learning and provided opportunities to practice, and focused on innovation address R1: Is there a significant difference in PD content preferences based on gender? There were no statistically significant differences in the results of female respondents and those of their male counterparts. The null hypothesis was supported. There is not a significant difference in PD content preferences based on gender.

Sub-questions asking if the PD provided follow-up activities, took place at the teacher's school, involved the teacher's colleagues, and took place over an extended period addressed research question R5: Is there a significant difference in PD delivery format preferences based on gender? Sub-questions asking if the PD had occurred at the teacher's school and involved colleagues had statistically significant differences between the responses based on gender. For these two sub-questions, the null hypothesis that there is no statistically significant difference in the responses of females and males is rejected.

For sub-questions that asked if the PD lasted for an extended period and if it provided opportunities for follow-up there was no significant difference based on the

gender of the respondents, so the null hypothesis is accepted. See Table 23 for a summary of results on the impact of PD on the teachers' practice by gender.

Table 23

Impact on Teaching by Gender

	Female		Male		U	Z	p
	N	M	N	M			
Built on prior knowledge	219	149.7	71	132.7	6865.5	-1.755	0.079
Adapted to professional needs	219	147.6	71	139.1	7322.5	-0.793	0.428
Had coherent structure	219	149.9	71	131.9	6808.5	-1.878	0.060
Focused on subject content	219	148.8	71	135.3	7047.5	-1.298	0.194
Involved active learning	219	149.2	71	134.1	6967.5	-1.405	0.160
Involved collaborative learning	219	147.0	71	140.8	7438	-0.597	0.551
Provided opportunities to practice	219	148.8	71	135.2	7044.5	-1.281	0.200
Provided follow up activities	219	148.1	71	137.4	7202.5	-1.009	0.313
Held at school	219	137.8	71	169.4	6076.5	-2.91	0.004
Involved colleagues	219	135.8	71	175.4	5648.5	-3.657	0.000
Lasted for an extended time	219	147.2	71	140.2	7395.5	-0.652	0.515
Focused on innovation	219	146.9	71	141.2	7471.5	-0.527	0.599

PD Attended That Had the Greatest Positive Impact by Degree

A One-Way ANOVA was used to disaggregate data by the highest degree that teachers held. An alpha level of .05 was used for all tests ($\alpha = .05$). This subset of data addresses research question R2 which asks if there is a significant difference in PD content preferences based on the highest academic degree the teacher has obtained and R6 which asks if there is a significant difference in PD delivery preferences based on the highest academic degree the teacher has obtained. None of the sub-questions demonstrated a statistically significant difference in the results based on the highest degree that the teacher held. The null hypotheses for both R2 and R6 are accepted. For these sub-questions, there are no significant differences in the teachers' preferred content or format based on the highest degree that the teacher has earned. See Table 24.

Table 24

Impact on Teaching by Degree

	Bachelor's		Master's		Specialist		Doctorate		F	p
	M	SD	M	SD	M	SD	M	SD		
Used prior knowledge	3.1	0.6	3.1	0.6	3.4	0.5	3.0	0.0	1.03	0.378
Met professional needs	2.7	0.8	2.7	0.8	2.9	0.8	2.5	0.7	0.44	0.725
Coherent structure	3.1	0.6	3.1	0.6	3.1	0.6	3.0	0.0	0.20	0.899
Subject content	2.9	0.9	2.8	0.8	2.8	0.4	3.0	0.0	0.43	0.730
Active learning	3.0	0.8	2.9	0.8	2.9	0.9	3.5	0.7	0.53	0.664

Note. Table 24 continues on the next page.

	Bachelor's		Master's		Specialist		Doctorate		F	p
	M	SD	M	SD	M	SD	M	SD		
Collaborative learning	3.0	0.9	3.0	0.8	3.1	0.6	3.5	0.7	0.32	0.815
Opportunities to practice	2.8	0.9	2.9	0.8	2.9	0.9	3.0	0.0	0.15	0.932
Follow up activities	2.5	0.8	2.3	0.8	2.4	0.8	2.0	0.0	0.97	0.407
Held at school	2.4	0.9	2.3	0.9	2.3	0.8	3.0	1.4	0.57	0.637
Involved colleagues	2.6	0.9	2.6	0.9	2.5	0.7	3.0	1.4	0.19	0.907
Extended time	2.3	1.0	2.1	0.9	2.6	1.0	2.5	0.7	1.85	0.138
Focused on innovation	2.5	0.8	2.5	0.9	2.3	0.7	2.5	0.7	0.39	0.763

PD Attended That Had the Greatest Positive Impact by Level

A One-way ANOVA was run on sub-questions data to address research questions R3 which asks if there is a significant difference in PD content preferences based on the school-level where the teacher teaches (elementary, middle, high school, etc.) and R7 which asks if there is a significant difference in PD delivery preferences based on the school-level where the teacher teaches (elementary, middle, high school, etc.).

About half of the sub-questions' One-way ANOVA results indicated that there are no statistically significant differences based on the school level at which the teacher works. These questions affirmed the null hypothesis that teachers' preferences for PD content and format are not different based upon the level at which they teach. See Table 25.

Table 25

Impact on Teaching by Level

	Elementary		Middle		Junior		High		F	Sig.
	M	SD	M	SD	M	SD	M	SD		
Used prior knowledge	3.3	0.5	3.2	0.4	3.1	0.6	3.0	0.6	4.38	0.005
Met professional needs	2.9	0.8	3.1	0.5	2.7	0.8	2.5	0.9	5.74	0.001
Coherent structure	3.2	0.6	3.2	0.5	3.1	0.6	3.0	0.6	1.66	0.176
Subject content	3.1	0.7	2.9	0.7	2.8	0.8	2.6	0.9	4.59	0.004
Active learning	3.2	0.8	3.1	0.7	2.8	0.8	2.8	0.8	3.31	0.021
Collaborative learning	3.1	0.7	3.2	0.7	2.9	0.8	2.9	0.8	1.41	0.240
Opportunities to practice	3.1	0.9	3.1	0.9	2.8	0.9	2.7	0.8	3.13	0.026
Follow up activities	2.6	0.9	2.6	0.7	2.2	0.8	2.4	0.8	4.18	0.006
Held at school	2.2	0.9	2.1	0.9	2.4	0.9	2.5	0.9	2.60	0.053
Involved colleagues	2.4	1.0	2.1	1.0	2.7	0.8	2.7	0.9	4.46	0.004
Extended time	2.6	1.0	2.1	0.9	2.1	0.8	2.2	0.9	4.94	0.002
Focused on innovation	2.7	0.8	2.6	0.6	2.4	0.8	2.6	0.9	2.06	0.106

The sub-questions that were asking if the PD built on the teacher's prior knowledge, contained active learning, had opportunities to practice, had follow-up activities, and involved colleagues, returned a statistically significant difference. A Tukey test was run on the data for those sub-questions.

A Tukey post hoc test revealed that data for PD that built on the teacher's prior knowledge, the mean score for teachers who taught at the high school level (M = 3.0, SD = 0.6) was significantly different from that of elementary teachers (M = 3.3, SD = 0.5), and that of middle school teachers (M = 3.1, SD = .6). However, there were no statistically significant differences between the other groups. Therefore, the null hypothesis is rejected; there are significant difference in a teacher's preference for PD that builds on his/her background knowledge based upon the level at which the teacher teaches.

A Tukey indicated that there was a statistically significant difference in the impact of PD that contained active learning between elementary (M = 3.2, SD = 0.8) and junior high (M = 2.8, SD = .08) teachers. There were no other statistically significant differences in the other levels of teachers. For this subset of data, we reject the null hypothesis that there is no significant difference between the preferences of teachers in the format of the PD based on the level at which they teach.

A Tukey was performed on the data from the sub question that asked teachers to rank the impact on their practices had if the PD contained opportunities to practice. The results indicated that there was no significant difference between the groups elementary teachers (M = 3.1, SD = 0.9), middle school ((M = 3.1, SD = 0.9), junior high (M = 2.8, SD = 0.9) and high school (M = 2.7, SD = 0.7) teachers. For this question, the null

hypothesis is upheld; there is no statistically significant difference between the preferences for PD format that contains opportunities for practice based on the level at which the teacher works.

When a Tukey was run on the data for the sub question asking teachers to give feedback on their preference for PD that contains opportunities for follow-up, the results indicated that there was a significant difference between the responses of elementary teachers (M = 2.6, SD = .09) and those of junior high teachers (M = 2.2, SD = 0.2). There were no significant differences between the answers of the middle school teachers (M = 2.6, SD = 0.7) and those of high school teachers (M = 2.4, SD = 0.8). The null hypothesis is rejected. There is a statistically significant difference between the preferences of teachers when the format of the PD contains opportunities for follow-up based on the level at which teachers teach.

A Tukey was performed to determine if there was a difference between the answers of teachers by level when they were asked about the impact of PD that involved colleagues. The results indicated that there was a significant difference between middle school teachers' (M = 2.7, SD = 1.0) and junior high teachers' (M = 2.7, SD = 0.8) responses and between middle school teachers' and high school teachers' (M = 2.7, SD = 0.9) responses. No other groups showed significant differences. The null hypothesis is rejected. There are differences in the format of PD based upon the level at which teachers work.

Three of the sub-questions' data violated the homogeneity of variance assumption. The first was the sub question that asked teachers about the impact of PD that was adapted to their personal needs. The second sub question asked if the PD

focused on content the teacher needed to teach his/her subject, and the last question asked about the impact of PD that goes on for an extended time. For these three sub-questions, a Kruskal-Wallis test was performed.

A Kruskal-Wallis test was performed to determine if there was a difference in the responses of teachers when asked about the impact of PD that was adapted to their personal needs by grade level at which the teacher works. The results indicated that there was not a significant difference $H(3) = 1.097$, $p = .778$. When it was run to determine if there was a significant difference in the impact of PD that focused on content needed to teach the teachers' subject, it also returned no significant differences $H(3) = 2.075$, $p = .557$. The same test was performed on the question asking teachers about the impact of PD that was held for an extended time, and there were also no statistically significant differences $H(3) = 5.343$, $p = .148$.

PD That Had the Greatest Positive Impact on Practice by Years of Experience

The data for the questions about PD that had a positive impact on teachers' practice was disaggregated by the years of experience that teachers had. These sub-questions addressed R4 which asks if there is a significant difference in PD content preferences based on years of teaching experience. The data also addressed R8 which asks if there is a significant difference in PD delivery preferences based on years of teaching experience?

One-way ANOVAs were performed on the data. The sub-questions that asked if the PD met teachers' individual professional needs, had a coherent structure, involved active learning, involved active learning, and were held at the teacher's school returned significant results indicated statistically significant differences based on the teachers'

years of experience. None of the other sub-questions returned statistically significant differences. See Table 26.

Table 26

Impact on Teaching by Years of Experience

	1 to 3 Years		4 to 9 Years		10 to 15 Years		16 to 25 Years		25+ Years		F	Sig.
	M	SD	M	SD	M	SD	M	SD	M	SD		
Used prior knowledge	3.4	0.5	3.1	0.6	3.2	0.6	3.0	0.7	3.0	0.6	2.21	0.068
Met professional needs	3.1	0.8	2.7	0.9	2.8	0.8	2.6	0.8	2.6	0.9	2.48	0.044
Coherent structure	3.4	0.6	3.1	0.6	3.2	0.5	3.0	0.7	3.0	0.6	3.58	0.007
Subject content	2.9	0.9	2.8	0.8	3.0	0.7	2.8	0.8	2.7	0.8	1.08	0.367
Active learning	3.5	0.6	2.9	0.9	2.9	0.8	2.9	0.9	2.7	0.7	4.43	0.002
Collaborative learning	3.3	0.7	3.0	0.8	3.0	0.8	3.0	0.8	2.8	0.8	2.06	0.086
Opportunities to practice	3.1	0.7	2.9	0.9	2.9	0.8	2.8	0.9	2.7	0.8	1.10	0.356
Follow up activities	2.4	0.8	2.3	0.8	2.4	0.8	2.4	0.8	2.3	0.7	0.16	0.957
Held at school	1.8	0.9	2.3	0.8	2.3	1.0	2.4	1.0	2.8	0.8	4.60	0.001
Involved colleagues	2.6	1.1	2.5	0.8	2.5	1.0	2.5	1.0	2.9	0.8	1.45	0.219

Note. Table 26 continues on the next page.

	1 to 3 Years		4 to 9 Years		10 to 15 Years		16 to 25 Years		25+ Years		F	Sig.
	M	SD	M	SD	M	SD	M	SD	M	SD		
Extended time	2.3	1.0	2.2	0.9	2.2	0.9	2.2	0.9	2.2	1.0	0.12	0.977
Focused on innovation	2.8	0.7	2.4	0.8	2.6	0.8	2.6	0.9	2.5	1.0	1.15	0.331

For the sub question that asked about PD that met teacher's professional needs, a Tukey test showed that there was a significant difference between teachers with 1 to 3 years and those with 16 to 25 years of experience ($p = .040$). Therefore, for this sub question the null hypothesis that there is not a difference in teacher preference for PD content based on years of experience is rejected.

For the question that asked if the PD that had the most impact had a coherent structure, there was a significant difference in the data. The Tukey tests showed that teachers with 1 to 3 years experience differed from those with 16 to 25 years of experience ($p = .031$). It also returned a significant difference between teachers with 1 to 3 years of experience and those who have more than 25 years of experience ($p = .033$).

For the sub-questions that asked about the impact of PD that involved active learning the Tukey post hoc test revealed there was a statistically significant difference in the answers of teachers with 1 to 3 years of experience and teachers with 4 to 9 years ($p = .006$), those with 10 to 15 years ($p = .025$), teachers with 16 to 25 years ($p = .005$), and those with more than 25 years of teaching experience ($p = .001$). No other groups returned significant differences. The null hypothesis is rejected for this sub question; there is a significant difference in preferences for PD content based upon years of experience.

Sub-questions that asked about that asked whether the PD was held at school, involved colleagues, and focused on innovation in teaching violated the homogeneity of variance assumption, so Kruskal-Wallis tests were performed for those data. The data for the sub question that asked about PD that focused on innovation in teaching did not

return a statistically significant result, H(4) = 4.570, p = .334: PD that involved colleagues (p = .220) did not either.

However, PD that was held at the teacher's school showed a statistically significant difference, H(4) = 16.495, p = .002. There were statistically significant differences between the responses of teachers with 1 to 3 years of experience and those with 4 to 9, (p = .029), 10 to 15 (p = .016), and those with more than 25 years of experience (p < .001). There were also statistically significant differences between those with more than 25 years and teachers with 4 to 9 (p = .012), 10 to 15 (p = .007), and 16 to 25 years of experience (p = .022).

Presentation Preferences in PD Participation

Teachers participating in the survey were asked to give information about their preferences in how PD is presented to them or the format of the PD in which they engage. These sub-questions address the following research questions:

R5: Is there a significant difference in PD delivery preferences based on gender?

R6: Is there a significant difference in PD delivery preferences based on the highest academic degree the teacher has obtained?

R7: Is there a significant difference in PD delivery preferences based on the school-level where the teacher teaches (elementary, middle, high school, etc.)?

R8: Is there a significant difference in PD delivery preferences based on years of teaching experience?

Presentation Preferences in PD Participation by Gender

When the data on the sub-questions were examined by gender using the T-test, there were violations in the assumptions. The data were disaggregated using the Mann-

Whitney U test. There was only one sub question (face-to-face mentoring) that returned a statistically significant difference based on gender (p = .005). See Table 27.

Table 27

Presentation Preferences in PD Participation by Gender

	Female		Male		U	Z	p
	N	M	N	M			
Video conferencing	219	149.6	71	132.9	6882.0	-1.552	0.121
Local PD	219	144.1	71	149.8	7468.0	-0.535	0.593
In person district pays	219	147.3	71	139.9	7374.5	-0.689	0.491
In person self-pay	219	143.0	71	153.2	7225.0	-0.974	0.330
Face to face mentoring	219	146.8	71	141.6	7497.5	-0.517	0.605
Face to face format	219	138.4	71	167.6	6208.0	-2.821	0.005
Online format	219	150.2	71	131.1	6754.0	-1.795	0.073
Blended format	219	148.4	71	136.6	7142.0	-1.117	0.264
Online synchronous	219	142.0	71	156.2	7012.5	-1.345	0.178
Online asynchronous	219	146.2	71	143.4	7625.5	-0.259	0.796

Presentation Preferences in PD Participation by Degree

A One-way ANOVA was conducted to examine the data based upon the highest degree the teacher had earned. This data addresses R6: Is there a significant difference in PD delivery preferences based on the highest academic degree the teacher has obtained? None of the sub-questions data demonstrated a statistically significant difference. The null hypothesis is accepted. See Table 28

Table 28

Presentation Preferences in PD Participation by Degree

	Bachelor's		Master's		Specialist		Doctorate		F	p
	M	SD	M	SD	M	SD	M	SD		
Video conferencing	2.4	1.0	2.2	0.8	2.1	0.8	2.5	0.7	1.28	0.28
Local PD	2.8	0.9	2.7	0.8	2.4	0.7	2.5	0.7	1.51	0.21
In person district pays	2.7	1.0	2.7	0.9	3.3	0.6	3.0	0.0	2.55	0.56
In person self-pay	1.7	0.7	1.8	0.8	1.7	0.9	1.5	0.7	0.16	0.92
Face to face mentoring	2.8	0.8	2.9	0.7	3.2	0.7	2.5	0.7	1.11	0.34
Face to face format	3.2	0.8	3.0	0.7	3.5	0.5	3.0	0.0	2.48	0.06
Online format	2.2	0.9	2.2	0.8	2.0	0.6	2.5	0.7	0.44	0.72
Blended format	2.4	0.8	2.4	0.8	2.8	0.6	2.5	0.7	1.14	0.34
Online synchronous	2.6	0.8	2.5	0.8	2.8	0.8	2.5	0.7	1.38	0.25
Online asynchronous	2.5	1.0	2.7	0.8	2.8	0.8	2.5	0.7	1.44	0.23

Two of the sub-questions' data violated the homogeneity of variance assumption. The Kruskal-Wallis test was used to examine the data for the sub-questions that asked about teachers' preferences in PD that is in-person and the district pays for it and about PD that is online and asynchronous. Neither returned statistically significant differences in their data by the highest degree that the teacher had earned ($p = .050$ and $p = .269$ respectively).

Presentation Preferences in PD Participation by Level

A One-way ANOVA was conducted to study the differences in teacher PD preferences by the level at which the teacher works. This data addresses research question R7: Is there a significant difference in PD delivery preferences based on the school-level where the teacher teaches (elementary, middle, high school, etc.)? Only two sub-questions indicated significant results. The first asked about PD that was in person and was self-pay. A Tukey post hoc test demonstrated that teachers who work at the middle school and junior high had statistically significant differences in their answers.

The second sub question that was examined using a Tukey post hoc test was asking about PD that was online and synchronous. The results were that there was a significant difference between the answers of elementary teachers and high school teachers and between junior high teachers and high school teachers' answers. See Table 29.

Table 29

Presentation by Level

	Elementary		Middle		Junior		High		F	p
	M	SD	M	SD	M	SD	M	SD		
Video conferencing	2.2	1.0	2.0	0.9	2.3	0.8	2.2	0.9	0.87	0.46
Local PD	2.6	0.9	2.8	0.8	2.7	0.8	2.6	0.8	0.56	0.64
In person district pays	3.0	0.9	2.6	1.1	2.6	0.9	2.7	0.8	1.93	0.13
In person self-pay	1.7	0.8	1.4	0.7	1.9	0.8	1.7	0.8	2.67	0.05
Face to face mentoring	2.8	0.8	3.0	0.6	2.9	0.8	2.8	0.8	0.67	0.57
Face to face format	3.2	0.7	3.3	0.7	3.1	0.8	3.0	0.7	0.99	0.40

Note. Table 29 continues on the next page.

	Elementary		Middle		Junior		High		F	p
	M	SD	M	SD	M	SD	M	SD		
Online format	2.1	0.8	2.1	0.9	2.3	0.7	2.2	0.9	0.73	0.54
Blended format	2.3	0.7	2.4	0.8	2.5	0.8	2.4	0.8	1.36	0.26
Online synchronous	2.3	0.8	2.5	0.9	2.5	0.8	2.8	0.7	4.41	0.05
Online asynchronous	2.7	0.8	2.7	0.9	2.6	0.9	2.5	0.8	1.27	0.28

The sub question that asked about teachers' preferences in PD that was in person and the district paid for demonstrated a significant difference in the levels ($p = .05$). The homogeneity of variance assumption was violated for that sub question so a Kruskal-Wallis test was run. The results did not indicate a significant difference in teachers' preferences based on the level at which they teach ($p = .088$). The homogeneity of variance was also violated for the sub question that asked about teachers' preferences for video conferencing. The Kruskal-Wallis test also indicated that there is not a significant difference based upon the level at which the teacher works ($p = .355$).

Presentation Preferences by Years of Experience

A One-way ANOVA was conducted on the data which asked about teachers' preferences in PD format. The study disaggregated the data based on the teachers' years of experience. Three sub-questions demonstrated statistically significant results. These were video conferencing, local PD, and in-person district pays.

A Tukey post hoc returned statistically significant differences between the results of teachers with 1 to 3 years and those with 4 to 9 years of experience with 10 to 15 years, with 16 to 25 years, and those with more than 25 years for PD format, video

conferencing. There were no statistically significant differences between the other groups for that sub question.

For the answers about teacher preferences for local PD by years of experience, a Tukey post hoc test showed that there is a significant difference in the teachers' PD format preferences between teachers with 1 to 3 years and two other groups. The differences were with teachers with 10 to 15 years of experience ($p = .008$) and those with 16 to 25 years of experience ($p = .001$). There was also a statistically significant difference in the answers for teachers who had 4 to 9 years and those who had 16 to 25 years of experience ($p = .024$).

A Tukey post hoc was used to examine the data on the sub question that asked about in person PD when the district pays. Results indicated that there is a significant difference between teachers with 1 to 3 years and those with 10 to 15 years of experience ($p = .004$). See Table 30 for a summary of the results.

Table 30

Presentation Preferences by Years of Experience

	1 to 3 Years		4 to 9 Years		10 to 15 Years		16 to 25 Years		25+ Years		F	Sig.
	M	SD	M	SD	M	SD	M	SD	M	SD		
Video conferencing	2.9	1.0	2.1	0.8	2.2	0.8	2.1	0.9	2.1	0.9	5.03	0.001
Local PD	3.2	0.7	2.9	0.8	2.6	0.8	2.5	0.9	2.5	0.8	5.19	0.000
In person district pays	2.2	1.0	2.8	0.9	3.0	0.9	2.7	0.9	2.7	0.9	3.34	0.011
In person self-pay	1.4	0.7	1.8	0.7	1.8	0.8	1.8	0.8	1.8	0.8	2.04	0.089
Face to face mentoring	2.9	0.9	2.8	0.8	3.0	0.6	2.8	0.7	2.8	0.9	1.23	0.300
Face to face format	2.8	0.9	3.1	0.7	3.3	0.7	3.2	0.7	3.2	0.8	2.39	0.051
Online format	2.6	0.9	2.2	0.7	2.2	0.6	2.2	0.9	2.2	0.8	2.20	0.069
Blended format	2.4	0.8	2.4	0.8	2.5	0.7	2.3	0.9	2.3	0.7	0.36	0.838
Online synchronous	2.7	0.9	2.4	0.8	2.6	0.7	2.6	0.9	2.6	0.8	1.07	0.372
Online asynchronous	2.8	0.9	2.7	0.9	2.5	0.8	2.6	0.9	2.6	0.7	1.25	0.291

There was a violation of homogeneity of variance for the sub question that addressed face-to-face mentoring. A Kruskal-Wallis test returned no statistically significant differences in teachers' responses by years of experience ($p = .298$).

Need for Future PD

The final set of questions on the teacher survey asked teachers to identify future needs in their PD. Each of these questions focuses on the content of PD that teachers would like to attend. These items address the following research questions:

R1: Is there a significant difference in PD content preferences based on gender?

R2: Is there a significant difference in PD content preferences based on the highest academic degree the teacher has obtained?

R3: Is there a significant difference in PD content preferences based on the school-level where the teacher teaches (elementary, middle, high school, etc.)?

R4: Is there a significant difference in PD content preferences based on years of teaching experience?

Need for Future PD by Gender

Independent sample T-tests were conducted to determine if there were any statistically significant differences in the data based on the teachers' gender. The homogeneity of variance was violated, so the data were tested using a Mann-Whitney U test. Three sub questions returned significant results; they were asking about the teachers' understanding of subject, pedagogical competencies, and classroom management. For knowledge and understanding of subject, the answers for female teachers were much lower ($M = 141.03$) than that of male teachers ($M = 159.3$). The same is true for pedagogical competencies for female ($M = 138.13$) and male ($M = 168.24$) scores. The

male scores were much lower in student behavior and classroom management than that of their female colleagues (M = 121.47 and M = 153.29 respectively). In these three areas, the null hypothesis is rejected. There is a difference in teacher preferences for PD content based on gender. See Table 31.

Table 31

Need for Future PD by Gender

	Female		Male		U	Z	p
	N	M	N	M			
Understanding of subject	219	141.0	71	159.3	6794.5	-1.759	0.079
Pedagogical competencies	219	138.1	71	168.2	6160.0	-2.84	0.005
Knowledge of curriculum	219	141.1	71	159.1	6809.0	-1.69	0.091
Student assessment practices	219	144.6	71	148.3	7573.5	-0.352	0.725
Technology skills for teaching	219	142.1	71	156.0	7031.0	-1.289	0.197
Classroom management	219	153.3	71	121.5	6068.5	-2.931	0.003
School management and administration	219	141.6	71	157.7	6909.5	-1.499	0.134
Individualized learning	219	147.2	71	140.4	7410.5	-0.645	0.519
Students with special needs	219	145.8	71	144.7	7718.0	-0.099	0.921
Multicultural or multilingual	219	142.4	71	155.0	7102.5	-1.171	0.241

Note. Table 31 continues on the next page.

	Female		Male		U	Z	p
	N	M	N	M			
Cross-curricular skills	219	146.0	71	143.9	7658.5	-0.204	0.839
Analysis and use of assessment data	219	144.8	71	147.5	7630.0	-0.25	0.803
Parent/guardian cooperation	219	143.3	71	152.4	7287.5	-0.85	0.396
Communicating with different cultures	219	147.1	71	140.6	7424.0	-0.61	0.542

Need for Future PD by Degree

A One-way ANOVA was performed to examine the data on the questions about the teachers' future needs based on the highest degree that the teachers had earned. The only sub question that returned a statistically significant result was the question that asked about technology skills for teaching. There were no other statistically significant differences in the results. The data for this sub question violated the homogeneity of variance assumption, so a Kruskal-Wallis test was conducted. The results indicated that there was a statistically significant difference between the answers of teachers with bachelor's degree and those with a specialist $H(1) = 4.688$, $p = 0.03$, between those with a bachelor's degree and those with a doctorate $H(1) = 4.902$, $p = .027$. There was also a significant difference between teachers with a with master's and a specialist $H(1) = 4.259$, $p = .039$, teachers with a master's and a doctorate $H(1) = 5.23$, $p = .022$, and between respondents with a specialist and a doctorate $H(1) = 4.781$, $p = 0.29$. It is important to note that there were only two respondents who had earned doctoral degrees.

For these data, the null hypothesis that there is no difference in teacher preferences for content based on the highest degree that the teacher had earned is rejected. There are statistically significant differences in the data based on the degree that the teacher had earned. See Table 32 for a summary of the data.

Table 32

Need for Future PD by Degree

	Bachelor's		Master's		Specialist		Doctorate		F	Sig.
	M	SD	M	SD	M	SD	M	SD		
Understanding of subject	2.1	0.8	2.0	0.7	2.2	0.9	1.5	0.7	0.89	0.45
Pedagogical competencies	2.3	0.8	2.2	0.8	2.1	0.8	1.0	0.0	2.51	0.06
Knowledge of curriculum	2.2	0.9	2.2	0.8	2.2	0.9	1.5	0.7	0.56	0.64
Student assessment practices	2.4	0.8	2.5	0.8	2.1	0.8	2.0	0.0	2.02	0.11
Technology skills for teaching	2.6	0.9	2.5	0.8	2.1	0.6	1.0	0.0	3.56	0.02
Classroom management	2.3	0.9	2.3	0.9	2.2	0.8	1.0	0.0	1.58	0.20
School management and administration	2.0	0.9	1.9	0.8	2.2	0.8	1.5	0.7	0.78	0.51
Individualized learning	2.6	0.8	2.7	0.8	2.6	0.5	2.5	0.7	0.19	0.90
Students with special needs	2.7	0.9	2.6	0.8	2.5	0.7	2.0	1.4	0.51	0.68
Multicultural or multilingual	2.6	0.8	2.6	0.8	2.8	0.7	2.0	1.4	0.58	0.63

Note. Table 32 continues on the next page.

	Bachelor's		Master's		Specialist		Doctorate		F	Sig.
	M	SD	M	SD	M	SD	M	SD		
Cross-curricular skills	2.7	0.9	2.8	0.8	2.6	0.8	2.0	1.4	2.7	0.45
Analysis and use of assessment data	2.4	0.9	2.5	0.8	2.4	0.8	2.0	0.0	2.4	0.56
Parent/guardian cooperation	2.2	0.9	2.2	0.8	2.4	1.1	2.5	0.7	2.2	0.82
Communicating with different cultures	2.4	0.9	2.4	0.8	2.6	0.7	2.5	0.7	2.4	0.90

Need for Future PD by Level

One-way ANOVAs were conducted on the sub-questions asking about teachers' preferences for the content of future PD to determine if there were statistically significant differences in teachers' preferences based on the level at which they teach. Three sub-questions' data returned significant results, which were for questions about PD that focused on individualized learning, PD about working with students with special needs, PD about multicultural or multilingual settings.

Tukey post hoc were applied to these three sub tests. It revealed that there were statistically significant differences between the answers of teachers who teach at the elementary level and those who teach at the junior high level ($p = .022$) when asked about their preference for PD about approaches to individualized learning. There were also differences between the answers of junior high teachers and the answers of those who teach at the high school level($p = .003$).

When examining the data about teachers' preferences for PD about working with students who have special needs, there were statistically significant differences between elementary and junior high teachers ($p = .018$) and between junior high and high school teachers ($p = .039$). A Tukey post hoc test of the data for the sub question asking about teachers' preferences for PD about teaching in a multicultural or multilingual setting revealed that there were statistically significant differences between teachers who work at the elementary and at the junior high levels ($p = .003$).

Based on this data the null hypothesis, there is no difference in teacher preferences for PD content by the grade level that the teachers teach, is rejected. There

are statistically significant differences in the content preferences of teachers' PD based on the level at which they work. See Table 33.

Table 33

Need for Future PD by Level

	Elementary		Middle		Junior		High		F	Sig.
	M	SD	M	SD	M	SD	M	SD		
Understanding of subject	2.0	0.7	2.2	0.7	2.1	0.7	1.9	0.7	0.80	0.497
Pedagogical competencies	2.2	0.7	2.2	0.7	2.3	0.7	2.2	0.9	0.47	0.704
Knowledge of curriculum	2.3	0.9	2.2	0.8	2.2	0.7	2.2	0.9	0.16	0.922
Student assessment practices	2.3	0.9	2.6	0.7	2.6	0.8	2.5	0.8	1.28	0.282
Technology skills for teaching	2.4	1.0	2.4	0.7	2.7	0.8	2.4	0.8	2.23	0.084
Classroom management	2.3	0.9	2.4	0.8	2.4	0.9	2.2	0.9	1.32	0.269
School management and administration	1.8	0.7	1.8	0.7	2.0	0.9	1.9	0.8	1.14	0.334
Individualized learning	2.5	0.8	2.6	0.7	2.9	0.8	2.5	0.8	5.02	0.002
Students with special needs	2.4	0.9	2.7	0.7	2.8	0.8	2.5	0.8	4.06	0.008
Multicultural or multilingual	2.3	0.9	2.7	0.7	2.8	0.8	2.5	0.8	4.39	0.005

Note. Table 33 continues on the next page.

	Elementary		Middle		Junior		High		F	Sig.
	M	SD	M	SD	M	SD	M	SD		
Cross-curricular skills	2.5	0.9	3.0	0.7	2.8	0.8	2.7	0.9	2.00	0.114
Analysis and use of assessment data	2.4	1.0	2.3	0.8	2.5	0.9	2.4	0.8	0.67	0.572
Parent/guardian cooperation	2.1	0.9	2.2	0.7	2.3	0.9	2.2	0.8	0.62	0.605
Communicating with different cultures	2.2	0.9	2.5	0.6	2.6	0.8	2.4	0.8	4.08	0.007

Need for Future PD by Years of Experience

One-way ANOVAs were conducted on the data from the questions asking about teachers' preferences for PD content by the years of experience. Data indicated that there was a significant difference in the data by teachers' years of experience for sub-questions about classroom management, for cross-curricular skills, and for parent/guardian cooperation.

Tukey post hoc tests on the sub question about teachers' preference for PD on student behavior and classroom management indicated there is a statistically significant difference between the answers of teachers with 1 to 3 years of experience and each of the other categories: 4 to 9 years ($p = .029$), 10 to 15 years ($p = .003$), 16 to 25 years ($p = .003$) and more than 25 years of experience ($p = .011$). No other groups of data for that sub question yielded statistically significant results. The Tukey post hoc results on the data for the sub question that asked about teachers' preferences for PD focused on teaching cross-curricular skills indicated that there were no groups that had statistically significant differences in their data.

The Tukey post hoc test indicated that the data on the sub question about future PD on teacher-parent/guardian cooperation showed that there was a statistically significant difference between the data for teachers with 4 to 9 years of experience and those with 16 to 25 years ($p = .005$). No other groups' data demonstrated statistically significant differences. Based on these results there are differences in the preferences of teachers for PD content based on their years of experiences. Therefore, we reject the null hypothesis that there is no difference in teacher preferences for PD content based upon their years of experience. See Table 34

Table 34

Need for Future PD by Years of Experience

	1 to 3 Years		4 to 9 Years		10 to 15 Years		16 to 25 Years		25+ Years		F	Sig.
	M	SD	M	SD	M	SD	M	SD	M	SD		
Understanding of subject	2.0	0.8	2.1	0.7	2.0	0.8	2.1	0.7	1.8	0.7	1.09	0.360
Pedagogical competencies	2.5	0.8	2.4	0.7	2.2	0.8	2.2	0.7	2.0	0.8	2.23	0.066
Knowledge of curriculum	2.6	0.8	2.3	0.8	2.1	0.8	2.2	0.7	2.0	0.8	2.29	0.060
Student assessment practices	2.4	0.9	2.6	0.8	2.5	0.8	2.4	0.9	2.4	0.8	0.36	0.838
Technology skills for teaching	2.3	0.8	2.5	0.9	2.5	0.8	2.5	0.9	2.7	0.8	1.00	0.406
Classroom management	2.9	0.8	2.3	0.9	2.2	0.8	2.2	0.9	2.2	0.9	3.94	0.004
School management and administration	1.7	0.8	2.1	0.9	2.0	1.0	1.8	0.8	1.8	0.6	1.48	0.210
Individualized learning	2.8	0.9	2.7	0.8	2.8	0.7	2.6	0.9	2.4	0.8	1.98	0.097
Students with special needs	2.8	0.9	2.7	0.8	2.7	0.9	2.5	0.9	2.5	0.8	1.20	0.310

Note. Table 34 continues on the next page.

	1 to 3 Years		4 to 9 Years		10 to 15 Years		16 to 25 Years		25+ Years		F	Sig.
	M	SD	M	SD	M	SD	M	SD	M	SD		
Multicultural or multilingual	2.7	0.9	2.6	0.8	2.7	0.8	2.6	1.0	2.4	0.6	1.14	0.340
Cross-curricular skills	2.5	0.9	2.9	0.8	2.8	0.8	2.7	0.9	2.5	0.8	2.76	0.028
Analysis and use of assessment data	2.2	1.0	2.4	0.9	2.6	0.7	2.5	0.9	2.3	0.8	1.43	0.224
Parent/guardian cooperation	2.5	1.0	2.4	0.9	2.3	0.8	2.0	0.8	2.0	0.7	4.23	0.002
Communicating with different cultures	2.4	0.8	2.4	0.8	2.6	0.7	2.3	0.9	2.4	0.7	0.80	0.525

Summary of Chapter IV

This chapter presented the results of this quantitative study. Eight research questions were addressed along with their corresponding hypotheses. The demographic information for survey respondents as well as information about the PD that they had attended in the past year (12 months), rewards for that attendance, and barriers to PD attendance were presented as descriptive statistics.

Survey data that addressed teachers' preferences for PD content or format that were examined based upon the teacher's gender were examined using T-tests. The other categories (degree of the teacher, level at which the teacher works within the K-12 setting, and years of experience the teacher has in K-12 education) were examined using One-way ANOVAs.

Chapter V: Discussion

This quantitative study sought to determine teachers' preferred professional development needs at various stages in their careers and in various contexts. The teachers who participated in this quantitative study had varied years of experience and taught at different grade levels. All of them work in a K-12 public school district in Northwest Arkansas. The variables that were measured were the professional development preferences of the teachers, the teachers' years of experience, the grade level at which teachers teach, their gender, the content of their preferred PD, and the format of their preferred PD. A cross-sectional survey, using a Likert Scale was employed to solicit the teachers' preferences. The research questions and their corresponding hypotheses that were used for this study are as follows:

R1: Is there a significant difference in PD content preferences based on gender?

H_o: There is not a statistically significant difference in teacher preferences for PD content based on teachers' gender.

H_1: There is a statistically significant difference in teacher preferences for PD content based on teachers' gender.

R2: Is there a significant difference in PD content preferences based on the highest academic degree the teacher has obtained?

H_o: There is not a statistically significant difference in teacher preferences for PD content based on highest degree that the teacher has earned.

H_1: There is a statistically significant difference in teacher preferences for PD content based on highest degree that the teacher has earned.

R3: Is there a significant difference in PD content preferences based on the school-level where the teacher teaches (elementary, middle, high school, etc.)?

H_o: There is not a statistically significant difference in teacher preferences for PD content based on the level at which the teacher teaches.

H_1: There is a statistically significant difference in teacher preferences for PD content based on the level at which the teacher teaches.

R4: Is there a significant difference in PD content preferences based on years of teaching experience?

H_o: There is not a statistically significant difference in teacher preferences for PD content based on the teachers' years of experience in K-12 education.

H_1: There is a statistically significant difference in teacher preferences for PD content based on the teachers' years of experience in K-12 education.

R5: Is there a significant difference in PD delivery preferences based on gender?

H_o: There is not a statistically significant difference in teacher preferences for PD delivery format based on teachers' gender.

H_1: There is a statistically significant difference in teacher preferences for PD delivery format based on teachers' gender.

R6: Is there a significant difference in PD delivery preferences based on the highest academic degree the teacher has obtained?

H_o: There is not a statistically significant difference in teacher preferences for PD delivery format based on highest degree that the teacher has earned.

H_1: There is a statistically significant difference in teacher preferences for PD delivery format based on highest degree that the teacher has earned.

R7: Is there a significant difference in PD delivery preferences based on the school-level where the teacher teaches (elementary, middle, high school, etc.)?

H_o: There is not a statistically significant difference in teacher preferences for PD delivery format based on the level at which the teacher teaches.

H_1: There is a statistically significant difference in teacher preferences for PD delivery format based on the level at which the teacher teaches.

R8: Is there a significant difference in PD delivery preferences based on years of teaching experience?

H_o: There is not a statistically significant difference in teacher preferences for PD delivery format based on the teachers' years of experience in K-12 education.

$H_{1:}$ There is a statistically significant difference in teacher preferences for PD delivery format based on the teachers' years of experience in K-12 education.

Summary of Findings

The purpose of this study was to identify the preferences of teachers when engaged in PD. The study asked teachers to self-report their likes and dislikes in the content and the format of PD on a survey that utilized Likert scales. This quantitative study examined the PD preferences of public school teachers in Northwest Arkansas. The results were studied using T-tests and One-way ANOVAs to look for statistically significant differences in teachers' preferences based on their gender, the highest degree that they had earned, the level at which they work (elementary, middle, junior high, or high school), and the years of experience that they have in the K-12 setting.

PD Teachers Had Attended in the Past 12 Months

These sub-questions asked about the types of PD or the format of the PD that teachers had attended; they did not ask about how teachers viewed those activities. When looking at the percentages of teachers who attended the various types of PD, it was interesting to note how highly attended both the online and in person courses/seminars were. In this time of COVID 19 when large gatherings still pose logistic conundrums (with spacing, masking and cleaning requirements), it was surprising to see how many teachers had attended in person. Not surprisingly educational conferences were not well attended. This is interesting, and would be interesting to see if this is a temporary dip, a general trend, or a change in how education training is conducted.

The largest difference in the attended PD by gender was in the percentage of females who had participated in observation visits to other schools when compared to their male counterparts. The percentage of females was triple that of males. The only other major difference was in the percentages of teachers who had participated in formal qualification programs (college classes).

When looking at the survey answers disaggregated by the highest degree that the teachers had earned, the first thing that is important to note is that there are only two of the responding teachers who held doctoral degrees. Their data is largely set aside because it is not prudent to make generalizations based on the answers of such a small number of teachers.

An interesting thing that emerged in this data set is in the attendance of formal qualification programs. Nearly one third of the teachers with bachelor's degrees said they had attended one of these programs, but less than one fifth of the teachers with master's

degree had attended formal qualification programs. One possible explanation for this is the proximity to the University of Arkansas, which conducts student teaching as a part of their master's program. This means teachers in Northwest Arkansas often enter the classroom with master's degree and do not have a need to continue beyond that degree unless they plan to change subjects, levels, or go into formal leadership roles. Over 40% of the respondents with specialist degrees had attended this type of PD. At the target district, there is a pay increase for earning a specialist degree, which may account for this data.

Those in and around K-12 education often speak anecdotally about how teachers at various levels mimic the behavior of their students. This may be true in other areas but this research data did not demonstrate large differences in types of PD that they had attended in the past 12 months. Some of the lack of variability in the results may be because much of the PD that teachers attend in Arkansas is prescribed by state guidelines.

The research indicated some interesting differences in teachers' PD attendance by their years of experience. Every respondent with 1 to 3 years of experience had attended in-person courses or seminars. This percentage slowly declined as the years of experience increased. Online course attendance was highest in those with the fewest years of experience and steadily declines with additional years. The notable exception is for teachers with 10 to 15 years of experience; there was a 10% dip, but that decline rebounds with 10 to 15 years of experience. One explanation for this dip could be found in the Teacher Career Cycle Model, which was outlined in the literature review (Fessler, 1995). While not all teachers' careers follow exact linear progressions, many models

describe the midpoint of teaching as a time when teachers burnout and leave, burn out and stay, or reengage.

The high number of teachers who participate in observation and coaching activities in the first 1 to 3 years can be attributed to the mandatory coaching and mentoring activities that the target district requires for new, inexperienced teachers as part of their new teacher induction process. In this program, teachers who are new to the profession and the district are compelled to participate in additional hours of PD, book studies, and mentoring programs for their first 3 years in the district

Topics of PD That Teachers Had Attended in the Past 12 Months

Teachers were asked about the topics of PD that they had attended in the past 12 months. The topics that were most attended were those that focused on the subjects, pedagogy, curriculum, student assessment, and analysis of assessment data. The most surprising category was PD that dealt with student behavior and classroom management. Approximately half of the participating teachers attended this PD.

The biggest differences in the PD that had been attended when examined by gender was in the area of PD about content needed to teach a subject and teaching in a multicultural or multilingual setting. These data do not address teachers' preferences'; they merely asked if the teacher had attended.

When teachers' answers were examined by the highest degree the teacher held, the largest differences were in attending PD about pedagogy, technology for teaching, individualized learning, student behavior and classroom management, and parent/guardian cooperation. In each of these categories, there was a substantial dip in attendance for the teachers with specialist degrees. This may indicate that the teachers

had reached a perceived level of proficiency in these areas. Curiously, there was an increase in attendance in PD that focused on knowledge of the curriculum among teachers who held specialist degrees. It may be that the decreased attendance in some areas correspond to increases in other areas; time spent in one area would mean less time to spend in other areas.

The most interesting differences that emerged in the data when looking at responses by the level at which the teacher works, were for those teachers who worked at the elementary level and those who worked at the high school. For elementary teachers, the attendance in PD that focused on student behavior and classroom management was double that of any of the other levels. High school teachers on the other hand, compared to the other three levels, had much lower attendance in PD that focused on knowledge of subject, pedagogy, and knowledge of curriculum. High school teachers had a much higher attendance in PD that focused on teaching students with special needs. The 2021-2022 school year marks the first year of a reorganization of the special education program in the district. Those changes might have influenced the markedly higher attendance of high school teachers.

The research data when disaggregated by the teachers' years of experience in K-12 education were either fairly uniform across the years or showed a steady gradual change across the categories. A few exceptions to these trends are in the attendance of PD on pedagogy for teachers with more than 25 years of experience. There is a sharp decline in this group. One explanation could be that these teachers have acquired this knowledge and do not attend because they saw no need. Another possible explanation (which draws on teacher career cycle models) is that these teachers are preparing to exit the career. It

could be seen as not necessary since those teachers are close to retirement. Another area in which those with more than 25 years of experience differed was in PD about technology skills needed for teaching. There was a much larger percentage of teachers who participated in this PD. This result is counterintuitive. Anecdotally, older teachers are often seen as not being as able to adapt to or interested in learning new technology.

Teachers who have taught for 1 to 3 years had much higher attendance rates in PD focused on student behavior and classroom management. According to the teacher career stage models, this is consistent with other research and with the literature on the subject.

Teachers with 1 to 3 years and those with 4 to 9 years of experience had much high attendance percentages in PD that focused on individualized learning for student and in pedagogy than the other categories. This is also consistent with teacher career stage models that posit that teachers early in their careers are focused on how to control student behavior, the specifics of what to teach, and finding the best ways to teach content.

Rewards for PD in the Past 12 Months

Two other types of questions that did not directly address the research questions asked if teachers had received rewards or compensation for attending PD and did the teachers encounter certain barriers to PD attendance in the past 12 months. These questions were included in the survey in order to situate the teachers' PD preferences within the larger context of all of the (often competing) demands for teachers' time and attention. "One of the most important aspects of a professional development program is to find how to motivate faculty to attend despite increasing demands for their time" (Grover et al, 2016, p. 7). Since teachers make choices about what is most important in PD attendance, these questions offer insight into possible motivations for those choices.

When asked if teachers had received rewards for PD attendance, the responses for male and female respondents were surprising in a few areas. More males said they received materials needed for the PD activities. However, more of the female respondents said they received monetary supplements for activities outside of the school day. Since follow up questions were not asked and the questions themselves do not ask the respondents to say what type of PD they received rewards for attending, it is impossible to determine if these are truly differences due to the gender or if the rewards were tied to some other facet of the PD.

When looking at the data with the lens of the teachers' degree, the two most startling differences were both for teachers with specialist degrees. Much larger percentages of teachers with specialist degrees indicated that they had received release from teaching duties or activities, had gotten professional benefits, and had received salary increases. There is a pay increase for acquiring a specialist degree, but there is also a pay increase for earning a master's degree, so this result is puzzling. The large number of teachers who enter the district with a master's degree may account for this phenomenon. The University of Arkansas located near the target district and the student teaching requirements to become licensed through their program are conducted through a master's program. Student teaching is not offered as a part of their bachelor's programs.

Barriers to PD Attendance in the Past 12 Months

The questions asking teachers about potential barriers to their PD attendance contained a different method for answering. Instead of asking teachers to respond with a yes or no answer, these questions asked teachers to say to what degree that thought certain parameters were deterrents to their PD attendance. The Likert scale for these

questions had 4 categories (strongly disagree, disagree, agree, strongly agree). Data indicated that the largest barriers to PD attendance were work schedule conflicts, conflicts with family responsibilities, a lack of relevant offerings, and a lack of incentives for participation.

When looking at the potential barriers to attendance in PD, there were very few differences. The only category that showed a statistically significant difference based upon gender was that teachers indicated there are no incentives for attending PD. There were no statistically significant differences based on the teachers' degree. The same was true for the data based upon the teachers' years of experience

PD That Had the Greatest Impact in the Past 12 Months

Respondents ranked the impact different PD activities had had on their teaching on a Likert scale (strongly disagree, disagree, agree, and strongly agree). Some of the sub-questions addressed teachers' preferences for PD content. Others informed the research about teachers' presentation or format preferences.

Three of the four categories did not return any significant results in the data. There were no statistically significant differences in the impact of PD activities based on gender, nor were there any based upon the highest degree or level at which the teacher worked. When the data were examined based upon the teachers' years of experiences, however, there were some noteworthy variations.

The differences were in the answers of teachers who had 1 to 3 years and those with 16 to 25 (PD was adapted to the teacher's professional needs and PD had a coherent structure) or those with more than 25 years (PD had a coherent structure). What is most interesting in this is that the data did not show a difference in the responses of those with

1 to 3 years and those with either 4 to 9 years or those with 10 to 15 years. These data seem to reinforce the idea that teachers in the first few years have different needs than their more experienced colleagues.

PD Presentation

All of the sub-questions under this survey item concentrated on teachers' preferences for PD delivery, so this item provided data research questions R5 through R8. They asked, "Is there a significant difference in PD delivery preferences based on gender, highest academic degree that the teacher held, the school level where the teacher works, and years of teaching experience?"

The only sub-question that returned a difference based on gender was whether teachers preferred face-to-face mentoring which indicated that female teachers had a stronger preference for this type of PD. There were no statistically significant differences in respondents' answers based upon the highest academic degree held.

When the data were examined by the level at which the teacher works, two areas returned significant results. On the sub question that asked about in-person conferences that were self-pay, the answers of middle school and junior high teachers varied from each other with junior high teachers having the higher mean score. This result was surprising because of the self-pay component. The other sub-question with significant results by level was online synchronous PD. High school teachers; responses differed from both elementary and junior high teachers but not middle school teachers.

When disaggregated by years of experience three sub-questions demonstrated statistically significant results. These were video conferencing, local PD, and in-person district pays. For video conferencing, teachers with 1 to 3 years of experience differed

from every other category. It would be interesting to investigate if this difference is related to high level of technology that these teachers have had to employ both in their teaching in in their professional learning due to COVID.

When examining teachers' responses about local PD, there were differences in the answers of teaches with 1 to 3 years and those with both 4 to 9 years and those with 16 to 25 years of experience. This difference could be due to a desire of teachers in the early stages of their careers to connect with and attempt to understand how they fit or belong in their school building and school system. According to Unruh and Turner's career stage model, as teachers approach the 5-year mark in their career, they begin to transition to look for additional learning and ways to advance their careers. Around 15 years, they actively seek out new ideas and new concepts (Fessler, 1995).

Need for Future PD

The survey items that asked about teachers' future needs in PD, speak to their preferences in PD content. These sub-questions provide data focused on research questions R1 to R4, which ask, "Is there a significant difference in PD content preferences based on gender, the highest academic degree held by the teacher, on the school level where the teacher teaches, and years of teaching experience?"

By gender, the significant differences in answers only occurred for three sub-questions. When asked about PD focused on the knowledge of subject and pedagogical competencies the mean scores for female teachers were lower. The scores for males were higher in student behavior or classroom management. These sub-questions would have been an excellent place to ask follow up questions. For example, it would be interesting to examine what types of student behavior or classroom management teachers would like

to see addressed in the PD. It would also be interesting to know what subjects the respondents teach as this might inform the desire for subject or pedagogical PD.

Conclusions

It comes as no surprise that while there are some general trends in the data, teachers vary, and their interests differ. “Different occupational groups have different professional development interests” (Byman et al, 2020, p. 16). This study examined teacher preferences for PD content and delivery through four lenses which were gender, highest academic degree held, level at which the teacher works, and years of experience.

Gender

The two research questions examined the data to look for differences based upon gender. Research question R1 asked, “Is there a significant difference in PD content preferences based on the teacher’s gender?” The second research question, R5 asked, “Is there a significant difference in PD format preferences based on gender?” The respondents’ answers for PD content preferences differed by gender in a few areas. When examining teachers’ preferences for PD presentation, the only question that returned a significant result was that female teachers had a stronger preference for face-to-face mentoring than did their male counterparts.

These findings are not surprising. It would have been more surprising to discover some strong differences based upon gender. The review of literature did not point to any potential areas in which either PD content or delivery appeared to have gender biases. The null hypothesis that there are no differences in teacher preferences for PD delivery by gender is rejected.

Highest Academic Degree

Two of the research questions asked about teachers' preferences in the content and delivery of PD based upon the highest degree that the teacher had earned. Only one sub question returned a significant difference based on the teacher's degree which was technology for teaching. The null hypothesis for R2: "Is there a significant difference in PD content preferences based on the highest degree that the teacher holds?" is rejected. Research question R6 asks, "Is there a significant difference in PD format preferences based on the highest degree that the teacher holds?" The null hypothesis for R6 is accepted. There is no significant difference in teacher preferences for PD delivery based on the highest academic degree that the teacher holds.

The answers of teachers with bachelor's degrees differed from those with specialists and those with doctoral degrees on the sub-question that inquired about PD content that centered on technology skills for teaching. There was a statistically significant difference in the PD content preferences based on the teacher's highest degree. This finding is interesting. However, it is important to remember that there were 16 teachers who participated in the study who had specialist degrees and two who held doctoral degrees. The low number of teachers in each of these categories makes it difficult to accurately generalize the findings.

Level

Two of the research questions focused on teachers' preferences for PD content and delivery based on the level at which teachers teach. Research question R3 asked, "Is there a significant difference in PD content preferences based on the school-level where the teacher teaches (elementary, middle, high school, etc.)?" Research question R7 asks,

"Is there a significant difference in PD delivery preferences based on the school-level where the teacher teaches (elementary, middle, high school, etc.)?"

The responses for the survey items were much more varied when they are studied based upon the level at which the teacher works. There were several sub-questions that returned statistically significant results in both content and presentation preferences. However, many more content preferences emerged.

Elementary compared to middle school had only one difference, which was in PD that built on the teachers' prior knowledge. It is possible that this particular difference lies in how the subject matter is organized by grade level. In the participating district, elementary teachers teach all of the core subjects (math, science, English, and social studies). Starting in middle school, teachers teach one to two of the core subjects. The differences could be attributed to the differences in the type or scope of the prior knowledge that is required for teaching at the various levels.

For this sub-question (PD built on the teacher's prior knowledge), there were statistically significant differences between elementary teachers and both middle school and high school. However, this does not account for why there were not statistically significant differences between elementary teachers and high school teachers.

Elementary teachers' content preferences differed from junior high teachers on four sub-questions. Their responses differed from their colleagues who teach junior high on PD that focused on individualized learning, teaching students with special needs, teaching in a multicultural or multilingual setting, and contained active learning.

According to adult learning theories such as Andragogy and Transformation Learning, adult learners pursue information to fit an immediate need. Elementary

teachers scored PD on individualized learning lower. These results could be due to some shifts in PD because of the emphasis on technology that has come with online instruction and blended formats (where students are in class but there is still a greater emphasis on using online line or technology driven assignments).

A few years ago, there was a huge push in the participating district (due to response to intervention systems in the upper grades), to have student led conferences and focus on student goal setting. These initiatives could be providing some of the impetus for PD that centers on students' individual learning. Teachers need the information in order to create and maintain systems of intervention that require personalized plans and individual remediation goals.

Teachers who pursue PD that fits an immediate need could also offer a possible explanation for the differences between elementary teachers' and junior high teachers' preferences for PD that covers teaching students with special needs and teaching in a multicultural or multilingual setting. For both of these types of PD junior high teacher showed a stronger preference for these types of PD than their elementary peers; high school teachers ranked this PD higher than did their junior high colleagues (for PD on individualized learning and on teaching students with special needs).

It would make sense that teachers in the upper grades would seek to better understand how to teach students with special and/or additional needs. The structure of the schools in the district is that there are fewer support staff (paraprofessionals and student aids) in the upper grades. Fewer staff support teachers (curriculum specialists and academic coaches) in the junior highs and high schools than in the elementary school

settings, so teachers could be seeking ways to ensure that they are adequately addressing the academic needs of students in special populations.

Filling a need might also offer an explanation for why elementary teachers would show a stronger preference for PD that contained active learning. PD that contains active learning already has strategies embedded in it that could be taken back to the classroom to be used with students. Active learning tends to be less emphasized and less used in the upper than in the lower grades.

When examining differences in the PD delivery preferences by the level at which the teachers work, only three areas emerge as having statistically significant results. They are PD that is in-person self-pay, online synchronous, and contains opportunities for follow-up. Elementary teachers indicated a stronger preference for PD that contains follow-up activities than did junior high teachers. It is possible that if the study had contained follow up questions about the type of activities and the specific PD content, there might have been some clarification for this result.

Junior high school teachers' and middle school teachers' preferences for PD that is in person and self-pay were statistically significant. Junior high school teachers indicated a greater preference. When looking at this data set, it is important to note that of the 292 participating teachers only 30 worked at the middle school level. A larger number of participants may have returned results that were not significant.

Teachers at the high school showed a statistically significant difference in their preference for PD that is online and synchronous compared to both elementary and junior high teachers. High school teachers showed a stronger preference than either of the other two levels. This result is surprising based on the flexibility of asynchronous instruction.

However, it may be that being able to ask questions or solicit feedback in real time are the type of factors that would make synchronous PD more desirable than asynchronous. It is possible that these types of changes in preferences will change in the next few years as the ramifications of the rapid changes in online platforms are researched.

Years of Experience

The final two research questions addressed teachers' preferences for PD presentation and content based on the teachers' years of experience in K-12 public schools. These two research questions were "R4, Is there a significant difference in PD content preferences based on years of teaching experience?" and "R8 Is there a significant difference in PD delivery preferences based on years of teaching experience?" Two areas returned statistically significant results for teachers' preferences in PD content, and four showed significant results for PD presentation preferences when examined by teachers' years of experience.

The various career stage models hint at the differences in the needs of 1 to 3 years as compared to those of more experienced teachers. Of the models discussed in Chapter 2, there are two, which specifically give timeframes for this phenomenon. Unruh and Turner's model calls the first to fifth years of teaching the Initial teaching period. Their model describes the first five years as a time of gaining acceptance by colleagues and administrators, a time to master content, and a period to understand the organization of the organization (Unruh & Turner, 1970). The second is Frances Fuller's Stages of Concern Model. Fuller (1974) posits that new teachers are concerned with control of the classroom, understanding the content and personal performance evaluation.

The research data demonstrated a higher preference for PD that built on their prior knowledge for teachers with 1 to 3 years of experiences compared to teachers with 16 to 25 years. One possible explanation for this data is that there were fewer teachers with 1 to 3 years of experience in the study. Of the 292 participating teachers, only 26 had 1 to 3 years of experience. Another possible explanation for the differing preference in presentation is that PD is typically traditional. This type of PD is conducted in a whole group setting much like most college classes. The prior knowledge of teaching and learning would be fresh for teachers with 1 to 3 years of experience, so it is likely that the topics, methodologies, and content would (at least in part) mirror those college classes.

Since teachers with the least experience are concerned with managing student behavior, it makes sense that they would demonstrate the greatest preference for PD that involves active learning. Active learning is often touted as a way to keep students engaged and thereby reduce classroom management issue. PD that utilizes active learning tends to be full of strategies that teachers can use in their own classrooms.

The adult learning theories and teacher career stage models also have some vital information when examining teachers' preferences for PD presentation. The presentation formats that demonstrated statistically significant results based upon teachers' years of experience were a preference for PD that utilized video conferencing, was local, and was in person when the district paid. Each of these types of PD presentation returned interesting data for teachers with 1 to 3 years of experience.

Teachers with 1 to 3 years of experience had statistically significant differences in their preferences for video conferencing as a PD format with every other group (4 to 9, 10 to 15, 16 to 25, and more than 25 years of experience). The literature does not address

this particular difference. However, there are some in this group of teachers who either began teaching the year that everyone was quarantined or who were student teaching when public school were exclusively online. Video conferencing has become a vital and prolific part of the teaching profession.

Career stage theory does offer a potential explanation for why teachers with 1 to 3 years would have a stronger preference for local PD than both those with 10 to 15 years and those with 16 to 25 years. It also could offer a sound reason why teachers with 4 to 9 years of experience would have a strong preference for local PD than teachers with 16 to 25 years of experience. According to career stage theory, teachers in the first stages of their careers (some theories would say 1 to 5 years while others extend this as late as 10 years) are concerned with how they fit in the organization. However, the early stages are defined, they describe a time when teachers are trying to connect with colleagues, understand their role as an educator, learn how they are evaluated, and begin mastering content. It makes sense that teachers would want to have face-to face interactions in the school or district in which they work.

Similarly, the career stage models describe the first few years as a time to acquire content knowledge and grapple with pedagogy. The research demonstrated a statistically significant difference in the preferences of teachers with 1 to 3 years of experience for PD that is in person and paid for by the district. The teachers showed a stronger preference for this type of PD presentation when compared to the preferences of teachers with 10 to 15 years of experience. PD that is paid for by the district tends to be prescribed by the district. It is understandable that teachers with the least experience would feel comfortable receiving direction in their PD. Meeting in person also allows the teacher in

the earliest career stages to begin to make connections to job alike colleagues in their district or geographic area.

Recommendations for Future Research

This research study was undertaken in an attempt to better understand the PD needs of teachers. Because teacher PD is a large investment in both time and money, it is important to create PD experiences that are tailored to the needs of teachers. While conducting the research, performing statistical analysis of the resulting data, and attempting to interpret the information, some recommendations for future research emerged.

A replication study would offer additional insight into the PD preferences of teachers. This study employed a survey that was send to teachers in one specific district. However, it would be interesting to look data from the same questions if the study were to be replicated in similar district.

An expanded study would also be advisable. This research study involved 292 teachers' data. A study that asks the same questions of a much wider audience of teachers would be beneficial. The data presented here only represents a snapshot of the preferences of a sample of teachers from one district in Northwest Arkansas.

In addition, the researcher works in two junior highs in the target district. Three different teachers (on separate occasions) asked/wondered how the results of the survey might have differed if the survey were given at different points in the school year. One teacher was suggesting having teachers take the survey multiple times; the other two teachers were suggesting comparing the results from cross-sectional data taken at different times in the school year. For example, would the data differ if teachers took it in

the spring instead of in the fall? Would it make a difference if the data were collected immediately preceding or following an extended break?

While interpreting the results there were many questions that arose. Each of them could be used to revise this study or to conduct separate studies. The questions are the following:

1. How has COVID affected the content and presentation of teacher PD?
2. How would teachers' self-reported answers compare to administrators' perceptions of teacher preferences?
3. Does the subject that the teachers teach affect their preferences?
4. Does the major that the teacher studied affect the PD preferences?
5. What correlations, if any, are there between the categories? For example, is there a difference between the answers of teachers with bachelor's degrees and those with master's degrees when the teachers have the same years of experience?
6. Would this data differ if teachers were asked to say how many years of experience they had (instead of giving them categories)? In what ways would it differ?

This quantitative study was designed as such because of the potential complications with conducting interviews. When the study was created and proposed, many people were reluctant to meet due to concerns about COVID 19 (social distancing, quarantines, stress, additional duties, etc.). However, it would be beneficial to both ask open-ended follow-up questions on the survey and to be able to conduct interviews after teachers had responded to the survey.

Implications

Several themes materialized while conducting this research. Teachers are adult learners. Teacher PD does not always treat them as such. As adult learners, they have individualized goals, areas of expertise, and prior experiences. “Teacher Professional Development must recognize that teachers have different needs and appreciate that practice is unique for each teacher with each class. If directors of professional development are to effectively educate their teachers, they must respect their individuality and allow for self-direction” (Beavers, 2009, p. 29). Teacher PD would be much improved if teachers were asked about their needs and preferences.

There are differences in teacher preferences based upon their years of experience and the level at which they teach. However, there is also a gap in knowledge about those preferences and the needs that underpin them. “Different literature reveals that there is no single best approach to professional development. Rather, it is preferable for multiple approaches to be integrated with one another and address the complex and dynamic characteristics of specific program contents and learner needs” (Girma et al, 2019 p. 36). Effective PD is PD that is aligned to specific teachers and their understandings.

Summary

A survey was given to teachers in a district in Northwest Arkansas. The cross-sectional survey asked teachers about their preferences for PD content and delivery. The survey answers were disaggregated by the respondents’ gender, their highest academic degree, the school level at which they teach and their years of experience. The data were analyzed using SPSS T-tests, One-way ANOVAs, Kruskal-Wallis tests, and Mann-Whitney U tests.

Statistically significant differences in teachers' preferences for PD content and delivery varied by subcategory. There were no statistically significant differences based on gender. Teachers' reported preferences for PD content and delivery did not vary based upon the gender of the respondent.

When examined in light of the highest academic degree that the teachers had earned, there were no differences in preferences for PD presentation. There was one statistically significant difference in the PD content preferences for teachers by degree. Teachers with bachelor's degrees showed a stronger preference for PD that involved learning technology skills for teaching than both teachers with specialists and those with doctoral degrees.

Data focusing on PD content and delivery preferences showed statistically significant differences. Teachers who work at the elementary level had a stronger preference for PD content that built on their prior knowledge than did teachers at the middle school level. Elementary teachers' responses differed from their junior high peers on PD content that concentrated on individualized learning, teaching students with special needs, teaching in a multicultural or multilingual setting, and contained active learning.

Preferences in PD delivery analyzed by level demonstrated statistically significant results in three sub-questions. Junior high teachers indicated a stronger preference for PD that is in person and self-pay than middle school teachers. Elementary teachers had a greater preference for PD that contained follow up activities. High school teachers showed a more robust preference for PD that is online and synchronous than both elementary school and junior high teachers.

When the survey data were analyzed based on the years of experience that teachers have, there were statistically significant differences in both PD content and delivery preferences. Teachers with 1 to 3 years of experience had the most sub-questions that returned a significant difference in their data compare to the other categories (4 to 9, 10 to 15, 16-25 and more than 25 years of experience). Teachers with 1 to 3 years of experience had a stronger preference for PD content that built on their prior knowledge compared to teachers with 16 to 25 years of experience. They also had a stronger preference for PD that focused on active learning compared to each of the other categories of experience.

The responses of teachers with 1 to 3 years of experience demonstrated statistically significant differences in their PD delivery preferences. They had a greater preference for video conferences compared to each of the other categories or years of experience. Both teachers with 1 to 3 and those with 4 to 9 years of experience showed a larger preference for local PD.

Teacher career stage models and adult learning theory offer some insight into teachers' preferences for PD content and delivery. Career stage models describe the varied needs for teachers at different times in teachers' professional careers. Adult learning theory informs the characteristics of effective teacher PD.

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Appendix A: IRB Approval for Research Study

RE: Cheri Keyes IRB form

Institutional Review Board <irb@atu.edu>

Fri 10/1/2021 8:23 AM

To: Cheri Keyes <ckeyes@atu.edu>

Cc: Steve Bounds <sbounds1@atu.edu>; Greg Crouch <gcrouch@atu.edu>; Sarah Gordon <sgordon6@atu.edu>

Cheri Keyes,
The IRB Committee has found your study to be exempt per federal regulation 45 CFR 46.104 (d.2.ii).

It is approved, please proceed with your research.

Thank you,
Julie Ennis

From: Steve Bounds
Sent: Wednesday, September 29, 2021 11:17 AM
To: Institutional Review Board <irb@atu.edu>; Cheri Keyes <ckeyes@atu.edu>
Subject: Cheri Keyes IRB form

Attached please find the IRB application for Cheri Keyes, a doctoral student at ATU. Her study includes a survey being sent to teachers in her school district requesting their professional development preferences. No personally identifiable or sensitive information is being collected.

Thanks for your consideration.

SB

Dr. Steve Bounds
Ed.S. Program Director
Center for Leadership & Learning
479-358-7887
sbounds1@atu.edu

Appendix B: Permission to Survey Teachers

[redacted] Schools

where excellence lives.

September 27, 2021

Mrs. Cheri Keyes. ESL Designee
[redacted] Junior High
[redacted] Schools
Bentonville, AR 72712

Dear Mrs. Keyes,

I have reviewed your request, teacher survey, and informed consent information. I give permission for you to invite [redacted] Schools' teachers to participate in your survey as a part of your doctoral dissertation in Education Leadership through Arkansas Tech University.

Sincerely,

Jennifer Glenn Morrow, Ph.D.
Executive Director of Secondary Schools
[redacted] Schools

Appendix C: Permission to use TALIS Questions

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Please fill in the form below. Fields preceded by an asterisk (*) are obligatory.
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I. Person who makes the application

Title/ Position (Ms, Mr, Dr. Prof)	*Ms.*
* Family name	*Keyes*
* First name	*Cheri*
* Email address	*https://www.atu.edu/*

II. Organisation / Institution / Publisher wishing to use the OECD Material

* Name	**Arkansas Tech University**
* Mailing address	**Crabaugh Hall 214, 1310 N El Paso Ave, Russellville, AR, 72801**
Email address	*ckeyes@atu.edu*
Website address	**https://www.atu.edu/**
* Type of organisation	*Academic institution*

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* DOI or URL	http://www.oecd.org/education/school/TALIS-2018-MS-Teacher-Questionnaire-ENG.pdf.
If you only want to reproduce part of the Material, please provide the page numbers, tables or figures in question	I would like to use the following questions: 11 on page 7 – How many years of work experience . . . ? 22 on page 12- During the last 12 months, did you . . . ? 23 on page 12-13- Were any of the topics listed . . . ? 24 on page 14- For the professional development in which . . . ? 26 on page 14- Thinking of the professional development . . . ? 27 on page 14- For each of the areas listed below . . . ? 28 on page 15- How strongly do you agree or disagree . . . ?

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	☐ HTML ☐ ePub ☒ other: Library Copy
If electronic, please provide URL	Not applicable
If printed, expected print-run	Not applicable
* Target audience	Academic
* Distribution area	☐ World wide ☒ selected countries: United States
* Planned publication or distribution date	**01/05/2022**
If your publication or the reprint is to be sold, indicate the planned net selling price or subscription fee	Not applicable
* Will there be any advertising associated with your publication?	☐ Yes ☒ No
If there will be advertising, please provide additional information	
* Name and title of the person who will receive the licence:	Not applicable
Other relevant information:	The questions will be used on a teacher survey for the completion of a doctoral dissertation at Arkansas Tech University.

FW: Request to use selected questions from TALIS Teacher Questionnaire

PubRights@oecd.org <PubRights@oecd.org>
Mon 6/14/2021 6:06 AM
To: Cheri Keyes <ckeyes@atu.edu>
Cc: PubRights@oecd.org <PubRights@oecd.org>

1 attachments (58 KB)
OECD form reprint AND reproduction_FINAL (1).docx;

Dear Cheri,

Thank you for your message. There are no objections to your request for permission to reproduce a few figures from the TALIS Teacher Questionnaire in your dissertation/thesis, provided the source is properly cited:

OECD (2018), "Teaching and Learning International Survey (TALIS): Teacher Questionnaire", http://www.oecd.org/education/school/TALIS-2018-MS-Teacher-Questionnaire-ENG.pdf.

Thank you for your interest in OECD's work.

Best regards,
Gersa

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From: Cheri Keyes <ckeyes@atu.edu>
Sent: 12 June, 2021 3:02 AM
To: PAC Publication Rights <PubRights@oecd.org>
Subject: Request to use selected questions from TALIS Teacher Questionnaire

The form requesting permission for use is attached.

Sincerely,
Cheri Keyes

Appendix D: Teacher Survey

Informed Consent:
You are invited to take part in a research study, *Teacher Preferences in Professional Development* at Arkansas Tech University, which seeks to examine the relationship between teachers' career stage and their professional development preferences. Taking part in this study is voluntary. There is no penalty if you do not participate or withdraw from this study. If you decide to participate, you must indicate on the survey that you have read the research conditions and wish to participate.

Purpose of the Research
You are being offered the opportunity to take part in this research study because are a public school teacher in Bentonville Public School district.

The purpose of this research study is to examine the relationship between teachers' career stage (as determined by their years of experience and their preferences in professional development.

Procedures
If you participate in this study you will be asked to answer questions on a survey. There are three types of questions. They are demographic questions about your level of education, grade level of students you teach, gender, and years of experience. The second category of questions asks about what form of PD you prefer. These questions focus on online or in-person activities. The final category of questions asks participants about the content of PD that they would prefer.

Time Duration of the Procedures and Study
If you agree to take part in this study, the survey will take 10-20 minutes to complete.

Discomforts and Risks
There are no known risks to participating in this study.

Potential Benefits
Your answers could inform professional practice and assist in identifying potential professional needs. However, there is no guarantee that you will benefit from being in this research.

The results from this research study could further the professional understanding of the needs of teachers as adult learners and facilitate a deeper understanding effective professional development offerings.

Statement of Confidentiality
Your personal identifying information will not be revealed in any publication resulting from this study. In the event of any publication or presentation resulting from the research, no personally identifiable information will be shared.

Voluntary Participation
Taking part in this research study is voluntary. You do not have to participate in this research. If you choose to take part, you have the right to stop at any time. If you decide not to participate or if you decide to stop taking part in the research at a later date, there will be no penalty or loss of benefits to which you are otherwise entitled.

Your investigator may take you out of the research study without your permission. Some possible reasons for this are: incomplete or duplicate surveys.

Contact Information for Questions or Concerns
You have the right to ask any questions you may have about this research. If you have questions, complaints, or concerns contact Cheri Keyes at [redacted].

If you have questions regarding your rights as a research participant or you have concerns or general questions about the research, contact the research participants protection advocate. Dr. Sarah Gordon, CLL Department Head at Arkansas Tech University at 479-964-0583 ext 3208. You may also call this number if you cannot reach the research team or wish to talk to someone else.

Teacher Preference in Professional Development Survey

1. I have read the informed consent form, and I agree to participate in this survey. Yes No

Demographics: *Please select one choice per question (in questions 2-7.*

2. At what school level do you currently teach?
   - Elementary
   - Middle
   - Junior High
   - High School

3. What is the highest degree you have obtained?
   - Bachelor's
   - Master's
   - Specialist
   - Doctorate

4. Counting this year, how many years have you worked as a teacher at your CURRENT school?
   - 1-3
   - 4-9
   - 10-15
   - 16-20
   - 20-25
   - 25+

5. Counting this year, how many years have you worked as a teacher altogether?
   - 1-3
   - 4-9
   - 10-15
   - 16-20
   - 20-25
   - 25+

6. How many years have you worked FULL-TIME in a role other than as a K-12 teacher?
   - 0-3
   - 4-9
   - 10-15
   - 16-20
   - 20-25
   - 25+

7. What is your gender?
   - Female

Male

Professional Development Preferences

8. During the last 12 months, did you participate in any of the following professional development activities? *Please mark one choice in each row.*

	Yes	No
a Courses/seminars attended in person	□1	□2
b Online courses/seminars	□1	□2
c Education conferences where teachers and/or researchers present their research or discuss educational issues	□1	□2
d Formal qualification program (e.g. a degree program	□1	□2
e Observation visits to other schools	□1	□2
f Peer and/or self-observation and coaching as part of a formal school arrangement	□1	□2
g Participation in a network of teachers formed specifically for the professional development of teachers	□1	□2
h Reading professional literature	□1	□2

9. Were any of the topics listed below included in your professional development activities during the last 12 months? *Please mark one choice in each row.*

	Yes	No
a) Knowledge and understanding of my subject field(s	□1	□2
b) Pedagogical competencies in teaching my subject field(s	□1	□2
c Knowledge of the curriculum	□1	□2
d Student assessment practices	□1	□2
e Technology skills for teaching…….....	□1	□2
f Student behavior and classroom management……..	□1	□2
g Approaches to individualized learning	□1	□2
h Teaching students with special needs	□1	□2
i Teaching in a multicultural or multilingual setting	□1	□2
j Teaching cross-curricular skills (e.g. creativity, critical thinking, problem solving)…….....	□1	□2
k Analysis and use of student assessments	□1	□2
l Teacher-parent/guardian co-operation.....	□1	□2
m Communicating with people from different cultures or countries	□1	□2

10. For the professional development in which you participated during the last 12 months, did you receive any of the following? *Please mark one choice in each row.*

	Yes	No
a Release from teaching duties for activities during regular working hours	□1	□2
b Non-monetary support for activities outside working hours (e.g. reduced teaching time, days off, study leave	□1	□2
c Reimbursement or payment of costs	□1	□2
d Materials needed for the activities	□1	□2
e Monetary supplements for activities outside working hours	□1	□2
f Non-monetary rewards (e.g. classroom resources/materials, book vouchers, software/apps)……..	□1	□2
g Non-monetary professional benefits (e.g. fulfilling professional development requirements, improving my promotion opportunities	□1	□2
h Increased salary	□1	□2

11. Thinking of the professional development activity that had the greatest positive impact on your teaching during the last 12 months, did it have any of the following characteristics? *Please mark one choice in each row.*

	Strongly disagree	Dis-agree	Agree	Strongly agree
a It built on my prior knowledge.	□1	□2	□3	□4
b It adapted to my personal development needs.	□1	□2	□3	□4
c It had a coherent structure.	□1	□2	□3	□4
d It appropriately focused on content needed to teach my subjects.	□1	□2	□3	□4
e It provided opportunities for active learning.	□1	□2	□3	□4
f It provided opportunities for collaborative learning.	□1	□2	□3	□4
g It provided opportunities to practice/apply new ideas and knowledge in my own classroom.	□1	□2	□3	□4
h It provided follow-up activities.	□1	□2	□3	□4
i It took place at my school.	□1	□2	□3	□4
j It involved most colleagues from my school.	□1	□2	□3	□4
k It took place over an extended period of time (e.g. several weeks or longer)……	□1	□2	□3	□4
l It focused on innovation in my teaching.	□1	□2	□3	□4

12. How strongly do you agree or disagree that the following present barriers to your participation in professional development? *Please mark one choice in each row.*

	Strongly disagree	Dis-agree	Agree	Strongly agree
a I do not have the pre-requisites (e.g. qualifications, experience, seniority.....	☐1	☐2	☐3	☐4
b Professional development is too expensive.	☐1	☐2	☐3	☐4
c There is a lack of employer support.	☐1	☐2	☐3	☐4
d Professional development conflicts with my work schedule.....	☐1	☐2	☐3	☐4
e I do not have time because of family responsibilities.....	☐1	☐2	☐3	☐4
f There is no relevant professional development offered.....	☐1	☐2	☐3	☐4
g There are no incentives for participating in professional development.	☐1	☐2	☐3	☐4

13. How strongly do you agree or disagree that you prefer the following professional development formats? *Please mark one choice in each row*.

	Strongly disagree	Dis-agree	Agree	Strongly agree
a I prefer to attend PD via video conferencing (Zoom, WebEx, Webinars etc.....	☐1	☐2	☐3	☐4
b) I prefer to attend PD locally in my school district as opposed to traveling off-campus.....	☐1	☐2	☐3	☐4
c) I prefer to receive PD in-person at a multi-day statewide or national conference when the district pays travel expenses……..	☐1	☐2	☐3	☐4
d I prefer to receive PD in-person at a multi-day statewide or national conference even when I have to pay travel expenses..	☐1	☐2	☐3	☐4
e I prefer to engage in face-to-face mentoring or coaching activities ……...	☐1	☐2	☐3	☐4
f I prefer to engage in PD that is delivered face-to face.....	☐1	☐2	☐3	☐4
g I prefer to engage in PD that is delivered on-line.....	☐1	☐2	☐3	☐4
h I prefer to engage in PD that is blended (both on-line and face-to-face……..	☐1	☐2	☐3	☐4
i) When I engage in on-line PD, I prefer synchronous content (delivered at the time that I am viewing/engaging in it …….....	☐1	☐2	☐3	☐4
j) When I engage in on-line PD, I prefer asynchronous content (can be viewed at any time……...	☐1	☐2	☐3	☐4

14. For each of the areas listed below, please indicate the extent to which you currently need professional development. *Please mark one choice in each row.*

	No need at present	Low level of need	Moderate level of need	High level of need
a Knowledge and understanding of my subject field(s.....	☐1	☐2	☐3	☐4

14. For each of the areas listed below, please indicate the extent to which you currently need professional development. *Please mark one choice in each row.*

	No need at present	Low level of need	Moderate level of need	High level of need
b Pedagogical competencies in teaching my subject field(s..	☐1	☐2	☐3	☐4
c Knowledge of the curriculum	☐1	☐2	☐3	☐4
d Student assessment practices	☐1	☐2	☐3	☐4
e Technology skills for teaching	☐1	☐2	☐3	☐4
f Student behavior and classroom management	☐1	☐2	☐3	☐4
g School management and administration	☐1	☐2	☐3	☐4
h Approaches to individualized learning	☐1	☐2	☐3	☐4
i Teaching students with special needs	☐1	☐2	☐3	☐4
j Teaching in a multicultural or multilingual setting	☐1	☐2	☐3	☐4
k Teaching cross-curricular skills (e.g. creativity, critical thinking, problem solving	☐1	☐2	☐3	☐4
l Analysis and use of student assessments	☐1	☐2	☐3	☐4
m Teacher-parent/guardian co-operation	☐1	☐2	☐3	☐4
n Communicating with people from different cultures or countries	☐1	☐2	☐3	☐4

Questions were adapted from 2018 Teaching and Learning International Survey (TALIS produced by the Organisation for Economic Co-operation and Development (OECD and used with permission.

Appendix E: Pilot Study Questions

1. I have read the informed consent form, and I agree to participate in this survey. Yes No

Demographics: *Please select one choice per question (in questions 2-7.*

2. At what school level do you currently teach?
   - Elementary
   - Middle
   - High School

3. What is the highest degree you have obtained?
   - Bachelor's
   - Master's
   - Specialist
   - Doctorate

4. Counting this year, how many years have you worked as a teacher at your CURRENT school?
   - 1-3
   - 4-9
   - 10-15
   - 16-20
   - 20-25
   - 25+

5. Counting this year, how many years have you worked as a teacher altogether?
   - 1-3
   - 4-9
   - 10-15
   - 16-20
   - 20-25
   - 25+

6. How many years have you worked FULL-TIME in a role other than as a K-12 teacher?
   - 0-3
   - 4-9
   - 10-15
   - 16-20
   - 20-25
   - 25+

7. What is your gender?
   - Female
   - Male

Professional Development Preferences

8. During the last 12 months, did you participate in any of the following professional development activities? *Please mark one choice in each row.*

	Yes	No
a Courses/seminars attended in person	□1	□2
b Online courses/seminars	□1	□2
c Education conferences where teachers and/or researchers present their research or discuss educational issues	□1	□2
d Formal qualification program (e.g. a degree program	□1	□2
e Observation visits to other schools	□1	□2
organizations	□1	□2
g Peer and/or self-observation and coaching as part of a formal school arrangement	□1	□2
h Participation in a network of teachers formed specifically for the professional development of teachers	□1	□2
i Reading professional literature	□1	□2

9. Were any of the topics listed below included in your professional development activities during the last 12 months? *Please mark one choice in each row.*

	Yes	No
c) Knowledge and understanding of my subject field(s	□1	□2
d) Pedagogical competencies in teaching my subject field(s	□1	□2
c Knowledge of the curriculum	□1	□2
d Student assessment practices	□1	□2
e Technology skills for teaching…….....	□1	□2
f Student behavior and classroom management……...	□1	□2
g Approaches to individualized learning	□1	□2
h Teaching students with special needs	□1	□2
i Teaching in a multicultural or multilingual setting	□1	□2
j Teaching cross-curricular skills (e.g. creativity, critical thinking, problem solving.....	□1	□2
k Analysis and use of student assessments	□1	□2
l Teacher-parent/guardian co-operation.....	□1	□2
m Communicating with people from different cultures or countries...	□1	□2

10. For the professional development in which you participated during the last 12 months, did you receive any of the following? *Please mark one choice in each row.*

	Yes	No
a Release from teaching duties for activities during regular working hours	□1	□2
b Non-monetary support for activities outside working hours (e.g. reduced teaching time, days off, study leave	□1	□2

10. For the professional development in which you participated during the last 12 months, did you receive any of the following? *Please mark one choice in each row.*

	Yes	No
c Reimbursement or payment of costs	☐1	☐2
d Materials needed for the activities	☐1	☐2
e Monetary supplements for activities outside working hours	☐1	☐2
f Non-monetary rewards (e.g. classroom resources/materials, book vouchers, software/apps…..	☐1	☐2
g Non-monetary professional benefits (e.g. fulfilling professional development requirements, improving my promotion opportunities	☐1	☐2
h Increased salary	☐1	☐2

11. Thinking of the professional development activity that had the greatest positive impact on your teaching during the last 12 months, did it have any of the following characteristics? *Please mark one choice in each row.*

	Yes	No
a It built on my prior knowledge.	☐1	☐2
b It adapted to my personal development needs.	☐1	☐2
c It had a coherent structure.	☐1	☐2
d It appropriately focused on content needed to teach my subjects.	☐1	☐2
e It provided opportunities for active learning.	☐1	☐2
f It provided opportunities for collaborative learning.	☐1	☐2
g It provided opportunities to practice/apply new ideas and knowledge in my own classroom.	☐1	☐2
h It provided follow-up activities.	☐1	☐2
i It took place at my school.	☐1	☐2
j It involved most colleagues from my school.	☐1	☐2
k It took place over an extended period of time (e.g. several weeks or longer.	☐1	☐2
l It focused on innovation in my teaching.	☐1	☐2

12. For each of the areas listed below, please indicate the extent to which you currently need professional development. *Please mark one choice in each row.*

	No need at present	Low level of need	Moderate level of need	High level of need
a Knowledge and understanding of my subject field(s.....	☐1	☐2	☐3	☐4
b Pedagogical competencies in teaching my subject field(s..	☐1	☐2	☐3	☐4
c Knowledge of the curriculum	☐1	☐2	☐3	☐4
d Student assessment practices	☐1	☐2	☐3	☐4
e Technology skills for teaching	☐1	☐2	☐3	☐4
f Student behavior and classroom management	☐1	☐2	☐3	☐4
g School management and administration	☐1	☐2	☐3	☐4
h Approaches to individualized learning	☐1	☐2	☐3	☐4
i Teaching students with special needs	☐1	☐2	☐3	☐4

12. For each of the areas listed below, please indicate the extent to which you currently need professional development. *Please mark one choice in each row.*

	No need at present	Low level of need	Moderate level of need	High level of need
j Teaching in a multicultural or multilingual setting	☐1	☐2	☐3	☐4
k Teaching cross-curricular skills (e.g. creativity, critical thinking, problem solving	☐1	☐2	☐3	☐4
l Analysis and use of student assessments	☐1	☐2	☐3	☐4
m Teacher-parent/guardian co-operation	☐1	☐2	☐3	☐4
n Communicating with people from different cultures or countries	☐1	☐2	☐3	☐4

13. How strongly do you agree or disagree that the following present barriers to your participation in professional development? *Please mark one choice in each row.*

	Strongly disagree	Dis-agree	Agree	Strongly agree
a I do not have the pre-requisites (e.g. qualifications, experience, seniority.....	☐1	☐2	☐3	☐4
b Professional development is too expensive.	☐1	☐2	☐3	☐4
c There is a lack of employer support.	☐1	☐2	☐3	☐4
d Professional development conflicts with my work schedule.....	☐1	☐2	☐3	☐4
e I do not have time because of family responsibilities.....	☐1	☐2	☐3	☐4
f There is no relevant professional development offered.....	☐1	☐2	☐3	☐4
g There are no incentives for participating in professional development.	☐1	☐2	☐3	☐4

Professional Development Formats

14. How strongly do you agree or disagree that prefer the following professional development formats? *Please mark one choice in each row*.

	Strongly disagree	Dis-agree	Agree	Strongly agree
a I prefer to attend PD via video conferencing (Zoom, WebEx, Webinars etc.....	☐1	☐2	☐3	☐4
d) I prefer to attend PD locally in my school district as opposed to traveling off-campus.....	☐1	☐2	☐3	☐4
e) I prefer to receive PD in-person at a multi-day statewide or national conference when the district pays travel expenses……..	☐1	☐2	☐3	☐4
d I prefer to receive PD in-person at a multi-day statewide or national conference even when I have to pay travel expenses..	☐1	☐2	☐3	☐4
e I prefer to engage in face-to-face mentoring or coaching activities ……...	☐1	☐2	☐3	☐4
f I prefer to engage in PD that is delivered face-to face.....	☐1	☐2	☐3	☐4

Professional Development Formats

14. How strongly do you agree or disagree that prefer the following professional development formats? *Please mark one choice in each row*.

	Strongly disagree	Dis-agree	Agree	Strongly agree
g I prefer to engage in PD that is delivered on-line.....	☐1	☐2	☐3	☐4
h I prefer to engage in PD that is blended (both on-line and face-to-face……..	☐1	☐2	☐3	☐4
ii) When I engage in on-line PD, I prefer synchronous content (delivered at the time that I am viewing/engaging in it ……...	☐1	☐2	☐3	☐4
k) When I engage in on-line PD, I prefer asynchronous content (can be viewed at any time……...	☐1	☐2	☐3	☐4

Additional Questions for Pilot Study:

1. Were the questions clear and easy to understand?
2. Were there questions that you would edit?
    a. If so, which questions?
    b. What would you change?
3. Were there questions that you felt should have be asked or should be added?
4. Were the directions clear and easy to follow?
    a. If not, which questions/components need to be clarified?
    b. Are there edits that you would suggest?
5. How long did it take you to complete the survey?