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Comparing the Differences in Access to Professional Development for General Education and Special Education Teachers and the Subsequent Impact on Instructional Practice

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COMPARING THE DIFFERENCES IN ACCESS TO PROFESSIONAL DEVELOPMENT
FOR GENERAL EDUCATION AND SPECIAL EDUCATION TEACHERS AND THE
SUBSEQUENT IMPACT ON INSTRUCTIONAL PRACTICE

By

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ABSTRACT

Comparing the Differences in Access to Professional Development for General Education and Special Education Teachers and the Subsequent Impact on Instructional Practice

by Lori L. Slater

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The demands on schools, teachers, and students continue to increase as greater accountability measures are put into place at all levels. For teachers to meet these increased demands, it is important that they be provided opportunities to improve and enhance their content knowledge and pedagogy. One way to ensure the provision of these opportunities for teachers is through professional development. There is significant evidence that professional development can improve instructional practice and student outcomes (Drago-Severson, 1994; Garet et al., 2001; Guskey, 2000; Sparks & Loucks-Horsley, 1989; Wei et al., 2010; Zhang et al., 2015). However, there continues to be a gap between what is learned during professional development and what gets implemented in the classroom to change instructional practices.

Much of the existing research on teacher professional development has identified the structures and content that predict the effectiveness of professional development activities. However, much of the existing research focuses specifically on general education teachers rather than special education teachers, or does not specify the population of teachers it has targeted. Additionally, much of the existing research has not focused on the impact professional development activities have on classroom environments. Before the field of education can answer urgent questions related to the effectiveness of professional development and why there is a gap between learning and classroom implementation, access to evidence-based models of professional development must be determined. The focus of this study was to identify the

differences in access to various models of professional development between general education and special education teachers.

This study was conducted using an online survey that asked general and special education teachers to report their perceived access to evidence-based models of professional development, participation in evidence-based evaluation methods, and their perceived impact of professional development activities on their practice. Analysis of the results indicated that overall, neither group reported high levels of participation in the models of professional development known to change instructional practice and outcomes for students. In only one category was there a statistically significant difference between groups. It was reported that special education teachers reported significantly more opportunities for professional development in teaching students with disabilities than general education teachers.

This study contributed to a gap in the literature related to the access special education teachers have to professional development as compared to general education teachers. Specifically, it addressed what models of professional development general education and special education teachers report participating in, what evaluation methods they are participating in related to professional development, and their self-reported perceptions about the impact professional development has on their learning and the learning outcomes of their students.

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Ashley and Steven, thank you for coming along on this crazy ride that we have been on for the past five years. I love you dearly.

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DEDICATION

Dedicated to my brother, Joseph Jasperson, who without your journey I would never have known
this wonderful, crazy world of special education.

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CHAPTER ONE

INTRODUCTION

States across the country are spending significant portions of their education budgets for teachers to participate in professional development with the intention of improving classroom instruction and, thereby, student achievement (Guskey, 2000; Hertert, 1997; Jaquith, Mindich, Wei, & Darling-Hammond, 2010; National Governor's Association [NGA], 2009; Wei, Darling-Hammond, & Adamson, 2010). It has been an expectation of the profession that teachers will continue their own professional learning in some capacity during their tenure as educators. In an era of education reform and implementation of new college-and-career ready standards in most states, there is a significantly greater need for professional development to build teacher pedagogy and content knowledge (Killion, 2012).

As states consider the provision of this professional development, it is important to consider the structure of professional development that will have the biggest impact. Professional development that includes a substantial number of contact hours (30 to 100 hours) conducted over a 6- to 12-month period has shown a positive and significant effect on student achievement (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009; Wei et al., 2010). Conversely, professional development that is offered for only five to 14 hours of contact time with participants tends to have no statistically significant effect on student achievement (Wei et al., 2010). For some teachers, professional growth and learning is valued and professional development hours are carefully selected to ensure their time is well spent; for other educators, professional development is simply a requirement that must be met for state or district requirements (Guskey, 1999; Guskey, 2000). Nationally, teacher participation in professional development averaged 43.9 - 68 hours per year, just meeting the minimum hours that research

suggests lead to a significant impact on student achievement (Gates Foundation, 2014; Wei et al., 2010).

Administrators, local education agencies (LEAs), and state education agencies (SEAs) are tasked with the responsibility of determining how funding is spent on professional development and ensuring that their teachers have access to the highest quality and most effective professional development (Guskey, 2000). Historically, it has been difficult to determine exact investments schools have made on teacher professional development. While most school districts average \$8,000 - \$12,000 per teacher per year (Calvert, 2016), one recent study of three large school districts found, on average, administrators spend almost \$18,000 per year on professional development for each of their teachers (The New Teacher Project [TNTP], 2015). Further estimates show the 50 largest school districts in the country spend, at minimum, 8 billion dollars collectively each year on professional development for their teachers (TNTP, 2015). In the past decade at the federal level, it is estimated that between \$1.5 and 2.6 billion has been spent per year on teacher professional development (Calvert, 2016; Garet et al., 2011). State Education Agencies and Local Education Agencies are responsible for ensuring that the evidence-based skills and strategies learned during professional development are being implemented in the classroom (American Federation of Teachers [AFT], National Education Association, National Staff Development Council, & Council of Chief State School Officers, 2010). Implementation of effective professional development models, with consistent ongoing evaluation practices, is important when considering the financial investment and time commitment involved to ensure all teachers are receiving high quality professional learning and are providing the most effective classroom instruction for students.

Definition of Teacher Professional Development

There are different models of professional development (i.e., training, observation, study group, action research, coaching, mentoring) and these varying models can serve different purposes within the professional learning continuum (Drago-Severson, 1994; Guskey, 2000; Murphy, 1992; Sparks & Loucks-Horsley, 1989). To maximize learning and ensure implementation in the classroom, a variety of models of professional development should be utilized. When professional development is only provided through a single approach with the hope that recipients will then apply their newly acquired knowledge with fidelity, there is rarely success in changing teacher practice (Simonsen et al., 2013). These are critical factors in contributing to successful implementation of professional learning for educators.

To engage in professional learning, it is important to operationally define the term as many educators have differing ideas of what professional development means. Researchers have agreed on some common characteristics of effective professional development: (a) it must be ongoing rather than episodic, (b) it should be connected to teacher practice and collaborative work, (c) it must be supported by coaching and mentoring, and (d) it must be a part of whole-school efforts (Darling-Hammond et al., 2009; Garet, Porter, Desimone, Birman, & Yoon 2001; Guskey, 2000; Wei et al., 2010). For purposes of this study, professional development will be defined as a purposeful and deliberate process that is (a) intentional, (b) ongoing, (c) systemic, and (d) designed to bring about positive change and improvement in the professional knowledge, skills, and attitudes of educators to ultimately improve the learning of students (Guskey, 1999; Guskey, 2000).

Professional Development as an Intentional Process

Defining the purpose for professional development and setting clear goals is essential, and the first step in establishing the intentionality for learners. In many instances, there are not clearly established and delineated goals and objectives. Delivery of professional development is often highly fragmented and disconnects exist between intended outcomes and the professional development teachers experience (Gates Foundation, 2014). This also becomes important in the critical aspect of evaluating the professional development. These goals must clearly define the intended outcomes for participants and how they are to apply those skills in the classroom to lead to improved student outcomes (Guskey, 2000). It is only with clearly defined intentions for the professional development that effectiveness can be established.

Professional Development as an Ongoing Process

In today's changing educational climate, teachers need to be continuous learners and open to growth. Thus, effective professional development must be an ongoing, job-embedded process with continuous learning opportunities (AFT et al., 2010; Darling-Hammond et al., 2009; Guskey, 2000; Jaquith et al., 2010; Wei et al., 2010). This means that professional development should change and adapt to the educational climate and needs of both teachers and students. In many schools and districts, professional development has become stagnant and teachers in large part do not believe it is adequately preparing them for the ever-changing nature of their jobs (Calvert, 2016; Gates Foundation, 2014). Per the *School and Staffing Survey* of teachers, the three most common topics teachers identified for further professional development remained the same from 2004 to 2008, with teachers prioritizing the content of the subject they teach as first on their list, student discipline and management as second, and teaching students with special needs as third (Wei et al., 2010). In the 2011-2012 *School and Staffing Survey*, teaching students

with disabilities and teaching English language learners (ELLs) continued to be a learning need identified by teachers, but seldom offered in professional development (Goldring, Gray, & Bitterman, 2013). Yet, beginning teachers reported that 15.7% of their students had individualized education programs (IEPs) and 9.5% of their students were identified as ELLs (Lacireno-Paquet, Bocala, Fronius, & Phillips, 2012). Professional development organizers need to be on the forefront of the changing educational climate, advancing technologies, new instructional strategies, and content and assessment changes to effectively meet the current needs of teachers and changing instructional practice.

Professional Development as a Systemic Process

A review of research suggests that professional development is most effective when it is part of larger reform efforts of the school, rather than an isolated activity unrelated to other initiatives (Desimone, Porter, Garet, Yoon, & Birman, 2002; Elmore & Burney, 1997; Garet et al., 2001; Penuel, Fishman, Yamaguchi, & Gallagher, 2007; Simonsen et al., 2013; Zhang, Parker, Koehler, Eberhardt, 2015). School reform looks very different from school to school. As such, it is imperative that professional development efforts align with other school improvement efforts. Guskey (2000) indicated that, “true professional development is a system process that considers change over an extended period of time and takes into account all levels of the organization” (p. 20). If each teacher’s professional development is not aligned with the organization’s efforts, overall change cannot occur.

Part of the systemic process is looking at professional development holistically. Systematic alignment includes consideration of adopted standard at the local, state, and national levels and established objectives (Borko, 2004; Garet et al., 2001; Penuel, 2007; Zhang et al., 2015). As such, most states have adopted Learning Forward’s Standards for Professional

Learning as a national guideline of effective professional development (Calvert, 2016). When districts and schools follow these standards, they are more likely to provide professional learning opportunities that are ongoing, embedded, connected to practice, aligned to goals, and are collaborative in nature (Calvert, 2016).

Professional Development as an Improvement Process

Professional development is intended to improve teacher knowledge and instructional practice with the ultimate outcome of improving student learning. Yoon, Duncan, Lee, Scarloss, and Shapley (2007) reviewed over 1,300 studies that claimed to empirically address the connection between the effects of teacher professional development on student achievement; of those 1,300 studies, nine met What Works Clearing House Standards. A review of nine studies found that “teachers who received substantial professional development of 49 hours or more, can boost their students’ achievement by about 21 percentile points” (Yoon et al., 2007, p. iii). However, for many schools and districts, there is a struggle to provide valuable professional development experiences for teachers that truly result in improved instructional practices for teachers, let alone improved outcomes for students (Calvert, 2016; Gates Foundation, 2014; Yoon et al., 2007; Zhang et al., 2015). The literature is replete with examples of teachers indicating that their professional development is irrelevant, ineffective, and not connected to helping students learn (Gates Foundation, 2014).

Legal Requirements for the Provision of Professional Development

Teacher professional development has long been looked at to deepen teacher knowledge and develop instructional practice (Desimone et al., 2002; Showers & Joyce, 1996; Sparks & Loucks-Horsely, 1989). Research has focused on understanding how professional development has been done in the past, how to do it better, and what makes it effective or ineffective.

Professional development for teachers is often looked to as a cornerstone of educational reform efforts (Desimone et al., 2002). As such, legal mandates such as the Every Student Succeeds Act (ESSA) (2015) and the Individuals with Disabilities Education Improvement Act (IDEA) (2004) have included requirements for professional development to focus on improved outcomes for all students.

Every Student Succeeds Act

The Every Student Succeeds Act (ESSA) was signed into law on December 10, 2015 by President Obama. The ESSA reauthorizes the Elementary and Secondary Education Act (ESEA) that was reenacted as No Child Left Behind (NCLB) in 2001 (U.S. Department of Education, n.d.). Among the many changes between NCLB and ESSA was defining what professional development is under the law, placing more importance on professional development, and changing some of the funding for professional development. Under ESSA, professional development was more specifically defined as activities that “are sustained (not stand-alone, 1-day, or short term workshops), intensive, collaborative, job-embedded, data-driven, and classroom focused” (ESSA, 2015, p. 295). Further, the Act emphasizes the purpose of professional development is to improve and increase teachers’ knowledge of academic content, understanding how students learn, ability to analyze student work to adjust instructional strategies, effective classroom management skills, and effective instructional strategies (ESSA, 2015).

There is a heavier focus on teachers being involved in their learning and in the decisions about their learning now than ever before. The ESSA provides for “personalized plans for each educator to address the educator’s specific needs identified in observation and other feedback...and are developed with extensive participation of teachers” (2015, p.296). The Act

also emphasizes alignment of professional development to schoolwide and districtwide improvement plans as well as educator evaluation systems (ESSA, 2015). In addition, the Act also specifically requires that professional development be regularly evaluated for their impact on teacher practice and improved student outcomes (ESSA, 2015). This is a significant change from NCLB that was vague in describing professional development and provided little guidance to states, districts, and schools.

Individuals with Disabilities Education Improvement Act

In 2006, additional regulations were added to the Individuals with Disabilities Education Improvement Act of 2004 (IDEA), Section 300, that required all teachers teaching students with disabilities to be certified as Highly Qualified Special Education Teachers (HQT) (IDEA, 2004). The process for becoming highly qualified was hugely dependent on state licensure stipulation. Teacher preparation programs aligned to these standards to ensure that newly minted teachers were highly qualified upon completion of their preparation. Participation in high quality professional development became critical for those teachers currently in classrooms needing to meet requirements to obtain highly qualified status. This included professional development to assist in passing the required state special education teacher licensing examination or the content specific exam needed for certification as required under IDEA (IDEA, 2004; Mandlawitz, 2007).

In addition to HQT certification, IDEA Part D provided for discretionary grants specific for national activities to improve the education of children with disabilities. One of these grants is the State Personnel Development Grant (SPDG) that provides funding to states specifically for professional development efforts in school districts to improve outcomes for students with disabilities (Mandlawitz, 2007). Specifically, IDEA (2004) requires that not less than 90% of the grant be used for professional development (Sec. 612(a)(14)). These grants are important in the

provision of professional development, as nationally, teachers repeatedly rank teaching students with disabilities in the top three identified areas of need for further professional development (Wei et al., 2010). The focus of these grants is to provide states with additional funding targeted specifically on providing effective, high-quality professional development to improve the instruction provided to students with disabilities both by general education and special education teachers.

Selection and Impact of Teacher Professional Development Activities

Teachers typically attend professional development either to meet requirements as established by their SEA, district, or school or because they have identified an area of need for themselves professionally (Guskey, 2000). Guskey (2000) found that educators who view opportunities for professional development as simply hours they must complete to meet mandates can undermine opportunities to build a school culture of continuous learning. Therefore, it is important for professional development practices to focus on the specific needs of teachers to ensure the connection to their professional practice. By embracing teacher agency, education leaders can put more ownership of the professional development in the hands of the learners, making professional development more teacher driven. Specifically, “teacher agency is the capacity of teachers to act purposefully and constructively to direct their professional growth and contribute to the growth of their colleagues” (Calvert, 2016, p. 4). Teachers want to have a say in their learning. However, teachers seldom feel in control of their learning with one in five stating they never have a say in their professional development (Gates Foundation, 2014). A first step in moving from simply attending professional development to applying knowledge and changing instructional practice is allowing teachers to have a voice in the professional development they are participating in.

Increased Expectations for Student Achievement

Districts across the country are implementing rigorous college-and-career ready standards, new state assessment systems aligned to those standards, and in many instances, new teacher evaluation systems, all of which require new learning for teachers. With such drastic changes, professional development must be aligned to these reform efforts to maximize effectiveness for all teachers and students (Zhang et al., 2015). Well-planned, intentional, and ongoing professional development implemented systemically is imperative to making necessary changes to instructional practice.

In 2011, President Obama and then Secretary of Education, Arne Duncan, began granting requests from states allowing flexibility in meeting some of the requirements under NCLB known as the Elementary and Secondary Education Act (ESEA) Waivers. As a stipulation of the Waivers, states had to adopt college-and-career-ready standards and assessments that measure student achievement and growth (Federal Education Budget Project, 2014; Rentner, 2013). There was a significant shift in these new standards that had not existed in previous standards most states had been implementing, such as requiring instructional strategies that integrate both critical and creative thinking, student collaboration, problem solving, research and inquiry skills, and presentation and demonstration skills (Killion, 2012; National Commission on Teaching & America's Future [NCTAF], 2016).

General Education. College- and career-readiness standards depict what students in grades K-12 should know and be able to do upon graduation from high school in mathematics and ELA. According to the official website for the Common Core State Standards, one set of college- and career-readiness standards (Corestandards.org), ELA standards have been expanded to include literacy standards in history/social studies, science, and technical subjects to focus on

the critical skills of reading, writing, speaking, listening, and language in these respective fields (Common Core State Standards for English Language Arts, 2010). The Common Core State Standards for Mathematics (CCSSM) included mathematical practices that represent important habits of mind, referred to as the Mathematical Practices, in addition to the content standards (Common Core State Standards for Math, 2010; Sztajn, Marrongelle, & Smith, 2011). The transition to the college- and career-readiness standards for states has been difficult, as teachers have had to learn the more rigorous content standards as well as adopt and learn new classroom curriculum and assessment systems. A recent survey of states implementing the college- and career-readiness standards showed that educators in most states believe that the new standards required a fundamental change in instruction and curriculum (Rentner, 2013). Thereby, further professional development continues to be necessary for teachers to grow in their content knowledge and teaching pedagogy necessary to provide quality instruction on these more rigorous content standards.

Special Education. The adoption of ESEA/NCLB Waivers by many states put into place many changes that have had multiple impacts on students with disabilities. Under NCLB, states could assess some students with disabilities on alternate and modified assessments and count their proficiency toward accountability (Center on Education Policy [CEP], 2013). With the granting of the Waivers, accountability changed for states. One of those changes was that students with disabilities must participate in the regular assessment, based on the more rigorous content standards. The only exception to this is for those students with the most significant disabilities who qualified for the alternate assessment, known as the 1% rule (CEP, 2013). The adoption of college-and-career readiness standards also has had a major impact on the outcomes for students with disabilities, as these standards were written to encompass the learning of

students of all abilities from those below grade-level to those above grade-level. For some teachers, this meant a significant adjustment to ensure grade level content was being taught, while for other teachers it only required adjustment of accommodations to ensure access to the new standards. In addition, Individualized Education Plans (IEPs) for students with disabilities needed to align with new standards and new assessment systems. The Center on Education Policy found that of the 40 states they surveyed, 37 states reported facing challenges with providing professional development to help teachers align instruction to the new standards for students with disabilities, and most of those states reported that it was a major problem (CEP, 2013). Further, only 14 of those surveyed states reported developing guidelines and professional development to help IEP teams determine assessment options and accommodations for the new assessments (CEP, 2013). This is particularly concerning, as there has historically been a high need for professional development for the overall teaching of students with disabilities without the added strain of new, more complex content standards and assessments. This is evidenced in multiple, consecutive administrations of the *School and Staffing Survey*, where fewer than half of teachers nationally report receiving professional development on teaching students with disabilities (Wei et al., 2010).

Impact of Teacher Professional Development on Student Achievement

Curriculum is more rigorous than ever before, requiring more from students and from teachers. To become 21st century learners, students are expected to learn analytical skills that are more complex and teachers must learn to teach in ways that support the development of higher order thinking skills in their students (Darling-Hammond et al., 2009; NCTAF, 2016). To implement these college- and career-readiness standards (i.e., CCSS, the Next Generation Science Standards [NGSS]) aligned to new assessments, teachers in all subjects and at all grade-

levels need professional development to improve their content knowledge and instructional practices to ensure students can move to a greater depth of subject knowledge, show performance-based mastery of skills, and focus on deeper learning competencies (NCTAF, 2016). Teachers need intensive professional development that includes modeling, preferably by current classroom teachers, and coaching along with constructive feedback (Killion, 2012; NCTAF, 2016). Professional development can have a powerful effect on teacher skills and knowledge and on student learning if it is of substantial duration, content focused, and job-embedded to support ongoing improvement in teachers' practice; yet a review of research shows that the professional development most teachers are receiving on a single topic in each year, is insufficient to have any impact on student achievement (Darling-Hammond et al., 2009; NCTAF, 2016; Wei et al., 2010).

Evidence-Based Models of Professional Development

If teacher professional development is going to change teacher practice and result in improved student outcomes, then the content of that professional development must be carefully considered. Research has shown that the occasional one-time, episodic workshops are the least likely to change teacher practice (Darling-Hammond et al., 2009; Guskey, 2000; Wei et al., 2010). However, Wei et al. (2010) found U.S. investments in teacher learning continue to be focused on these least effective models of professional development. To succeed in developing high quality professional development opportunities for teachers, the intended outcomes for the professional development need to be considered from the design phase through implementation to reach established goals. The most successful districts and schools design professional development with intentionality, beginning with a clear statement of purpose, establishing specific goals, and basing the experience on expected outcomes (AFT et al., 2010; Guskey,

2000). A survey of teachers has described ideal professional development as relevant, interactive, and sustained over time (Gates Foundation, 2014). Additional research identifies time to study, participation by the group, and emphasis on reform-oriented activities, such as study groups and mentoring, as well as focusing on content knowledge in subjects taught, opportunities to actively be involved in the learning, including observing others or being observed, and cohesion with other professional learning events (Garet et al., 2001; Zhang et al., 2015) as key content considerations for effective professional development. Thoughtful considerations related to the content of the professional development, learner preferences, as well as alignment to state and district goals, must work together to produce the highest quality professional development that will impact classroom learning.

When determining the most appropriate model of professional development to implement, the outcome goals should be considered first. Other factors influencing model selection may include time allotted for the professional development, cost allowance, and learner preferences (AFT et al., 2010). The different models of professional development include: (a) training, (b) observation/assessment, (c) involvement in a development/improvement process, (d) study groups, (e) inquiry/action research, (f) individually guided activities, and (g) mentoring/induction (Drago-Severson, 1994; Guskey, 2000; Sparks & Loucks-Horsley, 1989). Of these various forms of professional development delivery, a survey of teachers suggested that their ideal professional learning experience focuses less on presentations and lectures and more on opportunities to apply their learning through demonstrations or modeling and practice (Gates Foundation, 2014). While there still may be a place for the traditional professional development workshops, research has shown that good professional learning needs to involve things like common planning time for teachers, opportunities to examine student work, and time for

collaboration and reflection (Desimone et al., 2002; Gates Foundation, 2014; NCTAF, 2016). It is important that education leaders begin implementing the knowledge that has been gained from years of research to provide the professional development for teachers that will affect change on instructional practice and improve learning for students.

Effective Evaluation of Teacher Professional Development

The main purpose of teacher professional development is to improve teacher knowledge in the content they teach, enhance their instructional strategies, and advance their pedagogy with the ultimate outcome of improving student learning. Yet, per a study by the National Governor's Association (2009), states seldom require the collection of data on teacher professional development that would determine if the new skills are being implemented and if it is leading to improved student learning. To measure effectiveness, there must be an evaluation. Guskey (2000) indicated, "evaluation must be based on the acquisition of specific, relevant, and valid evidence examined through appropriate methods and techniques" (p. 42).

States and districts make a substantial investment in teacher professional development when considering budget allocations and time commitment. As with any investment, stakeholders want to know if the money being spent on professional development is resulting in the intended outcomes. The ongoing problem has been a lack of evaluation methods of professional development (Desimone, 2009; Guskey, 2000; Hertert, 1997). Evaluations take on different forms, but good evaluations of professional development provide information that is sound, meaningful, and reliable to use in making decisions (Guskey, 2000). Current practices have consisted mainly of documentation of teacher satisfaction with the professional development activity, attitude change, and commitment to implementation of an innovation, not on the components that will change practice (Desimone, 2009; Guskey, 2000). It is known that

high quality professional development for teachers is essential to instructional change in classrooms and thus improved outcomes for students. Quality evaluative practices of those professional learning opportunities are a critical component in focusing on the key elements that are truly having the outcomes that will impact student learning.

Statement of the Problem

Educators in today's diverse classrooms must be prepared to teach to rigorous content standards and set high expectations for the learning of all students in the classroom. The field of education is dynamic, continuously growing and changing. State and local education agencies must ensure their teachers are prepared by investing in professional development that will result in improved content knowledge and pedagogy of all teachers. Simply providing arbitrary professional development opportunities to select teachers is no longer adequate. Therefore, it is imperative that general education and special education teachers have equal access to high quality professional development that is focused on content best suited to meet individual professional needs. Additionally, it is important that professional development activities result in rigorous classroom instruction rooted in evidence-based practices that result in improved student outcomes. However, most of the research is primarily conducted with general education teachers or does not specifically delineate if the research has been conducted with general education or special education teachers.

While professional development is a necessary component in the field of education, research has indicated that teachers are not being provided professional development that leads to improvements in student learning. In many instances, teachers are attending ineffective professional development, sessions that are not matched to their specific needs, or are not being provided the professional development that would result in lasting change to their instructional

practice (NCTAF, 2016; Wei et al., 2010; Yoon et al., 2007). With the many providers of professional development and the abundance of models, programs, and methods that claim to improve teacher practice and increase student achievement, it is imperative that education decision makers have a valid evidence-base to make informed decisions regarding what constitutes effective professional development for their teachers.

Research Questions

This study compared the differences in general education and special education teachers' self-reported access to evidence-based professional development opportunities. Specifically, this study answered the following research questions:

Research Question 1. Is there a statistically significant difference between general education and special education teachers' self-reported frequency of participation in evidence-based models of professional development?

Research Question 2. Is there a statistically significant difference between general education and special education teachers' self-reported methods used to evaluate the impact of professional development on teaching practice?

Research Question 3. Is there a statistically significant difference in the perceived importance and impact of provided professional development on teaching practice and student achievement between general education and special education teachers?

Significance of Research

There is a state of significant change in education as teachers prepare students with the knowledge they will need to be ready for college and careers by the end of their K-12 experience. Educational reform movements in the United States are setting ambitious goals for student learning and those changes in classroom practices ultimately rely on teachers

implementing instructional change (Borko, 2004; Garet et al., 2001). Professional development can have a powerful effect on teacher skills and knowledge and the research has shown teacher learning to be a critical aspect for successful implementation of new content standards (Darling-Hammond et al., 2009; Desimone et al., 2002; Zhang et al., 2015). However, nationally, investments in teacher professional development appear to be increasingly focused on the least effective model: short-term workshops that research suggests are unlikely to influence teaching practice and student outcomes (NCTAF, 2016; Wei et al., 2010; Yoon et al., 2007). With the addition of new content standards, new assessments, and new teacher evaluation systems in most states, investing in high quality professional development to support all teachers is more critical than ever (CEP, 2013; Killion, 2012; Killion & Hirsh, 2012; Rentner, 2013). Both general education and special education teachers must have access to the highest quality and most effective professional development models to change instructional practice, thus improving learner outcomes for all students (Guskey, 1999; Guskey, 2000; Wei et al., 2010).

Limitations of Research

The limitations of this study were:

1. Data was self-reported by in-service teachers. There was no triangulation of this data with other sources of professional development information.
2. The sample of the survey was in-service teachers at one large urban university. This limits generalizability of the findings of this study.
3. A random sample of completed surveys was chosen for statistical analysis. This sample was relatively small, and this could impact conclusions drawn from the statistical analysis.

4. The survey was administered via an online survey platform. This could have decreased the completion rate of the survey compared to a paper survey.
5. The survey instrument was created by the researcher. Although it was developed based on a thorough review of the literature and underwent a content validation process, there was no statistical determination of validity and reliability. This limits the generalizability of conclusions that can be drawn from the findings.
6. There was a larger proportion of provisionally licensed teachers who responded to the survey than fully licensed teachers. This could have had an impact on their experience with professional development and their access to professional development affecting how they answered the survey questions.
7. There were more teachers with two years or less teaching experience that participated in the survey than there were veteran teachers. This may have skewed the results as their limited number of years of experience may not depict an accurate account that is reflective of most teachers.

Definition of Terms

1. Action Research – a model of professional development involving five models of inquiry designed to improve educator practice (Guskey, 2000).
2. Development/Improvement Process – a model of professional development where a group of educators is involved in a problem-solving process. They review curriculum, design assessments, or similar projects that require commitment to finding workable solutions for the larger group (Guskey, 2000; Sparks & Loucks-Horsley, 1989).
3. Evaluation of Professional Development – the systemic investigation or measurement of merit or worth of the professional development being provided (Guskey, 1999; Guskey, 2000).

4. Individually Guided Activities – a model of professional development based on the theory that teachers can best judge their own learning needs and are capable of self-directing and self-initiating that learning (Guskey, 2000).
5. Mentoring and Induction – a model of professional development involving a beginning teacher (usually first through third year of teaching) observing lesson planning, instruction, and classroom management of a seasoned or veteran teacher (Guskey, 2000; Hudson, 2013).
6. Observation and Assessment – a model of professional development using collegial observation to provide feedback to teachers on their performance on lesson design, instructional practices, classroom management, and new programs or practices (Guskey, 2000; Sparks & Loucks-Hosely, 1989).
7. Professional Development – a purposeful and deliberate process that is (a) intentional, (b) ongoing, and (c) systemic, and is a designed effort to bring about positive change and improvement in the professional knowledge, skills and attitudes of educators to ultimately improve the learning of students (Guskey, 2000).
8. Study Groups – a model of professional development involving the entire staff being actively involved in small focus groups finding the solution to a problem, implementation of curricular and instructional innovations, collaborative planning of school improvement efforts, and to study research on teaching and learning (Guskey, 2000; Murphy, 1992).
9. Training – a workshop-type session with a presenter or a team of presenters considered the expert who establishes the content and flow of activities (Sparks & Loucks-Horsely, 1989).

CHAPTER TWO

REVIEW OF LITERATURE

Teacher professional development has long been held as a primary vehicle for improving the content knowledge and pedagogy of in-service teachers. To support the ongoing need for professional development, significant amounts of money are invested from the federal education budget as well as from state, district and individual school budgets (Calvert, 2016; Gates Foundation, 2014; Jaquith et al., 2010; TNTP, 2015). With a clear focus on education reform in the United States, investments in teachers that impact student outcomes are critical.

There is strong empirical evidence that effective professional development can lead to advances in teacher content knowledge and instructional practice, often resulting in improved student outcomes (Blank & de las Alas, 2009; Desimone, 2009; Desimone et al., 2002; Yoon et al, 2007). However, there is also a significant body of research that reflects teachers' dissatisfaction with: (a) professional development content, access, and activities; (b) gaps between the knowledge gained in the professional development and implementation upon return to the classroom; and (c) the implementation and effective evaluation practices surrounding professional development (Desimone, 2009; Garet et al., 2001; Gates Foundation, 2014; Guskey, 1999; Guskey, 2000; TNTP, 2015; Wei et al., 2010; Zhang et al., 2015). Themes in the literature surrounding professional development include: (a) types of professional development in-service teachers are participating in, (b) impact of professional development on teaching and student learning, (c) impact of evaluative practices have on teacher professional development, and (d) overall importance of professional development on teaching and learning.

Types of Effective Professional Development

The term professional development is often used to describe any activity that is intended to enhance a teachers' content knowledge or pedagogy with the goal of improving learning outcomes for students (Desimone, 2009). Through years of research, the specific activities and key characteristics of high quality, effective professional development have been identified (Darling-Hammond et al., 2009; Garet et al., 2001; Desimone et al., 2002; Yoon et al., 2007). To be considered high quality professional development, activities must be: (a) ongoing rather than episodic, (b) connected to teacher practice and collaborative in nature, (c) supported by coaching and mentoring, and (d) part of whole-school efforts (Darling-Hammond et al., 2009; Garet, Porter, Desimone, Birman, & Yoon 2001; Guskey, 2000; Wei et al., 2010). Guskey (1999; 2000) identified effective professional development as a purposeful and deliberate process that is (a) intentional, (b) ongoing, (c) systemic, and (d) designed to bring about positive change and improvement in the professional knowledge, skills, and attitudes of educators to ultimately improve the learning of students.

Effective professional development must be an intentional, well-planned process. The process begins with clear goals and objectives to reach intended outcomes, as well as makes the relationship between these outcomes and classroom practices (Guskey, 1999; Guskey, 2000). This intentional process for professional development has become critical as schools and districts focus on the alignment of professional development needs with new teacher evaluation systems (Shakman, Zweig, Bocala, Lacireno-Paquet, & Bailey, 2016). The teacher evaluation has become the tool to both guide and set the intended outcomes of the professional development.

Shakman et al. (2016) examined professional development as an intentional process by exploring the alignment between educator evaluations and participation in professional

development to improve evaluation ratings. The researchers wanted to see if the identification of targeted improvements related to evaluation standards resulted in the selection of intentional professional development opportunities to improve in those areas, and if teacher scores on those standards improved on subsequent evaluations (Shakman et al., 2016). Ultimately, the district where the study was conducted wanted to determine if their newly developed educator evaluation system addressed the areas deemed in need of improvement on one or more of their four standards for effective practice and the degree to which the feedback administrators gave to those teachers aligned with the types of professional learning teachers were attending (Shakman et al., 2016).

The study began with a survey of 586 teachers from one school district to determine the number of ratings of “in need of improvement” in each of the four standards on the teacher evaluation (Shakman et al., 2016). From the 586 teachers, a random sample of 148 teachers who had received at least one in need of improvement rating was selected to evaluate what specific professional activities they were prescribed by their evaluators in association with the in need of improvement ranking. Finally, a second random sample of the original 586 teachers was asked (a) what professional activities they had participated in, (b) if the activities they participated in aligned with the standards for which they received prescriptions, and (c) if the reevaluation rating changed as a result of the prescribed activities (Shakman et al., 2016). Interviews were conducted with six teachers and four principals regarding their experiences with the prescription process for context.

The school district where this study took place was a large urban school district located in the Northeast and Islands Region of the United States. The district employed approximately

4,400 teachers with 63% of their teacher population being White and about 22% being Black (Shakman et al., 2016).

The new evaluation was developed to allow administrators the option to recommend specific professional opportunities to support teachers' professional learning. The new model was to ensure intentionality in the professional development being provided and that teachers were being provided with the support they needed (Shakman et al., 2016). The four standards of effective practice that teachers were being evaluated on were: (a) curriculum, planning and assessment; (b) teaching all students; (c) family and community engagement; and (d) professional culture. On these standards, teachers could receive a rating of: exemplary, proficient, needs improvement, and unsatisfactory. The prescriptions that an evaluator could recommend were divided into two categories: professional development and professional practice. The category of professional development was those learning activities teachers attended and included: (a) workshop or course, (b) meeting with an administrator, (c) coaching or mentoring, (d) meeting with a colleague, or (e) observation of a colleague (Shakman et al., 2016). The category of professional practice were those independent learning components that resulted in something the supervisor could observe and included: submitting documents, reading resource material, learning new strategies for instruction, or other professional strategies (Shakman et al., 2016).

Shakman et al. (2016) began the study with the collection of data from 586 teachers related to all the prescriptions that had been written between May 2013 and February 2014. A random sample of those teachers (148) who received prescriptions were coded based on the activity types that were recommended by their evaluator. A district-administered survey was sent to a second sample of teachers to address the research questions pertaining to their professional

development and practice activities. A random sample of 248 teachers were selected from 586 teachers. A nonresponse analysis was conducted. Frequencies and descriptive statistics were weighted to adjust for nonresponses to the survey. The survey data were analyzed along with prescription data to assess if teachers followed the actions evaluators had prescribed them. The survey asked participants to indicate if they had participated in professional activities associated with each identified standard and what types of activities they had participated in. The types of professional activities evaluators assigned teachers were then examined for alignment to what each teacher reported they actually participated in to address each standard (Shakman et al., 2016).

Through the survey of teachers, Shakman et al. (2016) found that the teachers had received prescriptions on each of the four evaluation standards. For standard 1 (curriculum, planning and assessment), 49% of teachers received a prescription on their evaluation. For standard 2 (teaching all students), 52% of teachers received a prescription. On standard 3 (family and community engagement), 51% of teachers received a prescription. The lowest percentage of prescriptions was received on standard 4 (professional culture), with 34% of teachers (Shakman et al., 2016).

Analysis of research question two showed that evaluators often included one or two professional activities with each prescription, but they more frequently prescribed professional practice activities (97-100%) over professional development activities (9-58%) (Shakman et al., 2016). Further, Shakman et al. (2016) found that evaluators favored activities that teachers could do independently that would not need them to engage with other professionals, such as coaches, instructors, or evaluators. The most frequent activity evaluators recommended was for teachers to practice new strategies in their instruction (for standards 1 and 2) or other professional

strategies (for standards 3 and 4). The second most frequent recommendation across standards was submitting documents, such as lesson plans to administrators (Shakman et al., 2016).

In further analysis of the survey data, Shakman et al. (2016) found that for each of the standards, the percentage of participation in professional development and professional practice activities was similar. Participation in a workshop or course was the most common activity across all standards. In addition, 80% of respondents reported participating in professional activities for standard 1, 68% for standard 2, 28% for standard 3, and 34% for standard 4. Less than 40% of teachers reported participation in all activities their administrator prescribed. Finally, Shakman et al. found that for teachers with a prescription for standard 1 who participated in a professional activity related to that standard, 64% received a proficient or higher rating on their follow-up evaluation, compared to 38% of teachers who did not participate in any professional development activity for that standard.

There was one standard with a statistically significant difference. In Standard 1 (curriculum, planning, and assessment), it was found in follow-up evaluation ratings that teachers who participated in professional development activities in the standard in which they received a prescription had improvement over those who did not participate in activities (Shakman et al., 2016). However, at least 60% of teachers who received prescriptions on all other standards were rated at least at proficient on their follow-up evaluations. Shakman et al. (2016) found that the percentage of teachers who received a proficient rating on their follow-up evaluation did not vary in their participation as to the activity their administrator prescribed.

Shakman et al. (2016) conducted this study to assist leadership in the study district in better aligning their educator evaluation and professional development systems. Through this study, the district could determine if there was a need to realign the connection between their

teacher evaluation system and their teacher support and professional development system. In review of their findings, the researchers stated that they believe the lack of alignment could be due to a gap between what administrators believed the teachers needed in order to improve their teaching practice and what the teachers felt they needed (Shakman et al., 2016). The study found that administrators often prescribe professional practice activities more frequently than professional development activities, indicating that administrators could benefit from their own professional development on how to write effectively, provide actionable steps, and provide more specific feedback that better supports the improvement process (Shakman et al., 2016).

Finally, the finding that those who participated in professional activities related to standard 1 were found to be proficient at the end of the evaluation cycle was statistically significant. Researchers stated this may be due to the critical nature of standard 1 (curriculum, planning, and assessment), with more readily available professional activities related to this area (Shakman et al, 2016).

Several areas were identified by Shakman et al. (2016) for further research. The evaluators were prescribing certain activities for teachers to engage in to improve their practice, therefore this should lead to further analysis on those activities and which of those leads to better results in teacher's practice. The researchers found there was some variation in what evaluators were prescribing to teachers and felt this could justify further research in understanding what methods were being used in training administrators to write clearly and ensure actionable steps were described. Shakman et al. stated that future research should be done on the decision-making regarding the professional activities, including professional development, that is recommend to educators.

With such a significant amount of time, money, and effort being focused on professional development, great considerations must be made as to the content of the professional development. A reading professional development intervention study was conducted by Garet et al. (2008) in order to compare what effect two different research-based professional development interventions may have on teacher's reading instruction. This study was divided into two experimental groups (treatment A and treatment B) and one control group. The study implemented a framework of experimental design to test if two different interventions could improve the content knowledge and instructional practice of teachers, as well as the reading achievement of the students in their classroom (Garet et al., 2008).

The *Early Reading Professional Development Interventions Study* conducted by Garet et al. (2008) involved six school districts located in mostly urban areas across four states in the Midwest and eastern portion of the United States. There were between six and 24 schools from each district that participated in the study for a total sample size of 90 schools. As compared to the national average for urban/urban-fringe schools, schools in this study had a significantly higher percentage of students eligible for free or reduced lunch, as well as a significantly higher percentage of students with African American ethnicity, and the population of White and Hispanic students was significantly lower (Garet et al., 2008). Schools participating in the study, in regular classrooms, averaged three second grade teachers with 61 second grade students. The sample for this study included 270 teachers and 5,500 students across all three groups (i.e., treatment A, treatment B, control). In the follow-up year, there were 250 teachers in the fall, and 254 teachers and 4,614 students for spring (Garet et al., 2008).

There were three study groups established by Garet et al. (2008) to evaluate the impact of the professional development in this study. Treatment group A received professional

development through eight content-focused institute and seminar days implemented during the summer and school year for a total of 48 contact hours. The institutes and seminars were based on the professional development curriculum *Language Essentials for Teachers of Reading and Spelling* (LETRS). The topics of the professional development sessions were: (a) the challenge of learning to read; (b) phoneme awareness; (c) spellography / phonics; (d) fluency and analyzing student work samples; (e) vocabulary; (f) review of phonemic awareness, phonics, analyzing student work samples, and an introduction to differentiated instruction; (g) reading comprehension; and (h) review of vocabulary, reading comprehension, analyzing student work samples, and differentiated instruction (Garet et al., 2008).

Treatment group B received in-school coaching in addition to the prescribed institute and seminar series described for treatment group A (Garet et al., 2008). A half-time coach was provided for all participating schools. Garet et al. (2008) explained that the intent of the coaching sessions was to build on what was learned in the institutes and seminars to increase understanding and to provide ongoing practice and feedback. The goal during the study was to provide an average of 60 hours of coaching during the intervention year (Garet et al., 2008). To prepare for the coaching sessions, coaches received three types of training. The intervention coaches attended the sessions for the institutes and seminars with their assigned schools, were provided a three-day coaching institute by the Consortium on Reading Excellence (CORE), and received four follow-up trainings on-site in their respective schools to ensure effective coaching roles (Garet et al., 2008).

There were several outcome measures Garet et al. (2008) established in this study. First, teachers' knowledge about reading instruction was determined by overall knowledge score on the Reading Content and Practices Survey (RCPS). In addition to this main outcome measure,

two sub-scores were also assessed: a word-level sub-score and a meaning-level sub-score. The second outcome measured was teachers' use of research-based instructional practices (Garet et al., 2008). This was measured through trained observations in all second-grade classrooms recorded in three-minute intervals over an entire period of reading instruction. Specifically, the observations included scores for explicit teaching methods, independent student activity, and differentiation of instruction (Garet et al., 2008). Students' reading achievement was also measured to determine impact of professional development on student-level outcomes.

Garet et al. (2008) also administered a teacher survey with treatment groups and the control group. Data were gathered from the surveys pertaining to teacher backgrounds, the amount of professional development attended, and the type of professional development attended during study years. Additional information was obtained through observation of participants during the institutes and seminars attended by treatment group A and treatment group B, as well as from contact logs maintained during coaching sessions (Garet et al., 2008). These various data points were used in the multilevel analysis.

Multilevel models were used by Garet et al. (2008) to estimate the impacts of professional development on student reading achievement and two-level models for estimating impacts on the teacher measures. They assessed the impacts of the professional development interventions for each of the three study conditions that was randomly assigned (i.e., treatment group A, treatment group B, the control group) in each school within each district to (Garet et al., 2008). Data on students were nested within teachers' classrooms, which were nested within participating schools. This model collected data from the sample of teachers and students from study schools in both the initial implementation year as well as the follow-up year. This was considered an intent-to-treat analysis of the effect of the intervention as it reflects the

professional development activity's impact on the targeted sample regardless of participation rates of teachers in all institutes and all seminars provided (Garet et al., 2008).

Through implementation of the *Early Reading Professional Development Interventions Study*, Garet et al. (2008) found that teachers who were in both treatment group A (institute series only) and treatment group B (institute series plus coaching) scored significantly higher on the total score for the overall teacher knowledge as compared to the control group (ES = .37 and .38 respectively). Additionally, those teachers scored significantly higher on the word-level subscale (ES = .35 and .39 respectfully) as compared to the control group (Garet et al., 2008). However, for the meaning-level subscale, effects were not found to be statistically significant, although they were positive (ES treatment A = .21 and treatment B = .26). These effects were obtained through implementation of 93% of scheduled institute and seminar hours delivered to study districts with treatment groups attending 78% of implemented hours (35 of 45 hours) (Garet et al., 2008). In addition, Garet et al. found that teachers in treatment group A and treatment group B reported receiving significantly more hours of reading-related professional development during the implementation year than control group teachers reported receiving (i.e., group A-39 hours, group B-47 hours, and control group-13 hours). Regarding coaching, treatment B teachers received significantly more hours (71 hours) during the implementation year as compared to treatment A teachers (4 hours) or control group teachers (6 hours) (Garet et al., 2008).

A statistically significant effect was not found by Garet et al. (2008) on the primary outcome measure of student achievement. The interventions did have statistically significant effects on teacher knowledge, but standardized assessments did not reflect that the intervention had any effect on student reading achievement (ES treatment A = .08 and treatment B = .03)

(Garet et al., 2008). In addition, a statistically significant effect was not found on the percent of students scoring at or above the overall baseline mean reading score (3.48% and -2.35%, respectfully) (Garet et al., 2008).

Due to the design of the study, a rigorous test of the causal links in the theory of action could not be made. As Garet et al. (2008) explained, random assignment of students to teachers with varying levels of knowledge, or who exhibit different classroom practices, was not possible. They suggest that future studies could investigate the teacher variables that make up the link between measures of teacher's content knowledge and instructional practice that are associated with student achievement (Garet et al., 2008). Further, Garet et al. suggests that consideration should be given to the lack of evidence that exists as to the degree to which teacher impacts might translate into improved student outcomes. The largest effect sizes of the professional development on teacher outcomes Garet et al. found were .38 for teacher knowledge and .53 for explicit instruction (Garet et al, 2008). Garet et al. performed analyses that suggested that students who were taught in a classroom by a teacher who was one standard deviation above average had students testing at standardized achievement scores .18 standard deviations above the average. This study may not have been substantial enough to detect a significant magnitude level (Garet et al., 2008), but did show that teacher attendance at targeted professional development improved their knowledge and skills related to literacy.

To address gaps in the research surrounding in-service teacher professional development including content-specific needs, Desimone, Porter, Garet, Yoon, and Birman (2002) conducted a study to examine the relationships between alternative features of professional development and change in teaching practice in a cross-sectional, national probability sample, and a smaller longitudinal sample, of teachers. Desimone et al. conducted their study in the context of an

evaluation of Title II funding for professional development (the Eisenhower Professional Development Program), as its sole focus was to develop the knowledge and skills of classroom teachers. Their objective was not to evaluate the Eisenhower program itself, but rather determine most or least effective practices being funded within the program. Additionally, with a representative sample of districts and teachers, the researchers aimed to define the distribution of effective and ineffective practices. The results could then be used to determine if federal funding was being used on the most effective practices and make recommendations accordingly (Desimone et al., 2002).

The study consisted of 30 schools from 10 school districts. There was one elementary school, one middle school, and one high school selected in each district (Desimone et al., 2002). The number of teachers meeting all participation criteria was 207. Of the 207 participating teachers, 74% were female as compared to 84% in the national sample (Desimone et al., 2002). Ninety-three percent of the sample were certified teachers as compared to 100% in the national sample. The focus of the Desimone et al. survey was in mathematics and science and of the participating teachers, 12% of the math teachers and 18% of science teachers had been teaching three or fewer years.

The study was designed by Desimone et al. (2002) to have a disproportionate number of schools from high poverty neighborhoods. In total, 57% of the 30 sample schools (17 schools) were high poverty, whereas 25% of schools were high poverty nation-wide (Desimone et al., 2002). In addition, districts and schools were selected that had adopted diverse approaches to professional development in addition to traditional workshops and conferences.

This longitudinal study was conducted using a survey administered to teachers for three consecutive years. Desimone et al. (2002) designed the study to examine teaching practices in

year three based on teachers' professional development experiences in year two, controlling for teaching practices in year one. The same survey questions were used throughout the study. The measures were validated with the national data. Three parallel sets of analyses were completed, each focusing on a different area of teaching practice (Desimone et al., 2002). Desimone et al. examined the effects of professional development on the use of technology, instructional methods, and assessment practices.

Three main issues were addressed in the Desimone et al. (2002) study regarding the effects of professional development on teaching practices. First, Desimone et al. compared whether teachers who participated in professional development that focused on a teaching practice increased their classroom use of that practice more over the study period as compared to teachers who did not attend professional development focused on that strategy. Second, the researchers sought to determine whether teachers who participated in professional development focused on several different topics increased their use of those topics more as compared to those teachers who focused only on one strategy during their professional development. Lastly, the study focused on the comparable benefit of professional development on a teaching practice if it was of high quality (i.e., type, time span, sufficient contact hours, collective participation, active learning, coherence) and those not deemed of high quality (Desimone et al., 2002).

The data used by Desimone et al. (2002) had a two-level structure, with a set of teaching practices in an area nested within teachers. Given the two-level structure of the data, the effects of the professional development were estimated using a hierarchical linear model (HLM). A separate analysis was conducted for each of the three areas under study: use of technology, higher order instruction, and alternative assessment (Desimone et al., 2002).

In each of the three areas examined by Desimone et al. (2002), teacher participation in professional development that focused on a teaching practice (relative focus) predicted increased teachers' use of that practice in their classrooms. The effect on relative focus on a technology practice had an effect size of .310, higher order instructional practices effect size was .233, and assessment practices was .297 (Desimone et al., 2002). For each of the three areas examined, Desimone et al. also examined the impact of identified components of what is considered through the research to be needed in high quality professional development. For nearly every analysis, the coefficients for the components were in the positive direction, but relatively few of the effects were statistically significant (Desimone et al., 2002).

Desimone et al. (2002) found there to be benefit to technology-related professional development when there is collective participation from the same school. This is consistent with what is suggested as best practice in the field of professional development. They also found consistency with other research in that teachers gain more from professional development characterized by active learning rather than being passive recipients (Desimone et al., 2002). In addition, Desimone et al. found there is a substantial benefit when teachers participate in reform types of professional development that focused on higher order instructional or alternative assessment methods.

Weaknesses were identified by Desimone et al. (2002) in the design of the study. Sample size was of concern, particularly due to the complexity of the model. It would have been perhaps preferable to have all independent variables in one model to control for their potentially positive intercorrelations (Desimone et al., 2002). Lastly, Desimone et al. explained that participants were asked to describe only one professional development experience, whereas broadening that to multiple experiences may have been beneficial. The results of this study suggest that changes in

teaching would occur if teachers experienced consistent, high-quality professional development, but most teachers do not experience those qualities in their professional development (Desimone et al., 2002). An increased emphasis on the importance of strategic, systematic planning of professional development is needed for high quality professional development.

The types of professional development teachers participate in is a crucial element in how effective or ineffective they are in changing instructional practice and ultimately improving outcomes for students. Desimone et al. (2002) used the Eisenhower Professional Development Program as a source for conducting a longitudinal study that evaluated the effectiveness or ineffectiveness of all of the components of the professional development programs to gather an evidence-base regarding the constructs of high-quality professional development that improve outcomes. In addition to identifying types of professional development that are most effective, school and district administrators have begun to develop new teacher evaluation systems and determine how professional development corresponds with those. Shakman et al. studied the alignment of a new teacher evaluation system, the types of professional development teachers were participating in because of the evaluations, and if that professional development resulted in improvement in their practice as reflected in their evaluations. Finally, Garet et al. (2008) conducted an in-depth study on an early reading instruction professional development intervention using three treatment groups. While the intervention showed a statistically significant increase in teacher knowledge after receiving the professional development, the addition of instructional coaching did not result in improvement as previous research has suggested. These studies work together to lay a foundation as to critical components that research has found to be the most effective in changing teachers' classroom practices and reflects

some of the changes taking place in education that are directly related to professional development.

Impact on Teaching and Learning

Education in the United States continues to evolve as states adopt new content standards and assessments to prepare students with needed 21st century skills. In addition, many states are implementing new evaluation systems to measure the effectiveness of their teachers. However, in many instances, those evaluation systems are not aligned to educators' need for professional development that would establish a system for continuous improvement (NCTAF, 2016). Yet, there is empirical evidence that teachers' professional development can positively impact student achievement (Yoon et al., 2007). With increased expectations in education, better designed professional learning grounded in research is necessary to improve outcomes for students.

It was found by Abe, Thomas, Sinicrope, and Gee (2012) that structured professional development designed to improve teacher's theories and strategies can positively impact student outcomes. The primary emphasis of this study investigated the impact of a professional development program, Pacific CHILD, on student reading comprehension through improvement in teacher knowledge and more effective instructional practices in reading.

A study sample by Abe et al. (2012) was established consisting of 45 schools, of which 23 were designated as treatment schools and 22 were designated as control schools. The student sample from those schools consisted of 1,566 in the treatment group and 1,486 in the control group. Abe et al. divided the sample of teachers into two groups. The first was for determining impact on teacher knowledge and included 95 teachers in the treatment group and 102 in the control group. The second sample was for determining the impact on teacher practice and consisted of 96 teachers in the treatment group and 102 in the control group (Abe et al., 2012).

The study by Abe et al. (2012) was implemented in three entities in the Pacific region: American Samoa, the Commonwealth of the Northern Mariana Islands (CNMI), and Hawaii. The program was conducted with 4th and 5th grade teachers and students in the selected schools in English Language Arts. All participating schools were public elementary schools. These schools averaged 17 students to 1 teacher (Abe et al., 2012). The majority of the students in these schools were of races/ethnicities other than White (88.5%) and 72.5% qualified for free or reduced price lunch (Abe et al., 2012).

The Pacific CHILD program was designed to be implemented over a two-year period (Abe et al., 2012). Each year the intervention was implemented, the following activities were provided to teachers: one 10-day annual institute, three 3-day mini-institutes (one full day and two half-days), monthly lesson demonstrations, twice-monthly classroom observations, and weekly meetings of structured learning teams (Abe et al., 2012). Abe et al. incorporated a variety of professional development activities including workshop-style, hands-on practice, modeling, observation, reflection, lesson demonstration, collaboration, and feedback.

The content in this professional development included teaching three strategies each for improving student reading comprehension and for improving classroom pedagogy (Abe et al., 2012). The strategies of vocabulary, test structure, and question generation were all included as part of the professional development as a means to improve reading comprehension. The strategies to improve classroom pedagogy were differentiated instruction, cognitively rich environments, and interactive tasks (Abe et al., 2012).

The Abe et al. (2012) study was based on the concept that as teachers further develop their content knowledge and instructional practice, student learning improves, thus student

achievement will improve. This model indicates that there is a direct link to academic gains when there is improvement in both teacher knowledge and teacher practice (Abe et al., 2012).

Abe et al. (2012) used a randomized controlled design for this study with a structure consisting of multiple levels with random assignment, with the school being the unit of random assignment. Schools had the opportunity to participate in the Pacific CHILD program for a two-year period, which laid the foundation for the treatment condition. The control condition consisted of schools that did not participate, but were offered the intervention once the study had concluded (Abe et al., 2012). At the end of the two-year study period, outcomes for students and teachers from the study schools were examined. Abe et al. included all 5th grade students and 4th and 5th grade teachers in the sample at the conclusion of the study, regardless of the length of time they were exposed to the intervention.

To measure the impact of professional development, Abe et al. (2012) used a hierarchical linear model as the primary statistical model. Student achievement data in reading was obtained from different sources depending on the school. Two different national, norm-referenced tests had been administered as part of regular student assessments including the Stanford 10 and the TerraNova (CTB McGraw-Hill, 2003; Pearson, 2004). Abe et al. used nationally accepted norming tables and equipercentile methods to generate a common score that could be used to measure all students in the study.

To measure teacher knowledge, Abe et al. (2012) developed an assessment specifically for this study. A slightly modified version of the Sheltered Instruction Observation Protocol (SIOP) was used to measure the impact of teacher practice related to skills targeted in this study (Guarino, Echevarria, Short, Schick, Forbes, & Rueda, 2001).

The primary impact analysis Abe et al. (2012) focused on was whether the intervention improved student achievement in reading comprehension. Abe et al. found on the SAT 10 reading comprehension scores a statistically significant difference between the treatment and control groups ($ES = .244$, $p = .017$). For the secondary impact analysis of improving teacher knowledge and practice, statistically significant differences were found between treatment and control groups for both teacher outcome measures (teacher knowledge $ES = .35$, adjusted $p = .023$; teacher practice $ES = .64$, adjusted $p = .006$) (Abe et al., 2012).

Although study findings from Abe et al. (2012) did reflect statistically significant findings with the impact of the Pacific CHILD program, they did offer some cautions and limitations of the study. Abe et al. reported that the findings were not generalizable due to the purposeful selection of these three entities of American Samoa, the CNMI, and Hawaii as well as the convenience sampling of the schools that were used in the study. In addition, “the study is not intended to support conclusions about the intent-to-treat effects of the intervention” (Abe et al., 2012, p. 81).

Like the Pacific CHILD study and the effects of professional development on reading comprehension, Garet et al. (2011) implemented a study investigating the effects of professional development on improving the effectiveness of teachers in middle school mathematics. Specifically, Garet et al. examined the impact of a two-year professional development program for seventh grade mathematics teachers that focused on teachers’ knowledge of rational number topics and interrelated topics that are considered essential for understanding algebra.

The study was conducted by Garet et al. (2011) in 39 schools. There were 92 teachers and 2,132 seventh-grade students distributed across treatment and control groups. Of the 92 teachers participating in the second year of the study, 51 had been participating since baseline (23 in the

treatment group and 28 in the control group), and all eligible teachers were teaching at least one regular seventh-grade mathematics class (Garet et al., 2011).

There were six districts participating in the second year of the study. These districts were a subset of the districts recruited for the first-year study. Garet et al. (2011) selected three districts to work with each of the two professional development providers in the study. There was a total of 39 schools in the six districts that participated; 20 of those schools were in the treatment group and 19 were in the control group. The participating schools in the two-year study were largely located in mid-sized cities (87%), two-thirds of the schools were Title I, and two-thirds of their students were eligible to receive free or reduced lunch (Garet et al., 2011).

To maximize teacher exposure to content-focused learning, Garet et al. (2011) integrated substantial professional development hours into their program design. Participating teachers were to attend 68 hours of the prescribed professional learning in year one and 46 hours in year two. In addition, there were two additional days during the summer for teachers who did not participate in year one, but would participate in year two to prepare them to enter the intervention in a later phase (Garet et al., 2011). Garet et al. designed the content-focused professional development to be delivered by two providers, America's Choice and Pearson Achievement Solutions. Both providers were required to deliver the same content in the same format for the same duration. However, each provider had their own materials to address the topics, had different learning activities, and different presentation styles (Garet et al., 2011).

Professional development sessions designed by Garet et al. (2011) were very specific as to the content and outcomes to be accomplished. The overall domain was rational numbers, with subdomains of fractions, decimals, ratio, rate, proportion, and percent (Garet et al., 2011). The professional development was specifically prescribed by Garet et al. as to the structure of each

professional learning session and what content each session would cover for the entire two-year period. The professional learning sessions included summer institutes, seminars, coaching, opportunities for reflection, feedback, and discussion.

Facilitators were assigned by Garet et al. (2011) from each of the professional development providers that delivered the professional learning and coaching sessions. The facilitators attended a summer institute to be trained on all professional development content and materials prior to implementing the intervention with study participants. This ensured they had the expertise necessary and guaranteed uniformity across participant schools (Garet et al., 2011).

Several instruments were used by Garet et al. (2011) to measure the fidelity of implementation for the professional development. Attendance records and observations were collected at all institutes and seminars. The observation included a detailed, closed-ended protocol that was compared to each day's pre-specified training agenda to ensure all objectives had been met (Garet et al., 2011). In addition, Garet et al. had observers examine the institutes and seminars for overall teacher engagement using the protocol tool. The coaching sessions had coaching logs where the duration of each interaction was reported, as well as the topics that were covered. To factor in other professional development that teachers may have been exposed to outside of the study, a survey was administered to teachers in both the treatment and control group to identify any additional hours that were spent in professional development activities (Garet et al., 2011).

During the first year one of implementing the institutes and seminars as prescribed, the average number of participants was seven and in year two the average number of participants was six (Garet et al., 2011). On average, the professional development providers delivered 93% of the intended institute and seminar hours. Using the observation protocol, Garet et al.

determined that both professional development providers implemented all components of the sessions as planned more than 70% of the time during institutes and seminars both years. In addition, teacher attendance at the professional development sessions for each day of the institutes and seminars was measured at 98% in year one and 100% in year two by program observers (Garet et al., 2011).

Data was collected by Garet et al. (2011) from coaching logs that showed coaching events accounted for 3.9 hours of the intended 4 hours per visit (97%) in year one and 5.3 hours per 4-hour coaching visit (132%) in year two. Overall, Garet et al. reported that “common student misunderstandings” and “using representations” were the most common pedagogical foci featured in over 80% of coaching visits. Coaching was delivered in both group and individual formats. However, one-on-one coaching accounted for 87% of sessions in year one and 84% of sessions in year two. During both years, the most common coaching activities were debriefing after a lesson, planning a lesson, and observing teachers’ instruction (Garet et al., 2011). There was a total of 118 professional development hours implemented across the two years of the Garet et al. study. On average, teachers in the treatment group attended only 62% of the institute hours that were prescribed for in the intervention, 62% of the seminar hours that were prescribed for in the intervention, and 73% of coaching hours that were prescribed for in the intervention (Garet et al., 2011).

Through administration of the teacher survey, Garet et al. (2011) found that teachers in treatment schools experienced more hours of math related professional learning than did teachers in control schools, even when accounting for teacher turnover. Further, Garet et al. found that teachers in treatment schools reported attending 63.6 more contact hours of math related professional development during the same two-year period than teachers in control schools. All

reported differences between teachers in treatment schools and those in control schools were statistically significant (Garet et al., 2011).

Garet et al. (2011) reported that their findings show that the intervention was implemented as intended. However, teacher turnover was an issue and did impact incoming teachers' ability to maximize access to the professional development and coaching dosages. Garet et al. found, overall, the average treatment teacher included in year two received 66% of the intended dosage and 89% of the maximum possible dosage given their date of entry into the study. Also, over the two years of the study, there was a cumulative service contrast of 63.6 hours of professional development between the treatment and control conditions (Garet et al., 2011). Study results did not indicate a statistically significant impact on teacher knowledge or on student achievement after year two of the study. There are some results that suggest that teachers' specialized knowledge (SK) may have improved across each year of implementation of the professional development (Garet et al., 2011). However, Garet et al. state that the professional development would need to be more efficient than that tested in the study to further investigate those results. This study was primarily focused on teachers' SK and was not directly focused on content knowledge (CK). Suggestions from authors for future study would be providing professional development that places more direct emphasis on CK (Garet et al., 2011).

Schools and districts must look at professional development as an ongoing process for it to effect instructional practice. Zhang, Parker, Koehler, and Eberhardt (2015) approached professional development as an ongoing process when conducting a study to understand in-service teachers' professional learning needs in specific science content. In their study, they focused on understanding the difference between content knowledge and pedagogical knowledge, as well as how these differences apply to specific content areas, but are applicable

across content areas. The pedagogical content knowledge was the theoretical framework for understanding the needs of teachers regarding professional development (Zhang et al., 2015).

The research questions that guided this study were:

(a) what science topics did K-12 in-service science teachers perceive they needed improvement in and why; (b) what aspects of knowledge did in-service science teachers need to improve for the selected science topics; and (c) how did teachers' needs vary depending on teacher backgrounds including teaching experience, grade-level, and gender (Zhang et al., 2015, 472).

There was a total of 118 kindergarten through twelfth grade in-service science teachers who participated in the Zhang et al. (2015) study over a three-year period. Of the 118 participants, 96 were female and 22 were male. Participants were placed into three separate groups based on their years of teaching experience: beginning teachers were those with 0-3 years of teaching, those with 4-10 years of teaching experience, and teachers with greater than 10 years of teaching experience (Zhang et al., 2015).

Participants were selected for the Zhang et al. (2015) study who were attending a science education program at a university in the Midwest United States. The professional development cycle occurred over summer and during the subsequent school year for a three-year period. Application were submitted for the professional development from February to March in advance of the professional development programming beginning (Zhang et al., 2015).

A survey was used by Zhang et al. (2015) to conduct this study to understand the needs of teachers' regarding professional development. This self-report survey was specifically designed to gain insight into what they perceived needs for improvement in teaching on topics involving themselves, students, and curricular changes in life, physical, and earth sciences (Zhang et al.,

2015). As part of the process, Zhang et al. asked teachers to identify their first choice and second choice of areas they felt in need of improvement in science for their professional development focus. They then ranked on a five point Likert scale the extent to which they felt they needed improvement in nine areas. Zhang et al. describe them as content area knowledge, pedagogical knowledge, and pedagogical content knowledge. Questions focused on:

(a) understanding of big ideas of the subject; (b) interactions with my students; (c) teaching a specific unit with inquiry or scientific reasoning; (d) building concepts through a series of activities; (e) students' grasp of big ideas in the subject; (f) addressing students' misconceptions; (g) relating unit content to students' lives; (h) developing effective assessments; and (i) finding good resource materials on the Internet. (Zhang et al., 2015, p. 478)

Additionally, participants were asked two open-ended questions on the survey.

Teachers' ratings were analyzed by Zhang et al. (2015) through a one-way analysis of variance (ANOVA) and *t*-tests to examine if their needs were related to their teaching experience, gender, and grade-level. The open-ended teacher responses underwent an iterative coding process to prepare for further analysis. The researchers coded all open-ended responses, establishing inter-rater reliability of 91% (Zhang et al., 2015).

Over the course of the study, Zhang et al. (2015) established three cohorts of teachers with a total of 230 science topics to be addressed. Teachers were prompted to select their top two science topics from this list. There were four top concerns that surfaced when teachers were asked why they selected a specific topic they wanted to improve in: (a) 23% reported they felt they were weak in that particular area due to a lack of knowledge in the content, their level of training, or their interest in the topic; (b) about 10% indicated the topic was too complex or

abstract, leading to student misconceptions; (c) 38% wanted to restructure an existing unit in order to improve student understanding and level of engagement; and (d) 24% indicated they wanted to develop a new unit that aligned to new academic content standards (Zhang et al., 2015).

Through analysis of the study data, Zhang et al. (2015) found the most needed area of improvement teachers identified was teaching a unit with inquiry or scientific reasoning with approximately 80% of teachers. Three additional areas of high need for improvement included promoting conceptual understanding, developing concepts through activities, and creating effective assessment (Zhang et al., 2015). However, the majority of teachers were satisfied with their interactions with students and seldom ranked this as an area of needed improvement. In addition, Zhang et al. found overall low mean scores (3.07 and 2.97 in the two unit choices respectively) in teachers' own understanding of big ideas in the subject area they.

The open-ended survey questions developed by Zhang et al. (2015) were grouped into four categories: learners, instructional strategies, curriculum, and assessment. Interestingly, Zhang et al. pointed out that although teachers' average Likert scale rating was very low for their needs for improving subject matter understanding, 52% of teachers specifically mentioned the need for improving their own content knowledge in the open-ended responses. Improving student content knowledge, making the curriculum engaging, and connecting it to real-life were the needs teachers identified with the highest frequency (Zhang et al., 2015). Consistent with teachers' Likert ratings, Zhang et al. also found that inquiry teaching was a highly identified area of needed improvement. An additional area that reemphasized the teachers' ratings was with the ability to align instructional strategies with new curriculum and standards. This was particularly

prevalent in the last cohort of teachers. Of all 118 teachers, 21 of them expressed need for improvement in all surveyed areas (Zhang et al., 2015).

Further analysis was done by Zhang et al. (2015) to look at what relationships may exist between teachers' needs and their backgrounds. Post hoc comparisons using the Tukey HSD test indicated that veteran teachers were more confident in their ability to teach with inquiry and scientific reasoning, as well as address students' misconceptions about content than other less experienced teachers (Zhang et al., 2015). In addition, Zhang et al. found that elementary teachers reported needing additional guidance to improve their content knowledge, design effective assessments, and providing effective resource materials on the Internet than secondary teachers reported. Conversely, elementary teachers were more confident in teaching with inquiry or scientific reasoning than secondary teachers reported (Zhang et al., 2015).

While previous research has focused on what components and content make professional development effective, the Zhang et al. (2015) study specifically examined teachers' needs for professional development situated in specific science topics. Zhang et al. (2015) identified specific areas within science that teachers most identified need for improvement as well as the various reasons they felt defined their need for improvement: themselves, students, and curricular changes. Zhang et al. also identified that teachers needed improvement in various aspects of pedagogical content knowledge: learners, instructional strategies, curriculum, and assessment. Zhang et al. found that inquiry teaching was one of the greatest challenges facing most teachers regardless of years of experience. This is of concern as it is emphasized in the Next Generation Science Standards. In addition, this study reinforced the importance of professional development in helping teachers to adapt to curricular changes as evidenced by the 81% of cohort 3 teachers identifying a need for improvement in certain science topics to better

align with the standards as the state approached adoption of new science standards (Zhang et al., 2015).

The findings of this study support previous research and reflects the need for ongoing professional development required for teachers when adopting new content standards (Borko, 2004; Darling-Hammond et al., 2009; Desimone et al., 2002; Garet et al., 2001; Zhang et al., 2015). In addition, this study along with previous research, shows that professional development is more effective when it is aligned with the needs of the teacher (Zhang et al., 2015; Calvert, 2016; Gates Foundation, 2014). Zhang et al. (2015) suggests that the design of professional development should consider teachers' experience in the classroom and their assigned grade level. Zhang et al. did not have suggestions for further research because of this study.

One of the key factors in ensuring the effectiveness of professional development is connecting it to a systemic process of educational reform within the school system. Goddard, Goddard, and Tschannen-Moran (2007) considered the systemic process of professional development in their study to investigate whether there was an empirical link between teacher collaboration for school improvement and student achievement. Specifically, the researchers explored whether teacher collaboration positively predicted differences among schools in student achievement.

The study was conducted at elementary schools in a large urban school district in the Midwestern United States. A total of 47 elementary schools participated in the study. The participants in this study included 452 teachers and 2,536 fourth-grade students (Goddard et al., 2007). Goddard et al. found the study sample to be approximately 99% either Black or White, so the category of race was coded in such a way that non-White = 1 and White = 0. The participant's gender and socioeconomic status were coded similar fashion.

Data for this study were obtained from both teachers and students. To obtain data from teacher participants, Goddard et al. (2007) had faculty groups complete a survey during regularly scheduled faculty meetings that was designed to assess teacher collaboration. In addition, Goddard et al. randomly selected teachers to receive a survey with questions regarding teacher collaboration. A six-item Likert-type survey was used to measure teacher collaboration. The other group of teachers received a survey with an unrelated set of questions. All surveys were taken anonymously (Goddard et al., 2007).

Student achievement data and demographic data was used by Goddard et al. (2007) as student-level variables in the study. During the year teachers were surveyed, student data were also obtained for all enrolled students (Goddard et al., 2007). In addition to demographic data, Goddard et al. looked at the scaled scores of fourth-grade students on state-mandated mathematics and reading assessments. Both the survey administered to teachers and the student assessments were conducted in the spring, with the teacher survey taking place approximately one month prior to student assessments.

Reliability and validity evidence for the data set were established by Goddard et al. (2007) using multiple measures for the student assessment. First, because the standard assessment was state-mandated, reliability and validity evidence documentation could be obtained from the state's Department of Education. In addition, content validity for assessment scores was determined by: (a) the involvement of expert educators in the development and selection of test items, and (b) the fact that the school district from which the sample was drawn followed the state model curriculum for which the mandatory assessment was developed (Goddard et al., 2007). Statistical control for prior student achievement was also incorporated

into the study design. Goddard et al. used data obtained from the district office for students' third grade standardized math and reading assessment scores.

Students' prior performance on the Metropolitan Achievement Test was found by Goddard et al. (2007) to be significantly and positively related to their fourth-grade achievement in the same content area. When prior performance data was missing, students had significantly lower current achievement scores in the areas of reading and mathematics (Goddard et al., 2007). Hierarchical linear modeling was used by Goddard et al. to test their hypothesis to determine if a relationship existed between teacher collaboration for school improvement and students' achievement in math and reading. In initial analysis, Goddard et al. used the chi-square test of independence for analysis and found a variance among schools in teacher collaboration (28%) and student achievement in the areas of math and reading (26% math, 19% reading) were statistically nonzero. In Level 1 of the multilevel model, Goddard et al. adjusted for effects student demographics (i.e., race, gender, socioeconomic status) may have on prior achievement. The findings showed that minority status and disadvantaged socioeconomic status (SES) was significantly and negatively associated with student achievement, whereas a significant positive effect was associated with students' prior academic achievement (Goddard et al., 2007). The level 2 adjustment by Goddard et al. accounted for SES, minority proportion, and size of school social context to measure for teacher collaboration for school improvement. Goddard et al. found that regarding mathematics and reading achievement of students, teacher collaboration was a statistically significant predictor of variability among schools. Specifically, a one-standard-deviation increase in the extent to which teachers collaborated with colleagues on school improvement topics was associated with a .08 *SD* increase in average mathematics achievement

and a .07 *SD* increase in average reading achievement of students (Goddard et al., 2007, p. 889-890).

It was indicated by Goddard et al. (2007) that teacher collaboration is associated with increased levels of student achievement in mathematics and reading. Much of the previous research conducted on teacher collaboration considers teacher involvement rather than student outcomes, placing greater importance on the findings of this study (Goddard et al., 2007). A positive and statistically significant relationship was found between teacher collaboration and student's academic achievement as a result of this study.

It was recommended by Goddard et al. (2007) for further research drawing on a broader sample of school districts for better generalization of findings as this study was conducted from a single urban school district. In addition, replication of the study across grade-levels would also be beneficial for a broader representation of findings (Goddard et al., 2007). Finally, Goddard et al. suggested that the literature would benefit from systemic efforts to identify specific programs intended to increase collaboration between teachers to improve instructional practice as only school improvement was addressed in this study.

Professional development is one part of a school or district's overall improvement process. It is intended that by participating in professional learning, a teacher is improving on his or her content knowledge or pedagogy, and thus, student learning is improved. The New Teacher Project (TNTP) (2015) conducted a study of this improvement process to identify experiences and attributes of those teachers that improved substantially over those who did not.

For this study, TNTP (2015) surveyed 10,507 teachers and 566 school leaders. In addition, they interviewed 127 staff members that were involved in professional development activities. Participants were drawn from three large school districts in the United States. TNTP

designed the study to identify which teachers in the sample had displayed substantial improvement based on their level of growth across multiple measures including summative evaluation ratings, classroom observation scores, and value-added scores. Once the teachers who had demonstrated substantial growth had been identified, then possible contributing factors could be identified that set those teachers apart from those who did not have as much improvement (TNTP, 2015).

the study was conducted by TNTP (2015) in three large public school districts and one charter school network. The three school districts selected were believed to be representative of large public school systems nationwide. The charter school network was a charter management organization (CMO) of medium size operating in multiple cities. The researchers evaluated the CMO and the three school districts separately, and reported their findings as such.

Using multiple measures of performance, TNTP identified teachers across the three school districts whose performance showed substantial improvement. Each district had a teacher evaluation system in place with multiple-measures that was used to look at performance data and growth over a two to four-year period. In addition, each district also had a way to conduct summative evaluation ratings, classroom observation scores, and value-added scores that were used for each teacher participant (TNTP, 2015).

An online survey was administered by TNTP to teachers and school leaders to gain insight into their level of participation in professional development activities, their mindsets around growth and development, and their perceptions of their school environment. Interviews were conducted with school leaders and school staff. In addition, TNTP linked student performance data to teacher data. This variety of data sources allowed researchers to evaluate the experiences of teachers, their mindsets, and their learning environments relative to their

performance and compare how these factors were related to other measures (TNTP, 2015).

Collectively, this allowed for differentiation between teachers based on level of performance and their growth. The intent of the study was to identify those teachers with substantial improvement in as great of numbers as possible through the use of multiple definitions of growth and across multiple measures of teacher effectiveness. This method allowed for teachers to be identified who grew significantly more than their peers with who had similar experience (TNTP, 2015).

Specifically, regarding professional development activities, TNTP (2015) analyzed professional development catalogs, session attendance logs, and district-provided coaching data. Teachers were asked specific questions about their participation in different types of professional development activities (TNTP, 2015). TNTP analyzed the effectiveness of those activities and requested feedback from the teachers that attended, as well as their supervising principals, regarding their experiences with the professional development.

Another data source for this study was the budget. TNTP (2015) calculated the total spending efforts to improve teacher practice that were used to improve instructional practice. To accomplish this, TNTP considered school budgets, personnel records, financial and policy documents, teachers' contracts, and interviews with leaders at the school and district level. From these multiple measures of performance, TNTP could classify teachers in the three school districts as "improvers" or "non-improvers".

In the three districts studied, TNTP (2015) found that 30% of teachers typically had substantial improvement in performance over the years studied when their overall evaluation scores were considered. TNTP found that teachers early in their careers tend to show growth up to five times faster than those who have been teaching for more than five years. Teachers who have been teaching for ten years or more barely indicate a growth rate above zero. Further,

teachers in that tenth year and beyond of teaching were often evaluated at below effective in areas such as development of critical thinking skills, student engagement, and assessing for understanding (TNTP, 2015).

TNTP (2015) examined how teachers that showed improvement identified their involvement in professional development activities, how much time they spent on those activities, and other elements that could distinguish their professional development experience over the “non-improvers”. However, there were no common threads found that meaningfully distinguished the improving teachers from non-improving teachers. Professional development activities in which improving teachers participated in, as well as their attitudes and beliefs about the professional development activities reflected more similarities to non-improvers than differences (TNTP, 2015). The findings in the study reflect that teacher satisfaction with the professional development activities was unrelated to actual teacher improvement. They did not find a higher concentration of improvers in any one location, grade-level or content area (TNTP, 2015). In addition, TNTP found that teachers who spent more time on professional development activities had the same results as those teachers who spent the very little time on those same activities.

Findings from TNTP (2015) showed that there were a few areas with a modest relationship to increased growth and improvement. Teachers who were more open to feedback tended to have increased improvement scores (TNTP, 2015). As teachers felt more positive about their evaluator and efforts to help them improve, there was a slight increase in their improvement. TNTP also found that this filtered down to the school, when the number of teacher observations increased, the number of improvers at the school increased. Across measures, when there was consistency between a teacher’s self-perception of their effectiveness in the classroom

and their evaluation ratings from administrators, their growth and improvement increased (TNTP, 2015).

Further, TNTP (2015) found that the survey administered to teachers revealed interesting data on teachers' self-perception. Regarding their own instruction, 80% gave themselves a 4 or 5 (with 5 being the highest) and only 47% identified that they have weaknesses in their instructional practice (TNTP, 2015). In evaluating teachers' evaluations in these three districts, researchers found that this perception may not be just that of teachers. TNTP also found that the teacher evaluations reflect that teachers are routinely given a rating of "effective" or "meeting expectations" on their performance evaluations, and therefore, find no need for improvement. For teachers in these three districts in their fourth year and beyond, 77-95% are rated at least "effective" or "meeting expectations". Similarly, between 50 and 87% of all teachers new to the classroom are as well, so they are left to believe their instructional practice is already meeting expectations without the need to improve (TNTP, 2015). Along with these teachers' self-perceptions of not needing improvement, "only about 40% of teachers stated that most of the professional development they received was a good use of their time and only half felt that most of their development activities provided them with new skills and led to lasting improvement in their instruction" (TNTP, 2015, p.26).

Professional development is intended to be part of an ongoing improvement process, yet many of the objections expressed in the survey and through the interviews did not reflect an efficient improvement process. TNTP (2105) found that about half of those surveyed stated that the professional development they were receiving was "ongoing, tailored to their specific needs, or targeted to the students or subject they teach" (p. 26). Follow-through of professional development activities tended to be an issue as well. Only one in five teachers said they "often"

received follow-up support or tailored coaching opportunities, and only one in 10 reported frequent opportunities for practicing new skills (TNTP, 2015, p. 27).

Based on their findings, TNTP (2015) identified three main recommendations. First, the meaning of helping teachers improve needs to be redefined. The research shows that simply layering on more support is not the answer (TNTP, 2015). This is going to require districts and schools to clarify the goal of teacher development. Specifically, TNTP recommends that school systems clearly define development as observable, measurable progress toward an ambitious standard for teaching and student learning. In addition, TNTP recommends teachers need to have a clear, deep understanding of their own performance and progress. Districts must then encourage improvement with meaningful rewards and consequences to send a clear message that improvement is a top priority (TNTP, 2015).

As TNTP (2015) explains, the second recommendation is about districts and schools reevaluating existing professional learning supports and programs. The first step is to gather a baseline by conducting an inventory of current development efforts and initiatives. Then an evaluation of current development efforts and current initiatives needs to be done to look for effectiveness (TNTP, 2015). TNTP explains that with these results, schools should take time to break out of normal routines and explore alternative approaches to professional development. Once activities have been evaluated, funds need to be reallocated if they are being invested on activities that are not effective. TNTP recommends that schools could then invest that money in new approaches to professional development.

Finally, the third recommendation was related to reinventing how schools and districts are supporting effective teaching, TNTP (2015) suggests that schools balance their investment in teacher development with their investments in teacher recruitment. There needs to be

compensation directed at retaining the best teachers (TNTP, 2015). Overall, TNTP recommended trying new approaches to professional learning and measuring the impact that it has.

A clear majority of the literature that currently exists regarding professional development focuses on the content and components of effective professional development. Research designed to better understand teachers' perceptions and experiences related to professional development will help in learning more about the needs of teachers (Goddard et al., 2007; TNTP, 2015; and Zhang et al., 2015). The research has identified that professional development can have a positive impact on teacher knowledge and the learning outcomes of students, when it is designed using evidence-based practices related to professional learning (Abe et al., 2012 & Garet et al., 2011). However, research has not currently focused on the specific components of professional development that have the largest impact on changing pedagogy. Additionally, research has not focused on the types of professional development that teachers engage with, making it hard to measure impact.

While research has identified those models that are most effective for changing practice, it has not identified how frequently teachers are participating in those models of professional development. In addition, much of the research in professional development is focused on general education teachers and has not specifically looked at data related to special education teachers (Abe et al., 2012; Garet et al., 2011; Goddard et al., 2007; TNTP, 2015; and Zhang et al., 2015). To better understand the impact of professional development on learning, implementation, and student outcomes, the perceptions and experiences of general education and special education teachers related to professional development activities must be considered.

Evaluation of Professional Development

There have long been legal requirements related to the professional development of both general education and special education teachers, and the evaluation measures of that professional development. The No Child Left Behind Act (2001) established guidelines to help ensure teachers were being provided with high quality professional learning opportunities. In 2015, President Obama signed into law the Every Student Succeeds Act (ESSA) that reauthorized NCLB. Additionally, the Individuals with Disabilities Education Improvement Act (IDEA, 2004) focused on ensuring high quality teachers in classrooms for students with disabilities, as well as the professional development needed to retain those teachers. Legal mandates continue to place a high emphasis on the professional development of educators, as well as on the evaluation of professional development to ensure that the instruction and support is of high quality.

A study by Blank and de las Alas (2009) was conducted to support states, districts, and schools in complying with these legal mandates when designing and implementing teacher professional development. Blank and de las Alas's purpose for conducting this study was to guide states in their responsibility for administering, designing, evaluating, and reporting on professional development that was federally supported and state-funded with the intention to improve teacher practice. This study was conducted as a meta-analysis and measured the impact of professional development for mathematics and science teachers addressing four areas that strongly impact education policy, data, and research including:

- (1) NCLB required use of scientifically-based research in program decisions and evaluation of effectiveness of programs;
- (2) student achievement as the preferred measure of the effectiveness of programs and initiatives;
- (3) the implementation, design,

and features of professional development that are more likely to produce effects on student learning; (4) state leadership and local policy role in the design and evaluation of professional development programs based on research; and (5) maintaining a coherent and consistent focus of professional development (Blank & de las Alas, 2009, p. 2).

An initial search of studies by Blank and de las Alas (2009) meeting search criteria yielded 416 reports. These reports were processed through a screening and rubric rating process. Blank and de las Alas (2009) designed the meta-analysis based on prior studies in education and applied it to findings about teacher professional development. The study design had four basic steps: (a) identifying and gathering of potential studies; (b) determining eligibility and coding the studies; (c) analyzing the data; and (d) reporting findings (Blank & de las Alas, 2009). The prescreening included criterion on topic focus, population focus, study design, outcomes, time frame, and country the study was conducted in (Blank & de las Alas, 2009). The prescreening resulted in the elimination of 342 studies. The remaining 74 studies underwent a rigorous four-phase review process. The final analysis included 16 studies that were found to meet all criteria (Blank & de las Alas, 2009).

For the meta-analysis study, Blank and de las Alas (2009) analyzed the effect the professional development had on student's academic achievement. In addition to analyzing each study's effect size, Blank and de las Alas also examined data using Pearson's product moment correlation statistic (r) to look for any relationship that existed between the components of the professional development that were described in the studies.

In examination of effect size, the 16 studies generated a total of 104 effect sizes (Blank & de las Alas, 2009). While the average effect per study was 6.5, the range for each study was between two and 21 effects. Overall, Blank and de las Alas (2009) found that across studies,

most of the effect sizes were found to be modest, but each study did find a positive effect on student achievement. Blank and de las Alas found statistically significant positive relationships with multiple elements of professional development. Specifically, total contact hours and frequency ($r = .74$), contact hours and duration ($r = .83$), and frequency and duration ($r = .62$). Regarding the activities associated with the professional development, significant positive relationships existed between summer institute and contact hours ($r = .577$), and duration ($r = .655$), as well as for college courses and contact hours ($r = .744$) and duration ($r = .596$).

Through their meta-analysis, Blank and de las Alas (2009) demonstrated how this model can be effectively used to inform education researchers and policy makers. Education leaders can design and evaluate professional development based on scientific research as described by legal mandates using this design methodology (Blank & de las Alas, 2009). As a way for states and districts to be able analyze student achievement and academic improvement as they moved from grade to grade, NCLB provided funding and support for states to implement integrated data systems. To that end, Blank and de las Alas concluded that education leaders should ensure that longitudinal data systems can link teacher professional development initiatives to student achievement measures for evaluation purposes. Recommendations for further analysis across studies could provide stronger evidence of the direct relationship between a specific professional development initiative and direct impacts on student learning, as this analysis did not evaluate that relationship (Blank & de Las Alas, 2009).

There are many requirements within legal mandates to provide professional learning opportunities. It is not sufficient to randomly provide one-shot professional development sessions, and most federally funded professional development must be based on evidence-based research that shows evidence of improved student outcomes (ESSA, 2015). Additionally, it is a

requirement through ESSA, IDEA, and many federal grant programs that states report the qualifications of teachers, as well as the high quality professional development they receive each year (ESSA, 2001; IDEA, 2004).

Evaluation of professional development is recognized as a key component of professional development efforts. In 2001, it was written into the No Child Left Behind Act that all federal funds spent on professional development through the Act were to be evaluated regarding impact on classroom practice and student outcomes. When NCLB was rewritten in the Every Student Succeeds Act (2015), regular evaluation of the impact of professional development continued to be a key component. Some of the primary reasons identified for evaluation of professional development were (a) to develop a better understanding of the dynamic nature of professional development, (b) to recognize it as an intentional process, (c) to better inform reform efforts, and (d) for accountability purposes (Guskey, 2000). Soine and Lumpe (2014) recognized that evaluation of professional development continues to be a challenge in many educational environments.

A key component of implementing professional development is the evaluative practices associated with it. Soine and Lumpe (2014) conducted a study to create and psychometrically test an instrument that measured teachers' perceptions of characteristics of professional development. The five empirically-based indicators Soine and Lumpe identify for measurement of effective professional development were: (1) duration; (2) active, engaged learning; (3) focus on content knowledge; (4) coherence with teachers' needs and circumstances; and (5) collective participation. In addition, Soine and Lumpe examined teachers' use of new knowledge and skills, and student learning.

The study sample by Soine and Lumpe (2014) consisted of elementary classroom teachers from five public school districts. The total sample size was 794 elementary teachers. There were 349 teachers from District 1, 132 teachers from District 2, 107 teachers from District 3, 178 teachers from District 4 and 28 teachers from District 5 (Soine & Lumpe, 2014).

In Soine and Lumpe's (2014) study, all participating districts were located within the state of Washington. Districts 1 and 2 were in northwestern Washington. Districts 3, 4, and 5 were small, rural districts located in central Washington (Soine & Lumpe, 2014). Soine and Lumpe found in District 1, the ethnic background of the student population was evenly distributed and the district had the lowest percentage of students receiving free or reduced-price lunch (45.9%). Nearly half of the students in District 2 were Hispanic and 64.3% of the students qualified for free or reduced-price lunches. In Districts 3, 4, and 5, Soine and Lumpe found that over 79% of students in each district qualified for free or reduced-price lunch. The student population in District 3 was primarily Hispanic, whereas in Districts 4 and 5 it was predominately Native American (Soine & Lumpe, 2014).

The Soine and Lumpe (2014) study began by instituting a focus group to conceptualize and operationalize the construct. The focus group consisted of seven teachers. The group was representative of a wide range of grade-levels, years of teaching experience, and participation in professional development activities. Through the work with the focus group, a survey was piloted with a group of teachers. The survey then went through a process to provide evidence for construct validity (Soine & Lumpe, 2014).

One criterion variable established by Soine and Lumpe (2014) in the study was teachers' use of new knowledge and skills. To measure this, Soine and Lumpe used results from the STAR observation protocol. Classroom observations were conducted by outside evaluators in 30-

minute classroom observations to measure the degree to which powerful teaching and learning was observed in that given timeframe. The observers were trained in the STAR protocol over a weeklong training that included shadowing a more experienced observer for two full days to ensure consistency in scoring (Soine & Lumpe, 2014).

The other criterion variable established by Soine and Lumpe (2014) was student learning. This was measured by students' scores on Washington States' Mathematics Measures of Student Progress (MSP). This was a criterion-referenced assessment designed to measure how well a student has learned concepts and skills as outlined in K-8 mathematics standards for the state (Soine & Lumpe, 2014).

As part of the study, Soine and Lumpe (2014) conducted classroom observations. Each classroom observation resulted in five scores ranging from 0-4 for Skills/Knowledge, Thinking, Application, and Relationships, and then an overall score ranging from 0-4 (Soine & Lumpe, 2014). For analysis to answer research questions, Soine and Lumpe ran correlations between the overall STAR observation score and the mean of each subscale on the professional development survey. To answer the research question regarding student progress, Soine and Lumpe calculated the class Mathematics MSP average for each third-, fourth-, and fifth-grade teacher who completed the professional development survey. Correlations were run between the class Mathematics MSP average and the mean of each subscale on the professional development survey.

After full analysis of the survey items, Soine and Lumpe (2014) removed nine items from the survey. Two of the three items intended to measure perceptions about duration were eliminated and the other item intended to measure duration clustered with coherence; thus, duration did not appear as a viable subscale. In addition, Soine and Lumpe identified items

intended to measure Active Learning split into two different components: Active Learning in the Classroom and Active Learning Beyond the Classroom. The five characteristics of professional development with moderate to strong internal consistency were: (1) Collective Participation; (2) Focus on Teachers' Content Knowledge and How Students Learn Content; (3) Coherence with Teachers' Needs and Circumstances, (4) Active Learning in the Classroom; and (5) Active Learning Beyond the Classroom (Soine & Lumpe, 2014).

Using the STAR observation protocol, Soine and Lumpe (2014) found a relationship between each of the characteristics of professional development and teachers' use of new knowledge and skills using Spearman's rank-order correlation. In addition, Soine and Lumpe found a small correlation between Active Learning in the Classroom and the STAR observation score. No other significant correlations were found.

Regarding characteristics of professional development and student learning, Soine and Lumpe (2014) used Spearman's rank-order correlation to determine whether the characteristics of professional development and student scores on the Mathematics MSP covaried. The average score for each subscale on the professional development survey was used as the predictor variable. Each teacher's class average on the Mathematics MSP score was used as the criterion variable. A small negative correlation between collective participation and class averages was found (Soine & Lumpe, 2014). There were no other significant correlations between the characteristics of professional development and student learning.

Due to the broadening definition of professional development, Soine and Lumpe (2014) explained that the measure for Active Learning may have splintered into two separate items. Soine and Lumpe explained that the term professional development is commonly referred to as encompassing both formal and informal learning opportunities. Thus, Soine and Lumpe decided

to separate the survey item into Active Learning in the Classroom and Active Learning Beyond the Classroom to accommodate the broadening definition of professional development. In addition, Soine and Lumpe did not find a relationship between effective professional development as a predictor to teachers' use of newly acquired knowledge and skills as anticipated. Past studies that did find a relationship measured changes in teachers' instructional practice credited to specific professional development activities, whereas Soine and Lumpe measured teachers' perceptions about a variety of experiences that the researchers did not have influence over.

There were a couple of limitations to the study that Soine and Lumpe (2014) identified. Although the survey tool was piloted in advance, Soine and Lumpe found that some items were left blank. If participants had to complete all components of the survey, this may have altered the results. The classroom observation tool may have also been a limiting factor. Soine and Lumpe (2014) identified that the STAR observation protocol was not necessarily aligned to the lessons that were being taught. In addition, the 1-4 rating may not have captured what Soine and Lumpe intended to measure with the accuracy they had intended. Overall, the evaluation tool appears to be a reliable tool for capturing teacher perceptions about professional development activities they have participated in. It can be used to help guide state, district, and school leadership in providing high quality professional development for teachers (Soine & Lumpe, 2014).

While the evaluation tool does appear to be viable, Soine and Lumpe (2014) indicated that future research may include use of the tool with a broader range of groups utilizing a random sample to strengthen claims for external validity. The STAR observation protocol could be replaced with other observation tools or classroom walkthrough tools to evaluate teachers' instructional practices (Soine & Lumpe, 2014). Lastly, Soine and Lumpe explained that quasi-

experimental designs could determine the impact specific characteristics of professional development have on teacher practice and student learning.

Soine and Lumpe (2014) found that it was possible to develop a valid evaluation tool to measure teachers' perception of professional development. However, Soine and Lumpe were not able to find a correlation between certain professional development characteristics and teacher's use of new knowledge and skills. Similarly, Soine and Lumpe also did not find a correlation between teachers' new knowledge and skills and improved student learning outcomes. There is still valuable information to be gained from this research and there remain questions to be answered to determine how evaluation of professional development can be leveraged to improve teacher practice that will ultimately improve student outcomes.

The legal mandates of federally-funded programs require professional development to be properly evaluated for effectiveness. A review of the literature indicates that evidence related to the evaluation of professional development can improve the overall effectiveness of these activities (Blank & de las Alas, 2009; ESSA, 2015; Soine & Lumpe, 2014). While it is a requirement to evaluate any professional development being funded with federal monies, schools often do not understand these practices, or the resources available to conduct evaluations drive professional development decisions (Blank & de las Alas, 2009 & Soine & Lumpe, 2014). In addition, evaluation efforts can be complicated. To be most effective, evaluation should include a needs assessment prior to the activity, an assessment immediately following the activity, and follow-up after the teacher has had an opportunity to implement the skill that was taught during the professional development activity (Blank & de las Alas, 2009; Guskey, 2000; Hertert, 1997; Soine & Lumpe, 2014). Evaluation is an important component of effective professional

development, but how to conduct evaluation, what to evaluate, and when to evaluate are elements that continue to need further research development.

Conclusion

This review of the literature reflects the continued need for research to further investigate what constitutes effective professional development and how education leaders can best meet the needs of teachers and improve the achievement of students. There continues to be conflicting findings regarding successful outcomes for both teachers and students because of teacher professional development (Garet et al., 2008; Garet et al., 2011; Abe et al., 2012). Education is an ever-changing landscape and the professional development literature shows evidence that teachers are the key in identifying their professional development needs as an important element in improving instructional practice (Shakeman et al., 2016; Zhang et al., 2015). While it is evident that professional development is most effective when teacher needs are the foundation, there is empirical evidence that teachers needs are often not being met, therefore leaving professional development ineffective (Shakeman et al., 2016; TNTP, 2015; Zhang et al., 2015). This is one gap that continues to exist between what is known about professional development and what is being implemented for lasting change in instructional practice and ultimately student outcomes.

The average teacher spends 68 hours each year removed from the classroom to participate in professional development, yet research indicates that this is still not sufficient to change teacher practice (Gates Foundation, 2014; NCTAF, 2016; TNTP, 2015). If teachers are going to be out of classrooms to attend professional development for significant periods of time throughout the academic year, stakeholders need to ensure it will be a productive use of their time (Desimone et al., 2002). The literature on teacher professional development reflects the

ongoing need for states, districts, and schools to design, implement, and evaluate professional development that is aligned with state and local policies and grounded in research (Blank & de las Alas, 2009; Shakman et al., 2016; TNTP, 2015). In addition, schools need to be using teacher evaluation systems to inform their professional development decisions (ESSA, 2015; Shakman et al., 2016). The findings in this review of literature show evidence of the continued need for research specific to professional development related to special education teachers and the outcomes of special education students as the existing research focuses on general education teachers and the outcomes of general education students. Further, this review shows that special education and general education teachers have a need for ongoing access to high quality professional development grounded in evidenced-based professional development practices shown to improve content knowledge and pedagogy for all teachers that will lead to improved outcomes for all students. All aspects of the research known on professional development need to work together to bridge the gap between what is learned in professional development and what is implemented in classrooms to change pedagogy and student outcomes.

CHAPTER THREE

METHODOLOGY

Professional development for teachers can be an important component to improving instructional practice in the classroom. State Education Agencies (SEAs) and Local Education Agencies (LEAs) invest substantially each year in their teachers through various forms of professional development with the intention of building pedagogical and content knowledge that will support improved student outcomes (Guskey, 2000; Hertert, 1997; Jaquith et al., 2010; NGA, 2009; Wei et al., 2010). There are certain facets of professional development that research has found result in better outcomes, such as having an extended number of contact hours, choosing specific models of professional development to master a targeted objective or skill, provision of follow-up activities (i.e., modeling, coaching), and ensuring that professional development sessions are effectively evaluated (Darling-Hammond et al., 2009; Guskey, 1999; Guskey, 2000; Wei et al., 2010; Yoon et al., 2007).

This study was designed to investigate the differences in professional development received by general education and special education teachers relative to evidence-based methods of professional development; metrics used to evaluate professional development, and perceived impact of professional development on the outcomes of students. The study was conducted with general education and special education in-service teachers who were teaching in the classroom while attending graduate education programs at an accredited university. The university that participated in this study had established in-service general education and special education teacher preparation programs and agreed to facilitate administration of the survey to student participants.

Research Questions

This study further evaluates identified gaps that exist in the research pertaining to the differences between general education and special education teachers as it relates to professional development access and its impact on classroom practices. Specifically, the research questions were:

Research Question 1. Is there a statistically significant difference between general education and special education teachers' self-reported frequency of participation in evidence-based models of professional development?

It was predicted that general education teachers would report opportunities for participation in evidence-based models of professional development with more frequency than special education teachers.

Research Question 2. Is there a statistically significant difference between general education and special education teachers' self-reported methods used to evaluate the impact of professional development on teaching practices?

It was predicted that there is a heavier emphasis on evaluative practices prior to professional development activities and as follow up to professional development activities attended by general education teachers than those attended by special education teachers.

Research Question 3. Is there a statistically significant difference in the perceived importance and impact of provided professional development on teaching practice and student achievement between general education and special education teachers?

It was predicted that there is a difference of perceived importance and impact of provided professional development on teaching practice and student achievement when comparing general education teachers' perceptions to that of special education teachers' perceptions, with it being

hypothesized that general education teachers reported higher levels of impact of professional development than special education teachers.

Setting

One university participated in this study. The university is in the western region of the United States located in an urban setting. It is a public research institution with a diverse ethnic student population and faculty. There are approximately 25,000 undergraduate students and 4,200 graduate students being taught by over 1,000 faculty members. Participants were recruited through university facilitators through visits to general education and special education teacher education classes on the university campus. The university facilitators invited participants to participate in the study by taking the online survey. There were two general education classes attended by university facilitators to recruit participants with a total of 59 students. University facilitators also attended three special education classes to recruit participants, reaching a total of 67 students. These in-person recruiting efforts occurred on multiple dates during the data collection period. In addition, the university facilitators sent emails to 159 Alternative Route to Licensure and Teach for America students in the Special Education Department and Teaching & Learning General Education Department on multiple occasions, for a total of 1006 emails during the recruitment period, inviting participation in the online survey for this study. The response rate for this study was 38.5%.

Participants

Participants in this study included general education and special education teachers. The participants who were invited to complete the survey were attending a graduate-level education program at a university while also teaching in a classroom. These participants were attending the university as traditional education students, participating in alternative routes to teacher licensure

studies, or in the Teach for America program. By teaching in a classroom while also being enrolled in education coursework allowed participants the experience of having attended teacher professional development through their school district, giving them the background knowledge necessary to answer the survey questions.

Special Education and General Education Teachers

The study included in-service general education and special education teachers who were enrolled in a graduate program at the participating university. Participants were included in this study if they met two criteria: (1) they were enrolled in graduate education programs in early childhood, elementary, secondary, or special education, and (2) they were currently teaching in school districts. Participants were excluded from this study if they were enrolled in a teacher preparation program but were not currently working in a school district as either a provisionally licensed or fully licensed teacher. Participants were asked their higher education enrollment status and their teaching status at the beginning of the survey to ensure that they met the inclusionary criteria of the study. The demographic data collected from study participants indicated that respondents taught at a variety of grade levels including early childhood, elementary, and secondary, as well as across content areas. In addition, special education teachers included those teaching as co-teachers, resource room teachers, and those teaching in self-contained programs for students with significant disabilities. For the purposes of this study, differentiation between grade levels and content areas within each licensure type (i.e., provisionally licensed, fully licensed) was not made.

Participants were recruited by two university facilitators (i.e., special education faculty member, general education faculty member). University facilitators visited classes where potential participants were enrolled. When they visited, the facilitators provided potential

participants an informational sheet that described the purpose of the study and a link to the survey (see Appendix B for the Participant Protocol and Information Sheet). University facilitators were provided an information sheet that explained their role and responsibility as facilitators in this study (see Appendix C for Information Sheet). Additionally, university facilitators sent e-mails to students in their list-serve that included Alternative Route to Licensure and Teach for America students in the Special Education Department and Teaching & Learning General Education Department, inviting them to participate in the study.

All participants consented to participate prior to completing the survey (see Appendix A for sample participant consent form). When participants clicked on the link inviting them to participate, the consent form was the first page of the survey. Participants had to agree to participate in the survey prior to advancing to the remainder of the survey questions.

Invitations to participate in the study began on August 31, 2016. Recruitment efforts were to continue for four consecutive weeks. At the end of the four-week period, the minimum number of participants had not been reached; therefore, the recruitment period was extended until enough participants had been obtained. The survey was closed on October 19, 2016. The response rate of participants was 38.5%. After the data collection period, 34 general education teachers had responded, 65 special education teachers had responded, and 3 participants had responded in the “other” category. Participants who selected the “other” category and were later recategorized into either general education or special education based on their additional comments as to why they selected the “other” category. For example, one participant said they are “currently teaching in a Resource classroom” which is considered special education and thus was moved to that category.

Once the survey had been closed to further data collection, a process to clean the data took place. Entries that did not have 80% or more completed were considered invalid and were deleted from the data pool. Removal of these incomplete records left 95 surveys to be considered in the evaluation of data. Due to the small number of participants from general education as compared to special education, it was decided that a random sample of 25 from each group would be selected to be used for analysis. Once the data was checked for accuracy, all data were coded for analysis in SPSS. As part of this coding process, two graduate students checked the coded data for fidelity as it was converted from the survey output data necessary for analysis. To prepare for random sampling, responses were separated into general education teacher responses and special education teacher responses. Then a random sample selection formula within Excel was used to randomly select 25 participants from the general education teacher data set and 25 from the special education teacher data set. Those Excel spreadsheets were then uploaded to SPSS for analysis. The demographic data for the randomly chosen participants is reported in Table 1 (see Appendix E).

Instrumentation

The instrument that was used to collect data for this study was a survey that was developed specifically to answer this study's research questions. The survey is a researcher-created tool developed through a review of the literature on teacher professional development.

Survey Development

The survey was developed through a review of the literature on professional development. The literature review was conducted using the search engines Academic Search Premier, ERIC, PsychInfo, and Sage. The topics searched were: professional development, staff development, and professional learning with subtopics of general education, special education,

evaluation, student achievement, and improved student outcomes. Research articles were gathered and then sorted into the following categories: effective professional development characteristics, impact on student learning, impact on classroom instruction, general education needs, special education needs, design and content, and evaluation.

Within these categories, several themes began to surface in the literature that warranted further study, which began the formation of the research questions. First, most of the research in the literature was primarily with general education teachers or did not delineate if the research had been conducted with general education or special education teachers. In much of the research that did compare special education and general education, special education teachers appeared to be receiving much less professional development, particularly specific to academic subject matter. Second, the literature identified that professional development was not effective in changing either instructional practices or outcomes for students, but did not typically specify why this gap existed. Two areas identified as a possible cause of ineffectiveness were the relevance of the professional development to teacher practice and the approach to evaluating professional development with a focus on intended outcomes. These gaps in the literature were possible areas to be addressed in the research questions.

The survey went through formative evaluation by two university experts in special education familiar with professional development practices, a district level employee familiar with professional development, and a university faculty member familiar in the writing of surveys. The feedback received from the formative evaluation process of the survey tool was considered and changes were incorporated to ensure clarity and consistency of survey questions and alignment with research questions. One common concern among reviewers was that survey participants may have differing interpretations of the term professional development. This would

skew the data if participants did not have a common understanding of the term. Because of the concerns expressed by reviewers, an addition was made to the survey tool to define professional development and add possible example professional development activities within the definition to help them connect with their own experience. The other recommendations suggested by the faculty member with survey writing experience was for changes in the wording of several questions to better answer research questions. This process ensured the wording of the questions was appropriate to answer the targeted research questions. The survey was converted to an online format using the *Qualtrics* survey program. To ensure the survey was converted correctly and would function correctly for participants, three individuals completed the survey in its entirety as a pilot process. The individuals used three different types of electronic devices to ensure participants could access and complete the survey through personal computer, tablet, or smart phone. They did not find any errors or report any functioning issues with the survey. The survey was distributed online through a dedicated web link (*Qualtrics*, 2016) (see Appendix D for a copy of the survey).

Materials

The materials that were needed for this study included the professional development survey and the web-based survey software, *Qualtrics*.

Professional Development Survey

The *Comparing the Difference in Access to Professional Development to General Education and Special Education Teachers* survey consisted of 25 questions and one open-ended question. The survey had eight questions pertaining to participants' demographics including licensure status, current grade level teaching, number of years teaching, age, race or ethnicity, and gender. There were eight questions related to structures of professional development

participants had engaged in during the past 12 months, with participants rating their responses on a 5-point Likert scale. On this scale, the responses were equated to: 1 = a great deal, 2 = a moderate amount, 3 = sometimes, 4 = rarely, and 5 = never. If participants responded with sometimes, a moderate amount, or a great deal, two additional questions auto-populated and asked the number of hours they participated in that activity and their perceived usefulness of that activity. Additionally, there were four 5-point Likert scale questions regarding evaluation methods of professional development. These were also answered on a 5-point Likert scale, with 1 = a great deal, 2 = a moderate amount, 3 = sometimes, 4 = rarely, or 5 = never. There were four 5-point Likert scale questions regarding participant beliefs about professional development. Responses to these questions were 1 = strongly agree, 2 = agree, 3 = somewhat agree, 4 = somewhat disagree, and 5 = disagree. Finally, the last question allowed for an open-ended response pertaining to implementation of new knowledge.

Web-based Survey Software

The survey was accessible to participants online through a dedicated web address. The web-based survey program *Qualtrics* was used to manage the online survey (*Qualtrics*, 2016). *Qualtrics* is a research-based survey tool used by many universities, government agencies, non-profit entities, and other corporations (*Qualtrics*, 2016). The survey was made available to study participants for seven weeks. All survey responses were maintained electronically. Information obtained from the survey was used for analysis and dissemination of information pertaining to this study only.

Design and Procedures

This study was conducted over a three-month period and consisted of four phases. Those phases were (a) development of the online survey, (b) solicitation of participants, (c) survey distribution, and (d) data collection and analysis.

Phase One

During phase one, the survey, the informed consent for teacher participants, and information for the university facilitators were developed. The paper version of the survey was converted to the online format using the *Qualtrics* system (*Qualtrics*, 2016). The online format was reviewed by two individuals to ensure accurate transfer from the paper version of the survey. Two errors were found in the online format when reviewed and were corrected. All consent forms had prior approval from the Institutional Review Board before distribution to participants.

Phase Two

Phase two of the study included contact of faculty members at the participating university in the areas of General Education Teacher Education and Special Education Teacher Education to solicit participation in the study as university facilitators. This university was selected based on availability of general and special education programs that currently have in-service teachers in classrooms. The university facilitators were provided with a protocol outlining their responsibilities and agreed to participate in that capacity. The university facilitators were provided with the Participant Protocol and Information Sheet to distribute to prospective participants during the data collection period.

Phase Three

During phase three, participants were given access to the survey. The survey was available during a seven-week period. During this time, university facilitators were given a

protocol description to read and distribute (see Appendix B) that provided in-service teacher participants with information on the survey including its purpose and how they could access it. Facilitators worked with instructors in core classes targeted in-service teachers were enrolled to ensure maximum exposure to prospective participants. The university facilitators reminded students to complete the survey and reviewed the protocol as necessary each week for four consecutive weeks during fall of 2016. Two additional weeks were added for data collection to increase participation rates. The survey was closed one week after the facilitators concluded their sixth week of inviting students to participate in the survey.

Phase Four

The results from the online survey were electronically gathered and kept for statistical analysis. Data was exported from *Qualtrics* into an Excel spreadsheet. Data were cleaned to ensure that any participants that did not complete 80 percent or more of the survey were removed from the data set. The data in Excel was checked for fidelity by a doctoral student in special education. There were three errors corrected in the general education set and one error corrected in the special education set. To obtain a random sample of both the general education data set and the special education data set, the random sample selection formula within Excel was used to randomly select 25 participants from each participant pool. Once the data sets were prepared, the data were imported into *Statistical Program for Social Sciences* (SPSS) for analysis.

Data Collection

Data from the survey were collected over a seven-week period. Results were maintained in *Qualtrics* under password protection until data collection had concluded. Once the survey was closed, data were imported to Excel, coded, checked for fidelity, and imported to SPSS for further analysis.

Treatment of the Data

Data from the survey of teacher professional development were analyzed to answer the following questions:

Research Question 1. Is there a statistically significant difference between general education and special education teachers' self-reported frequency of participation in evidence-based models of professional development?

Analysis. A Mann-Whitney U Test was conducted to determine if a significant difference existed in the self-reported frequency of participation in evidence-based models of professional development between general education and special education teachers. The alpha level was set at $p = .05$.

Research Question 2. Is there a statistically significant difference between general education and special education teachers' self-reported methods used to evaluate the impact of professional development on teaching practices?

Analysis. A Mann-Whitney U Test was conducted to determine if there was a significant difference between the self-reported methods used to evaluate the impact of professional development between general education and special education teachers. The alpha level was set at $p = .05$.

Research Question 3. Is there a statistically significant difference in the perceived importance and impact of provided professional development on teaching practice and student achievement between general education and special education teachers?

Analysis. A Mann-Whitney U Test was conducted to determine if there was a significant difference in the perceived importance and impact of provided professional development on

teaching practice and student achievement between general education and special education teachers. The alpha level was set at $p = .05$.

CHAPTER FOUR

RESULTS

Currently, teachers are expected to teach rigorous content standards to a diverse population of students with a broad range of abilities. This is not an easy endeavor for even the most experienced and knowledgeable teachers, and often requires targeted professional development to enhance and expand teachers' skills. There is evidence that by participating in high quality professional development, teachers can be better prepared with the content knowledge and pedagogy necessary for improving student outcomes (Blank & de las Alas, 2009; Desimone, 2009; Desimone et al., 2002; Yoon et al, 2007). However, empirical evidence continues to reflect professional development offerings that (a) do not draw upon evidence-based practices known to change teacher practice, (b) are not driven by teacher need, and (c) are not part of an ongoing improvement process within the school (Blank & de las Alas, 2009; Desimone, 2009; Desimone et al., 2002; TNTP, 2015; Yoon et al, 2007; Zhang et al., 2015).

The purpose of this study was to compare any significant differences in general education and special education teachers' self-reported (a) frequency of participation in evidence-based professional development models, (b) participation in methods of evaluation to determine the effectiveness of provided professional development, and (c) perceptions of the impact of professional development on instructional practice and student achievement. Study participants accessed the online survey developed specifically for this study through a *Qualtrics* survey link. There were a total of 110 general education and special education in-service teachers who participated in the study. Incomplete data were removed from the dataset, leaving a total of 95 participants. Of the 95 remaining participants, 32 were general educators and 63 were special educators. To ensure a representative sample of the population that completed the survey was included in the analysis, 25 general education and 25 special education participants were

randomly selected from the total population of participants who completed the survey. By selecting participant responses for analysis through random sampling, inferences can be made about the larger population based on the behavior of a smaller group (Gay, Mills, & Airasian, 2009). Demographics of the randomly selected sample can be found in Table 1 (see Appendix E).

The *Professional Development Survey* (see Appendix D) was developed based on literature regarding key characteristics of effective models of professional development and the subsequent evaluation of implementation of learned skills. The survey consisted of: (1) eight demographic questions, (2) eight questions related to the structure of professional development in which teachers participated, (3) four questions related to evaluation experiences with professional development, (3) four questions related to beliefs about the impact of professional development, and (4) one open-ended opinion question related to participants' personal experiences with professional development.

Participation in Evidence-Based Models of Professional Development

The first section of the survey, *Structure of Professional Development*, consisted of eight primary questions specifically designed to answer the first research question posed (see Appendix D). Of the eight questions in this section, mean score differences were found between general education and special education teachers' self-reported frequency of participation in evidence-based models of professional development and one was found to be statistically significant. Special education teacher reported more opportunities to observe other teachers teaching with 40% agreeing or strongly agreeing that they had these opportunities as compared to 16% of general education teachers. Special education teachers reported 28% agreed or strongly agreed that they had other teachers observe their teaching as compared to 16% reported

by general education teachers. General education teachers reported 8% strongly agree that they have participated in a book study and action research as a means of professional development as compared to 0% reporting strongly agree by special education teachers on both topics. Both general education and special education teachers were relatively close in their reporting of strongly agree or agree in their opportunities to participate in mentoring at 40% and 36% respectively. Both groups had close to the same exposure to professional development related to the topic of technology with 28% reported by general education teachers at strongly agree and agree and 24% reported by special education teachers in the same categories. In the area of professional development in student discipline, special education teachers reported 28% strongly agree with access to this topic while general education teachers reported 16% strongly agreed that they had access to this topic. Finally, in the area of teaching students with disabilities showed the greatest difference in access whereas special education teachers reported 32% strongly agree or agree that they had opportunities to participate and general education teachers reported only 8% in the same categories related to teaching students with disabilities. See Table 2 (see Appendix F) for all descriptive statistics related to research question one.

Research Question 1. Is there a statistically significant difference between general education and special education teachers' self-reported frequency of participation in evidence-based models of professional development?

It was predicted that general education teachers would report more frequent participation in evidence-based models of professional development than special education teachers. To determine if there was a statistically significant difference in the self-reported frequency of participation in evidence-based models of professional development reported by general

education and special education teachers, a Mann-Whitney U Test was performed to determine any significant differences in the mean scores reported by each group.

Based on the analysis, general and special education teacher participants reported significantly different opportunities to participate in professional development related to the education of students with disabilities ($U = 158, p = 0.002$). While not significant, the mean score of general and special education teacher participants' participation in professional development that allowed them to observe other teachers approached significance ($U = 219, p = 0.063$). Special education teachers reported more frequent opportunities to participate in professional development on the topic of teaching students with disabilities and scenarios that allowed them to observe their peers as a form of professional development. There were no significant differences in general and special education teachers self-reported frequency of participation in professional development activities related to: having peers observe their teaching ($U = 266.50, p = 0.357$), book studies ($U = 235.50, p = 0.114$), action research ($U = 239.00, p = 0.122$), mentoring ($U = 302.00, p = 0.835$), technology ($U = 310.00, p = 0.960$), and student discipline ($U = 245.50, p = 0.181$). See Table 3 for the mean score of each and see Table 4 for each U value and p value.

Table 3

Structure of Professional Development Descriptive Statistics

Survey Question	Area of Teaching	Mean Score	Standard Deviation
Q10 - observed other teachers	Gen. Ed.	3.56	1.193
	Spec. Ed.	2.84	1.38
Q13 -had peers observe your teaching	Gen. Ed.	3.52	1.19
	Spec. Ed.	3.20	1.29
Q16 -participated in book study	Gen. Ed.	3.64	1.32
	Spec. Ed.	4.20	1.00
Q19 - participated in action research	Gen. Ed.	3.92	1.19
	Spec. Ed.	4.40	0.87
Q22 - participated in mentoring	Gen. Ed.	3.04	1.37
	Spec. Ed.	2.96	1.49
Q25 - had PD on technology	Gen. Ed.	3.24	1.23
	Spec. Ed.	3.28	1.28
Q28 - had PD on discipline	Gen. Ed.	3.12	1.36
	Spec. Ed.	2.60	1.23
Q31 -had PD on SWD	Gen. Ed.	4.00	1.04
	Spec. Ed.	2.96	1.21

Table 4

Structure of Professional Development Analysis

Analysis	Q10 - observed other teachers	Q13 -had peers observe your teaching	Q16 - participated in book study	Q19 - participated in action research	Q22 - participated in mentoring	Q25 - had PD on technology	Q28 - had PD on discipline	Q31 - had PD on SWD
Mann-Whitney U	219.000	266.500	235.500	239.000	302.000	310.000	245.500	158.000
Wilcoxon W	544.000	591.500	560.500	564.000	627.000	635.000	570.500	483.000
Z	-1.862	-.920	-1.579	-1.545	-.208	-.050	-1.338	-3.101
Asymp. Sig. (2-tailed)	.063	.357	.114	.122	.835	.960	.181	.002

Participation in Effective Evaluation Methods Following Professional Development

The second section of the survey, *Evaluation of Professional Development*, consisted of four primary questions specifically designed to answer the second research question (see Appendix D). Of the four questions in this section, mean score differences were found between general education and special education teachers' self-reported engagement in methods used to evaluate the impact of professional development on teaching practices. However, none of these were found to be statistically significant. The survey questions in this section were answered using the following: A great deal, a moderate amount, sometimes, rarely, never. General education teachers report that they have more opportunities to evaluate the content and relevancy of the professional development activities they are participating in with a great deal more frequency than special education teachers (general education: great deal = 20%; special education: great deal = 8%). However, when asked specifically about providing follow-up evaluations six-months after and one-year after professional development activities, both groups of teachers report participation with a great deal at an equal frequency (general education: great deal = 4%; special education: great deal = 4%). In addition, general education teachers also report a great deal with greater frequency, the opportunity to complete a needs assessment prior

to attending professional development when compared to the opportunities reported by special education teachers (general education: great deal = 8%; special education: great deal = 4%). The frequency of responses for each question from this section of the survey are outlined in Table 5.

Table 5

Frequency of Responses to Research Question 2

Survey Question	General Education		Special Education		Total	
	n	Percent	n	Percent	n	Percent
Participated in follow-up activities to professional development.						
A Great Deal	2	8%	1	4%	3	6%
A Moderate Amount	2	8%	3	12%	5	10%
Sometimes	6	24%	5	20%	11	22%
Rarely	8	32%	6	24%	14	28%
Never	7	28%	10	40%	17	34%
Completed a needs assessment prior to professional development.						
A Great Deal	2	8%	1	4%	3	12%
A Moderate Amount	5	20%	6	24%	11	44%
Sometimes	7	28%	5	20%	12	48%
Rarely	5	20%	4	16%	9	36%
Never	6	24%	9	36%	15	60%
Evaluate content and relevancy of professional development.						
A Great Deal	5	20%	2	8%	7	28%
A Moderate Amount	3	12%	7	28%	10	40%
Sometimes	4	16%	4	16%	8	32%
Rarely	7	28%	8	32%	15	60%
Never	6	24%	4	16%	10	40%
Provide follow-up evaluation 6-mo to 1-year after professional development.						
A Great Deal	1	4%	1	4%	2	8%
A Moderate Amount	4	16%	1	4%	5	20%
Sometimes	5	20%	5	20%	10	40%
Rarely	6	24%	7	28%	13	52%
Never	9	36%	11	44%	20	80%

Research Question 2. Is there a statistically significant difference between general education and special education teachers' self-reported methods used to evaluate the impact of professional development on teaching practices?

It was predicted that general education teachers would report higher participation in evaluation practices both prior to and after professional development activities than special education teachers. To determine if there was a statistically significant difference in the evaluation practices of attended professional development activities between teachers, a Mann-Whitney U Test was performed to determine any significant differences in the mean scores reported by each group.

Based on the analysis, general and special education teacher participants did not report significant differences in the following: frequency of participation in follow up activities to professional development ($U = 281, p = .526$); frequency in completing a needs assessment prior to professional development ($U = 280, p = .523$); frequency in evaluation of content and relevancy of professional development ($U = 302, p = .842$); and frequency in opportunities to provide follow up evaluation at six-months and one-year after professional development ($U = 267, p = .360$). See Table 6 for the mean score for each and see Table 7 for the results of the Mann Whitney U test.

Table 6

Evaluation of Professional Development Descriptive Statistics

Survey Question	Area of Teaching	Mean Score	Standard Deviation
Q34 - participated in follow up activities to PD	Gen. Ed.	3.64	1.22
	Spec. Ed.	3.84	1.21
Q35 -complete a needs assessment prior to PD	Gen. Ed.	3.32	1.28
	Spec. Ed.	3.56	1.33
Q36 - evaluate content and relevancy of PD	Gen. Ed.	3.24	1.48
	Spec. Ed.	3.20	1.26
Q37 - provide follow up evaluation 6-mo to 1-year after PD	Gen. Ed.	3.72	1.24
	Spec. Ed.	4.04	1.10

Table 7

Evaluation of Professional Development Analysis

Analysis	Q34 - participated in follow up activities to PD	Q35 -complete a needs assessment prior to PD	Q36 - evaluate content and relevancy of PD	Q37 - provide follow up evaluation 6mo to 1 year after PD
Mann-Whitney U	281.000	280.500	302.500	267.500
Wilcoxon W	606.000	605.500	627.500	592.500
Z	-.635	-.639	-.199	-.915
Asymp. Sig. (2-tailed)	.526	.523	.842	.360

Perceived Impact of Professional Development Activities on Teaching Practice

The third section of the survey, *Beliefs About Professional Development*, consisted of four primary questions specifically designed to answer the third research question (see Appendix D). Of the four questions in this section, mean score differences were found between perceived importance and impact of provided professional development on teaching practice and student achievement between general education and special education teachers. However, none of these

were found to be statistically significant. Special education teachers reported a higher frequency of beliefs that professional development had a lasting improvement on their instructional practice and on the improvement of student outcomes. Additionally, special education teachers reported with higher frequency that they believed their schools used the results from teacher evaluations and student assessment data to drive professional development decisions. Frequency of responses for the four questions are outlined in Table 8.

Table 8

Frequency of Responses to Research Question 3

Survey Question	General Education		Special Education		Total	
	n	Percent	n	Percent	n	Percent
Professional development has lasting improvement on instructional practice.						
Strongly Agree	4	16%	5	20%	9	18%
Agree	5	20%	7	28%	12	24%
Somewhat Agree	6	24%	8	32%	14	28%
Somewhat Disagree	5	20%	2	8%	7	14%
Disagree	5	20%	2	8%	7	14%
Professional development has lasting improvement on student outcomes.						
Strongly Agree	3	12%	5	20%	8	16%
Agree	6	24%	5	20%	11	22%
Somewhat Agree	8	32%	11	44%	19	38%
Somewhat Disagree	4	16%	0	0%	4	8%
Disagree	4	16%	3	12%	7	14%
School uses the results from teacher evaluations for professional development.						
Strongly Agree	3	12%	3	12%	6	24%
Agree	6	24%	8	32%	14	56%
Somewhat Agree	7	28%	6	24%	13	52%
Somewhat Disagree	5	20%	4	16%	9	36%
Disagree	4	16%	3	12%	7	28%
School uses student assessment data for professional development.						
Strongly Agree	1	4%	6	24%	7	28%
Agree	11	44%	9	36%	20	80%
Somewhat Agree	7	28%	5	20%	12	48%
Somewhat Disagree	3	12%	1	4%	4	16%
Disagree	3	12%	3	12%	6	24%

Research Question 3. Is there a statistically significant difference in the perceived importance and impact of provided professional development on teaching practice and student achievement between general education and special education teachers?

It was predicted that there would be a difference in the perceived importance and impact of provided professional development on teaching practice and student achievement when comparing general education teachers' perceptions to those of special education teachers. To determine if there was a statistically significant difference in the perceived importance and impact of provided professional development on teaching practice and student achievement, a Mann-Whitney U Test was performed to determine any significant differences in the mean scores reported by each group.

Based on the analysis, general and special education teacher participants did not report significant differences in their perceptions of the lasting improvement on instructional practice of professional development activities ($U = 231, p = .160$). There was no reported significant difference between groups in participants' perception of the following: professional developments lasting improvement on student outcomes ($U = 249, p = .293$); differences between groups in participants' perception of their school's use of results from teacher evaluations to drive professional development decisions ($U = 270, p = .544$); and differences between groups in participants' perception of school's use of student assessment data to drive professional development decisions ($U = 230, p = .143$). See Table 9 for mean scores and Table 10 for the results of the Mann Whitney U test.

Table 9

Beliefs About Professional Development Descriptive Statistics

Survey Question	Area of Teaching	Mean Score	Standard Deviation
Q38 - PD has lasting improvement on instructional practice	Gen. Ed.	3.08	1.38
	Spec. Ed.	2.54	1.18
Q39 - PD has lasting improvement on student outcomes	Gen. Ed.	3.00	1.26
	Spec. Ed.	2.63	1.21
Q40 - school uses the results from teacher eval for PD decisions	Gen. Ed.	3.04	1.27
	Spec. Ed.	2.83	1.24
Q41 - school uses student assessments for PD decisions	Gen. Ed.	2.84	1.11
	Spec. Ed.	2.42	1.28

Table 10

Beliefs About Professional Development Analysis

Analysis	Q38 - PD has lasting improvement on instructional practice	Q39 - PD has lasting improvement on student outcomes	Q40 - school uses the results from teacher eval for PD decisions	Q41 - school uses student assessments for PD decisions
Mann-Whitney U	231.500	249.500	270.500	230.000
Wilcoxon W	531.500	549.500	570.500	530.000
Z	-1.405	-1.051	-.606	-1.466
Asymp. Sig. (2-tailed)	.160	.293	.544	.143

Overall, analysis of the data shows that both general education teachers and special education teachers have low levels of participation in evidence-based models of professional development. Special education teachers are reporting statistically significant higher rates of participation in professional development related to teaching students with disabilities and observing peers during instruction as a form of professional development. While both groups

report limited participation in professional development activities, special education teachers have a higher perception of professional development's lasting improvement on instructional practice and student outcomes.

CHAPTER FIVE

DISCUSSION

Due to recent focus on educational reform efforts, ensuring access to high quality professional development for all teachers is a critical component of education in public schools. With costs associated with the provision of professional development and the time investment of teachers, providing professional development that both (a) meets the needs of teachers and (b) is aligned to school goals is necessary. As students are being held to higher expectations aligned to college- and career-readiness standards, there is a greater need for effective professional development for teachers that leads to increases in pedagogical content knowledge.

The purpose of this study was to identify potential differences between general education and special education teachers' perceptions of the professional development they received. Specifically, this study sought to identify teachers' perceptions about their access to evidence-based structures of professional development, their participation in methods of evaluation activities related to professional development, and their beliefs about the impact professional development has on their practice and the learning outcomes of their students.

The data were collected using an online survey in which teachers self-reported the frequency with which they participated in specific types of evidence-based professional development activities. The survey consisted of three sections aligned to the three research questions: *Structure of Professional Development*, *Evaluation of Professional Development*, and *Beliefs about Professional Development*.

The basic demographic information of participants was gathered at the beginning of the survey. Information gathered included: licensure status, current grade level teaching, number of years teaching, age, race or ethnicity, and gender. For each of the three research questions, the Mann-Whitney U test was used for analysis to determine if there were significant differences in

the mean scores of the perceptions of professional development as reported by general education and special education teachers. Differences in mean scores were found between the two groups on all questions; however, significant differences were found in only one instance.

Participation in Evidence-Based Models of Professional Development

Question one was answered via responses to eight survey questions designed to determine the differences between general education and special education teachers' self-reported frequency of participation in evidence-based models of professional development. The survey questions in this section were answered on the following scale: strongly agree = 1, agree = 2, somewhat agree = 3, somewhat disagree = 4, disagree = 5. The specific models of professional development teachers rated their frequency of participation in were: observing other teachers teaching, having peers observe their teaching, participating in a book study, participating in action research, participating in mentoring, having professional development related to technology, having professional development related to student discipline, and having professional development related to teaching students with disabilities. These models of professional development are those that research indicates lead to improved instructional practices and lasting changes in student outcomes, or are reported by teachers as topics they feel would alter their instructional practice (Drago-Severson, 1994; Garet et al., 2001; Guskey, 2000; Sparks & Loucks-Horsley, 1989; Wei et al., 2010; Zhang et al., 2015).

The data analysis indicated there was a statistically significant difference between special education teachers' self-reported frequency of participation in professional development for students with disabilities when compared to that of general education teachers. Special education teachers were more likely to participate in professional development related to teaching students with disabilities than their general education peers. Similarly, the mean difference in special

education teachers' self-reported participation in observing other teachers in their teaching practice when compared to general education teachers approached significance. Special education teachers reported more opportunities to observe teachers in their teaching practice as a possible means of improving their own practice. While there were no significant differences in mean scores, the reported differences in opportunities to participate in the remaining professional development activities are worth mentioning. Special education teachers reported a higher frequency of participation in observing peers in their teaching practice and attending professional development related to student discipline as compared to general education teachers. General education teachers reported higher participation in book studies and action research as compared to special education teachers. Participation in mentoring and attending professional development related to technology showed little differences between the groups.

It was predicted that general education teachers would have access to and would report participation in evidence-based models of professional development with greater frequency than special education teachers. Of the eight evidence-based models of professional development identified, there was only one finding of statistical significance and that was in the greater frequency of special education teachers access to professional development related to teaching students with disabilities as compared to general education teachers. It would seem logical that special education teachers receive more professional development in teaching students with disabilities as that is the focus of their job; however more students with disabilities are being placed in general education classrooms for at least a portion of their school day to be taught by general education teachers (NCTAF, 2016). Therefore, the need for general education teachers to improve their knowledge and pedagogy in teaching students with disabilities has increased.

Another reason behind this difference could be in the demographic make-up of the participants randomly chosen for analysis. There were a higher percentage of special education teachers who were provisionally licensed to teach when compared to their general education counterparts. Since these teachers are working on a provisional license, they may have additional requirements to attend professional development activities than traditionally licensed teachers as a component of their induction to the profession. Additionally, provisionally licensed special education teachers may be attending sessions directly focused on their work as a special education teacher to maintain their license; this could account for differences in the responses of participants. Future research should explore if these differences exist with a larger sample of participants that is more representative of the teaching profession.

Teachers nationally have reported receiving inadequate professional development around teaching students with disabilities on three consecutive administrations of the *School and Staffing Survey* (Wei et al., 2010), with the majority of participants in this survey being general education teachers. In addition, the increase of higher expectations and more rigorous content standards for all students has increased the need for professional development specific to teaching this student population and addressing their specific needs in the general education classroom (CEP, 2013). Teachers have identified receiving professional development in teaching students with disabilities as an ongoing professional need. The results of this study continue to suggest that general education teachers have limited access to professional development focused on students with disabilities.

One possible reason for this gap between teachers' professional need and access to professional development may stem from the people who make decisions on the content of the professional development. These decisions may be based on the district or building

administrator's perceptions of the needs of the teachers rather than being driven by the needs of the teachers themselves. Additionally, there may still be a perception that students with disabilities are the responsibility of special education professionals. Therefore, professional development with this population of students is focused on special education teachers. Future research should focus on means of providing professional learning support to general education professionals relative to teaching students with disabilities.

The overall mean scores of both groups were low regarding their frequency of participation in evidence-based models of professional development, indicating that teachers – no matter the licensure area – have limited access to these models. These findings are consistent with previous research that found teachers are not participating in the most effective forms of professional development (Darling-Hammond et al., 2009; Gates Foundation, 2014; Guskey, 2000; TNTP, 2015; Wei et al., 2010). The research on professional development continues to identify the components and the structures that must exist to ensure that high-quality professional development leads to change in teacher practice and improved student outcomes. However, teachers continue to lack access to these evidence-based models of professional development.

Professional development must be intensive, ongoing, and connected to teacher practice for it to have lasting impact (Darling-Hammond et al., 2009; Gates Foundation, 2014; Guskey, 2000; TNTP, 2015; Wei et al., 2010). Accomplishing this requires the commitment of time and financial resources from the district, school, and teacher. It requires coordination and synchronization of professional development activities to ensure they are interrelated and not stand-alone activities.

Schools are pressed for resources and teachers are pressed for time, often leaving professional development to flounder. While this may not be the intention, it is often the result as

evidenced by the ongoing data across the nation that teachers are not participating in evidence-based models of professional development such as coaching, observing peers, action research, mentoring, technology, and book studies.

Participation in Effective Evaluation Methods after Professional Development

Question two was answered through four survey questions designed to determine the difference between general education and special education teachers' self-reported participation with methods used to evaluate the impact of professional development on teaching practice. The survey questions for this section were answered on the following scale: a great deal = 1, a moderate amount = 2, sometimes = 3, rarely = 4, never = 5. The four evidence-based methods used for evaluation targeted in this survey were: participation in follow-up activities to attended professional development, completion of a needs assessment prior to attending professional development, evaluating the content and relevancy of attended professional development, and providing follow-up evaluation six-months and one-year after attended professional development. These evaluation methods are those that research indicates contribute to the effectiveness of professional development that improves teacher practice (Desimone, 2009; Guskey, 1999; Guskey, 2000; Hertert, 1997).

The data analysis did not show any significant differences between the groups. However, there were mean score differences worth mentioning. First, general education teachers self-reported greater participation in follow-up activities to professional development than special education teachers. This is the most common form of evaluation related to professional development (Guskey, 2000). In addition, general education teachers reported completing needs assessments prior to participation in professional development and completing evaluations six-

months to one-year after attending professional development more frequently than special education teachers.

Regarding evaluating the content and relevancy of professional development, both general education and special education teachers reported nearly the same levels of participation. This data reflects the ongoing need for professional development to be aligned to meeting the needs of teachers if it is going to be effective. The evaluation of the professional development should directly drive the learning of teachers. If district and school administration are making professional development decisions without conducting evaluations prior to, immediately after, and as follow-up to extended learning, the needs of teachers will not be met.

The overall mean scores were low for both groups relative to their perceived participation in evidence-based evaluation methods. This could indicate that teachers – no matter the licensure area – have limited access to evidence-based models of evaluating professional development. This is in agreement with the research related to evaluation practices of professional development. Participation in evaluation of professional development to drive future professional development decisions is not a common practice in schools (Desimone, 2009; Guskey, 2000; Hertert, 1997). Further, teachers view professional development as top-down, that is too general to change their practice, and of which they have little or no say (Calvert, 2016). Additionally, this lack of participation in effective evaluation metrics could explain why previous research has found that professional development tends to have limited impact on the practice of teachers as measured by their evaluations (Blank & de las Alas, 2009; Soine & Lumpe, 2014). Future research should explore methods to effectively evaluate the impact of professional development on teacher practice and help them to engage in reflective practices to continuously hone and enhance their practice.

Perceived Impact of Professional Development Activities on Teaching Practice

Question three was answered through four survey questions designed to determine the differences between general education and special education teachers' perceptions related to the importance and impact of provided professional development on their practice and student achievement. The survey questions for this section were answered on the following scale: strongly agree = 1, agree = 2, somewhat agree = 3, somewhat disagree = 4, disagree = 5. The four questions to establish perceptions were: professional development has lasting improvement on instructional practices, professional development has lasting improvement on student outcomes, schools use the results from teacher evaluations to drive professional development decisions, and schools use student assessment data to drive professional development decisions. These questions were designed to measure teacher perception of the overall impact of professional development on practice and student outcomes, which researchers have suggested is the overall goal of professional development (Darling-Hammond et al., 2009; Garet et al., 2001; Desimone et al., 2002; Yoon et al., 2007).

No significant differences were found between the groups relative to any of the questions in this section. However, when analyzing the descriptive statistics for this question, it appears that special education teachers reported slightly higher perceptions regarding the impact of professional development than general education teachers (see Table 8). Again, the number of provisionally-licensed special education teachers in this sample could have an impact on this mean score difference; teachers newer to the profession may have a more positive view of professional development than teachers who are more veteran. Future research should explore these differences more explicitly.

The overall mean score for each of the four questions was relatively low as measured by the level of agreement (strongly agree, agree, somewhat agree, disagree, strongly disagree). This may indicate that teachers – no matter the licensure area – who have had limited access to evidence-based models of professional development may not have strong beliefs in professional development's lasting improvement on teacher practice and student outcomes. There is significant evidence in the literature that professional development can improve teacher practice and student outcomes when it is of an evidence-based model, of adequate duration, emphasizes collective participation, involves active learning, promotes coherence of teachers' learning, and is content focused (Desimone et al., 2002; Zhang et al., 2015). However, if teachers are not participating in and experiencing this type of professional development, they may not have a positive perception of its impact on their learning or on the possible impact on student outcomes. This is the perpetual cycle that many teachers have found themselves in. Providing access to evidence based models of professional development and evaluating the learning that takes place in that professional development is directly related to the perceptions and beliefs regarding how teachers feel about the professional development they are attending. If these are not connected, teachers may not have positive experiences, and thus, may not have positive perceptions or beliefs of its impact on their learning or the learning outcomes of their students regardless of what is known through research.

Conclusions

Based on the data collected in this study, several conclusions can be drawn. Caution must be used when considering these conclusions based upon the limitations of this study, and the findings should be viewed through the lens of these identified limitations. While these

conclusions are drawn from the study data, the data is limited due to the small sample size. The data was not triangulated and should be considered perceived differences.

1. Special education teachers reported participation in professional development related to teaching students with disabilities with more frequency at a statistically significant level than general education teachers. This may indicate that general education teachers are not participating in opportunities for professional development regarding teaching students with disabilities with the same frequency as their special education teacher peers. This is consistent with previous research that showed teachers ranked needing professional development in teaching students with disabilities in the top three areas of their professional learning need (Wei, Darling-Hammond, & Adamson, 2010).
2. Special education teachers reported more participation in observation of other teachers as a method of professional development as compared to general education teachers. This may indicate that general education teachers receive less opportunities to observe other teachers in their practice as a method of professional development when compared to special education teachers. Currently, special education teachers could have an opportunity through co-teaching structures to observe peers teaching in a variety of teaching environments, whereas general education teachers do not typically receive as many opportunities.
3. There were no significant differences between the groups in reported participation in professional development activities that include: having peers observe their teaching (GE mean = 3.52, SE mean = 3.20), book studies (GE mean = 3.64, SE mean = 4.20), engagement in action research (GE mean = 3.92, SE mean = 4.40), mentoring (GE mean = 3.04 , SE mean = 2.96), professional development related to technology (GE mean =

3.24, SE mean = 3.28), and professional development related to student discipline (GE mean = 3.12, SE mean = 2.60). Mean scores for these questions were relatively low as measured by frequency of participation, which may indicate that both groups of teachers seldom or rarely participated in these types of professional development activities. This indicates that both general education and special education teachers may need greater access to evidence-based models of professional development.

4. There were no significant differences between the groups in reported participation in evaluation methods related to: follow-up activities to professional development (GE mean = 3.64, SE mean = 3.84), completing a needs assessment prior to attending professional development (GE mean = 3.32, SE mean = 3.56), evaluating the content and relevancy of professional development (GE mean = 3.24, SE mean = 3.20), and providing follow-up evaluation six-months to one-year after attending professional development (GE mean = 3.72, SE = 4.04). This may indicate that both groups need increased opportunities to participate in more research-based evaluation methods for professional development.
5. There were no significant differences between the groups regarding: professional development's lasting impact on instructional practice (GE = 3.08, SE = 2.54), professional development's lasting improvement on student outcomes (GE = 3.00, SE = 2.62), the schools use of results from teacher evaluations for making professional development decisions (GE = 3.04, SE = 2.83), and schools use of student assessment data for making professional development decisions (GE = 2.84, SE = 2.42). This may indicate that general education and special education teacher beliefs are similar, and mostly favorable, that professional development can bring about change in teacher

practice and student outcomes. In addition, general education and special education teachers mostly agree that schools use teacher evaluation and student assessment data to drive professional development decisions.

Recommendations for Future Research

Professional development is an important component of an overall school framework for school improvement. It is important for both general education and special education teachers to engage in evidence-based models of professional development to improve their pedagogy and to impact student outcomes (Blank & de las Alas, 2009; Desimone, 2009; Desimone et al., 2002; Yoon et al, 2007). The findings of this study indicate that general education and special education teachers continue to have low levels of participation in effective models of professional development. In addition, teachers are not participating in evidence-based methods of evaluation pertaining to professional development that leads to more relevant and better implemented professional development. Lastly, both general education and special education teachers perceive professional development as having lasting improvement. Therefore, they should have the opportunity to participate in effective models that meet their professional learning needs. Based on the results of this study, the following areas are recommended for future research:

1. Future research should be conducted using a larger sample size of both general education and special education teachers. This would allow for more complex analyses to see if differences exist between the two groups when a larger sample size is used and contribute to research specific to evidence-based professional development.

2. Future research should be conducted using teachers with different types of licensure (i.e., standard, provisional, substitute) to see if the type of license held has any impact on the evidentiary base of professional development attended.
3. Further research should examine samples from rural settings in addition to urban and suburban settings to determine if there are geographic differences in access to evidence-based models of professional development for both general education and special education teachers.
4. Future research should examine reported differences of teachers at different grade levels and in different content areas to determine if that impacts access to evidence-based professional development.
5. Future research should examine the impact state structures and policies have on the availability and access of high-quality professional development for general education and special education teachers.
6. Future research should examine the differences in content knowledge and pedagogical practice between teachers who participate in professional development using the identified evidence-based methods and those who do not, to determine if professional development practices are increasing the knowledge and skills that teachers have relative to their practice.
7. Future research should examine student data specifically aligned with the professional development attended by general education and special education teachers. This would contribute to the literature on the effects of professional development on student outcomes of general education and special education students.

8. Future research should examine professional development as it aligns with teacher evaluations. This would contribute to the literature related to alignment of district and building-wide processes and the effects on improving teacher practice.

Summary

This study contributes to the knowledge base concerning general education and special education teachers' self-reported: (a) frequency of participation in evidence-based professional development models, (b) participation in methods of evaluation to determine the effectiveness of provided professional development, and (c) perceptions of the impact of professional development on classroom practice and student achievement. There were 16 survey questions that were analyzed using the Mann-Whitney U Test to determine if significant differences existed between general education and special education teachers' self-reported participation in evidence-based professional development activities. The data analyses indicated that special education teachers reported participating in significantly more professional development related to teaching students with disabilities and observing other teachers in their teaching practice as compared to general education teachers. Overall, no other significant differences related to participation in evidenced-based models of professional development existed.

Participation in evidence-based models of professional development is a critical first step in learning new content and changing a teacher's practice (Blank & de las Alas, 2009; Desimone, 2009; Desimone et al., 2002; Yoon et al, 2007). There is strong evidence that participation in evaluation practices as part of high-quality professional development leads to better implementation (Desimone, 2009; Guskey, 2000; Hertert, 1997). This study indicated that both groups had minimal participation in evaluation of their professional development activities. This study did find that teachers believe that professional development does impact teacher practice

and student outcomes, which aligns with previous research (Blank & de las Alas, 2009; Desimone, 2009; Desimone et al., 2002; Yoon et al, 2007).

APPENDIX A

PARTICIPANT INFORMED CONSENT



INFORMED CONSENT

Department of Educational and Clinical Studies

TITLE OF STUDY: Comparing the Difference in Access to Professional Development for General Education and Special Education Teachers and the Subsequent Impact on Instructional Practice

INVESTIGATOR(S): Lori L. Slater and Joseph Morgan

For questions or concerns about the study, you may contact Dr. Joseph Morgan at **702-895-3205**.

For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted, contact **the UNLV Office of Research Integrity – Human Subjects at 702-895-2794, toll free at 877-895-2794 or via email at IRB@unlv.edu.**

Purpose of the Study

You are invited to participate in a research study. The purpose of this study is to compare the differences in access to professional development provided to general education teachers as compared to special education teachers.

Participants

You are being asked to participate in the study because you fit this criterion: You are currently an in-service general education or special education teacher.

Procedures

If you volunteer to participate in this study, you will be asked to do the following: Complete an online survey.

Benefits of Participation

There may not be direct benefits to you as a participant in this study. However, we hope to learn if there is a difference in access to professional development opportunities afforded to general education teachers as compared to special education teachers, what types of professional learning opportunities each is participating in, and how they perceive their learning in relation to student outcomes.

Risks of Participation

There are risks involved in all research studies. This study may include only minimal risks.

Cost/Compensation

There will not be financial cost to you to participate in this study. The study will take approximately 20 *minutes* of your time. You will not be compensated for your time.

Confidentiality

All information gathered in this study will be kept as confidential as possible. No reference will be made in written or oral materials that could link you to this study. All records will be stored in a locked facility at UNLV for 3 years after completion of the study. After the storage time the information gathered will be destroyed.

Voluntary Participation

Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study. You may withdraw at any time without prejudice to your relations with UNLV. You are encouraged to ask questions about this study at the beginning or any time during the research study.

Participant Consent:

I have read the above information and agree to participate in this study. I have been able to ask questions about the research study. I am at least 18 years of age. By electing to participate, consent is implied.

APPENDIX B

INFORMATION SHEET AND INVITATION TO PARTICIPATE



EXEMPT RESEARCH STUDY

PARTICIPANT INFORMATION SHEET

Department of Educational and Clinical Studies

TITLE OF STUDY: Comparing the Difference in Access to Professional Development for General Education and Special Education Teachers and the Subsequent Impact on Instructional Practice

INVESTIGATOR(S) AND CONTACT PHONE NUMBER: Lori L. Slater and Joseph Morgan, 702-895-3205.

The purpose of this study is to compare the differences in access to professional development provided to general education teachers as compared to special education teachers. You are being asked to participate in the study because you meet the following criteria: you are currently a university instructor or professor of higher learning, teaching in the area of special education or general education, and will be providing instruction to in-service teachers in the spring of 2016.

If you volunteer to participate in this study, you will be asked to do the following: disseminate the study description and online access to students meeting participant criteria during a four-week time period and encourage participation in the study.

This study includes only minimal risks. The study will take approximately *10 minutes per class of your time for four weeks*. You *will not* be compensated for your time.

For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted you may contact **the UNLV Office of Research Integrity – Human Subjects at 702-895-2794, toll free at 877-895-2794, or via email at IRB@unlv.edu.**

Your participation in this study is voluntary. You may withdraw at any time. You are encouraged to ask questions about this study at the beginning or any time during the research study.

Participant Consent:

I have read the above information and agree to participate in this study. I am at least 18 years of age. A copy of this form has been given to me.



Dear UNLV Student:

You are being invited to participate in a research study. The purpose of the study is to compare the differences in reported teacher professional development practices between general education teachers and special education teachers, as well as the evaluation practices between states using different professional development infrastructures (e.g., established regional center with state education agency control, established regional center with no state education agency control, no regional center and local education agency control).

Your participation in this study is completely voluntary. Your participation in this study is needed to contribute to the research on teacher professional development. Participation will in no way affect your grade in this course. In addition, no identifying information will be collected.

Participation involves completion of an online survey. The survey will take approximately 20 minutes to complete. If you wish to volunteer, please go to the following URL address:

[Survey Link](#)

If you have any questions regarding the survey, please contact Dr. Joseph Morgan at 702-895-3329. If you have questions about your rights as a participant in this research study, or if you feel you have been placed at risk, you may contact the Office of Research Integrity – Human Subjects at 702-895-0964.

Sincerely,

Dr. Joseph Morgan
Principle Investigator

Lori Slater
Student Investigator

APPENDIX C

UNIVERSITY FACILITATOR INFORMATION SHEET



EXEMPT RESEARCH STUDY

UNIVERSITY FACILITATOR INFORMATION SHEET

Department of Educational and Clinical Studies

TITLE OF STUDY: Comparing the Difference in Access to Professional Development for General Education and Special Education Teachers and the Subsequent Impact on Instructional Practice

INVESTIGATOR(S) AND CONTACT PHONE NUMBER: Lori L. Slater and Joseph Morgan, 702-895-3205.

The purpose of this study is to compare the differences in access to professional development provided to general education teachers as compared to special education teachers. You are being asked to participate in the study because you meet the following criteria: you are currently a university instructor or professor of higher learning, teaching in the area of special education or general education, and will be providing instruction to in-service teachers in the spring of 2016.

If you volunteer to participate in this study, you will be asked to do the following: disseminate the study description and online access to students meeting participant criteria during a four-week time period and encourage participation in the study.

This study includes only minimal risks. The study will take approximately *10 minutes per class of your time for four weeks*. You *will not* be compensated for your time.

For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted you may contact **the UNLV Office of Research Integrity – Human Subjects at 702-895-2794, toll free at 877-895-2794, or via email at IRB@unlv.edu.**

Your participation in this study is voluntary. You may withdraw at any time. You are encouraged to ask questions about this study at the beginning or any time during the research study.

Participant Consent:

I have read the above information and agree to participate in this study. I am at least 18 years of age. A copy of this form has been given to me.



INFORMED CONSENT

Department of Educational and Clinical Studies

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Purpose of the Study

You are invited to participate in a research study. The purpose of these study is to compare the differences in access to professional development provided to general education teachers as compared to special education teachers.

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You are being asked to participate in the study because you fit this criterion: you are currently a university instructor or professor of higher learning, teaching in the area of special education or general education, and will be providing instruction to in-service teachers in the spring of 2016.

Procedures

If you volunteer to participate in this study, you will be asked to do the following: disseminate the study description and online access to students meeting participant criteria during a four-week time period and encourage participation in the study.

Benefits of Participation

There may not be direct benefits to you as a participant in this study. However, we hope to learn if there is a difference in access to professional development opportunities afforded to general education teachers as compared to special education teachers, what types of professional learning opportunities each is participating in, and how they perceive their learning in relation to student outcomes.

Risks of Participation

There are risks involved in all research studies. This study may include only minimal risks.

Cost/Compensation

There will not be financial cost to you to participate in this study. The study will take approximately 10 *minutes per class of your time for four weeks*. You will not be compensated for your time.

Confidentiality

All information gathered in this study will be kept as confidential as possible. No reference will be made in written or oral materials that could link you to this study. All records will be stored in a locked facility at UNLV for 3 years after completion of the study. After the storage time the information gathered will be destroyed.

Voluntary Participation

Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study. You may withdraw at any time without prejudice to your relations with UNLV. You are encouraged to ask questions about this study at the beginning or any time during the research study.

Participant Consent:

I have read the above information and agree to participate in this study. I have been able to ask questions about the research study. I am at least 18 years of age. A copy of this form has been given to me.

APPENDIX D
PARTICIPANT SURVEY

Demographics

1. In what licensure area are you currently teaching?

- ☐ General Education
- ☐ Special Education
- ☐ Other

2. Which of the following best describes your teaching license?

- ☐ Fully licensed teacher
- ☐ Provisionally licensed teacher (e.g., Alternative Route to Licensure, Alternative Route to Certification)

3. What grade level are you currently teaching?

- ☐ Early Childhood
- ☐ Lower Elementary (K-2)
- ☐ Upper Elementary (3-5)
- ☐ Middle School (6-8)
- ☐ High School (9-12)
- ☐ 13+

4. How many years have you been teaching?

- ☐ Less than 1 year
- ☐ 1-2 years
- ☐ 3-5 years
- ☐ 6-8 years
- ☐ 9+ years

5. What is your age?

- ☐ Under 25
- ☐ 26-30
- ☐ 31-35
- ☐ 36-40
- ☐ 41-49
- ☐ 50-59
- ☐ 60+

6. What is your race or ethnicity?

- ☐ Asian/Asian American
- ☐ Black/African American
- ☐ Hawaiian/Pacific Islander
- ☐ Latino/Hispanic
- ☐ Native American/Alaskan Native
- ☐ White/Caucasian
- ☐ Other
- ☐ Prefer not to respond

7. What is your gender?

- ☐ Male
- ☐ Female

- ☐ Other
- ☐ Prefer not to respond

8. On average, about how many hours in a given month do you spend engaged in some sort of professional development activity? (Professional development encompasses any professional learning that is intended to increase content or instructional knowledge and may include activities such as in-district or out-of-district training, workshops, classroom observations, study groups, mentoring, action research, etc.)

- ☐ 0-3 hours
- ☐ 4-6 hours
- ☐ 7-9 hours
- ☐ 9+ hours

Structure of Professional Development					
For items 1 - 16, in the past 12 months, how often have you had opportunities to:					
	A great deal	A moderate amount	Sometimes	Rarely	Never
1. Observe other teachers in their practice as a method of professional development to improve your own practice (e.g., observe other teachers teaching and working with students)?					
If Sometimes, A Moderate Amount, or A Great Deal:					
	<5 hours	6-8 hours	9-16 hours	17-32 hours	33 hours or more
a. How many hours did you spend on these activities?					
	Very useful	Useful	Somewhat Useful	Not useful	
b. Overall, how useful were these activities to you?					
	A great deal	A moderate amount	Sometimes	Rarely	Never
2. To have peers observe your teaching and receive specific feedback on your instructional practice as a method of professional development to improve your teaching?					
If Sometimes, A Moderate Amount, or A Great Deal:					
	<5 hours	6-8 hours	9-16 hours	17-32 hours	33 hours or more

How many hours did you spend on these activities?					
	Very useful	Useful	Somewhat Useful	Not useful	
Overall, how useful were these activities to you?					
	A great deal	A moderate amount	Sometimes	Rarely	Never
3. Participate in book study groups at your school as a method of professional development (e.g., faculty/staff have book study on a new instructional strategy to be implemented)?					
If Sometimes, A Moderate Amount, or A Great Deal:					
	<5 hours	6-8 hours	9-16 hours	17-32 hours	33 hours or more
How many hours did you spend on these activities?					
	Very useful	Useful	Somewhat Useful	Not useful	
Overall, how useful were these activities to you?					
	A great deal	A moderate amount	Sometimes	Rarely	Never
4. Participate in action research at your school as a method of professional development (e.g., school is going to implement new policy or instructional approach, collect data on its effectiveness, and report/publish findings and you participate in this study)?					

If Sometimes , A Moderate Amount, or A Great Deal:					
	<5 hours	6-8 hours	9-16 hours	17-32 hours	33 hours or more
How many hours did you spend on these activities?					
	Very useful	Useful	Somewhat Useful	Not useful	
Overall, how useful were these activities to you?					
	A great deal	A moderate amount	Sometimes	Rarely	Never
5. Participate in a mentoring or induction program at your school (e.g., you mentor a new teacher or be mentored be a lead teacher in the building)?					
If Sometimes , A Moderate Amount, or A Great Deal:					
	<5 hours	6-8 hours	9-16 hours	17-32 hours	33 hours or more
How many hours did you spend on these activities?					
	Very useful	Useful	Somewhat Useful	Not useful	
Overall, how useful were these activities to you?					
	A great deal	A moderate amount	Sometimes	Rarely	Never
6. Participate in professional development activities that focused on the use of technology in the classroom?					
If Sometimes , A Moderate Amount, or A Great Deal:					
	<5 hours	6-8 hours	9-16 hours	17-32 hours	33 hours or more
How many hours did you spend on these activities?					

	Very useful	Useful	Somewhat Useful	Not useful	
Overall, how useful were these activities to you?					
	A great deal	A moderate amount	Sometimes	Rarely	Never
7. Participate in professional development activities focused on student discipline and classroom management?					
If Sometimes, A Moderate Amount, or A Great Deal:					
	<5 hours	6-8 hours	9-16 hours	17-32 hours	33 hours or more
How many hours did you spend on these activities?					
	Very useful	Useful	Somewhat Useful	Not useful	
Overall, how useful were these activities to you?					
	A great deal	A moderate amount	Sometimes	Rarely	Never
8. Participate in any professional development activities specific to teaching students with disabilities?					
If Sometimes, A Moderate Amount, or A Great Deal:					
	<5 hours	6-8 hours	9-16 hours	17-32 hours	33 hours or more
How many hours did you spend on these activities?					
	Very useful	Useful	Somewhat Useful	Not useful	
Overall, how useful were these activities to you?					
Evaluation of Professional Development					
	A great deal	A moderate amount	Sometimes	Rarely	Never

9. With what frequency have you had the opportunity to participate in follow up activities to professional development, such as coaching and technical assistance, following the completion of the initial training?					
	A great deal	A moderate amount	Sometimes	Rarely	Never
10. With what frequency are you requested to complete a needs assessment prior to participating in professional development activities? (e.g., survey asking what you expect to gain from that particular training or what your specific needs are)					
	A great deal	A moderate amount	Sometimes	Rarely	Never
11. With what frequency have you had the opportunity to evaluate the content and relevancy of the professional development to your instructional practice immediately upon completion of the training?					
	A great deal	A moderate amount	Sometimes	Rarely	Never

12. With what frequency have you had the opportunity to provide follow up evaluation of the content of the professional development and its impact on your instructional practice at 6 months to 1 year after attending the professional development?					
Beliefs About Professional Development					
	Strongly agree	Agree	Somewhat agree	Some-what disagree	Dis-agree
13. I believe the majority of the professional development I receive drives lasting improvement to my instructional practice.					
	Strongly agree	Agree	Somewhat agree	Some-what disagree	Dis-agree
14. I believe the majority of the professional development I receive drives lasting improvement in the learning outcomes of my students.					
	Strongly agree	Agree	Somewhat agree	Some-what disagree	Dis-agree
15. I believe my school uses the results of student assessments to make decisions about how to provide targeted professional					

development to teachers.					
	Strongly agree	Agree	Somewhat agree	Some-what disagree	Dis-agree
16. I believe my school uses the results from teacher evaluations to make decisions about how to provide targeted professional development to teachers.					
17. What is your greatest challenge in implementing new knowledge gained in professional development into your instructional practice?					

APPENDIX E

TABLE 1

DEMOGRAPHICS OF SURVEY PARTICIPANTS

Table 1

Demographics of Survey Participants

Survey Question	General Education		Special Education		Total	
	n	Percent	n	Percent	n	Percent
Licensure						
Fully licensed	12	48%	3	12%	15	30%
Provisional License	13	52%	22	88%	35	70%
Grade level taught						
Early Childhood	1	4%	0	0%	1	2%
K-2	10	40%	5	20%	15	30%
Grade 3 - 5	7	28%	8	32%	15	30%
Grade 6-8	2	8%	9	36%	11	22%
Grade 9-12	5	20%	3	12%	8	16%
Years teachings						
Less than 1	8	32%	7	28%	15	30%
1-2 years	7	28%	11	44%	18	36%
3-5 years	2	8%	7	28%	9	18%
6-8 years	1	4%	0	0%	1	2%
9+ years	7	28%	0	0%	7	14%
Age						
Under 25	9	36%	6	24%	15	30%
26-30	4	16%	6	24%	10	20%
31-35	4	16%	2	8%	6	12%
36-40	3	12%	2	8%	5	10%
41-49	3	12%	3	12%	6	12%
50-59	0	0%	6	24%	6	12%
60+	2	8%	0	0%	2	4%
Race or ethnicity						
Asian	2	8%	3	12%	5	10%
Black	3	12%	5	20%	8	16%
Hispanic	2	8%	3	12%	5	10%
White	14	56%	10	40%	24	48%
Other	4	16%	3	12%	7	14%
No Response	0	0%	1	4%	1	2%
Gender						
Male	4	16%	6	24%	10	20%
Female	21	84%	18	72%	39	78%

No Response	0	0%	1	4%	1	2%
Hours per month engage in professional development						
0-3 hours	8	32%	3	12%	11	22%
4-6 hours	4	16%	14	56%	18	36%
7-9 hours	6	24%	3	12%	9	18%
9+ hours	7	28%	5	20%	12	24%

APPENDIX F

TABLE 2

FREQUENCY OF RESPONSES TO RESEARCH QUESTION 1

Table 2
Frequency of Responses to Research Question 1

Survey Question	General Education		Special Education		Total	
	n	Percent	n	Percent	n	Percent
Observed others teaching						
Strongly Agree	2	8%	6	24%	8	32%
Agree	2	8%	4	16%	6	24%
Somewhat Agree	7	28%	6	24%	13	52%
Somewhat Disagree	8	32%	6	24%	14	56%
Disagree	6	24%	3	12%	9	36%
Had peers observe your teaching						
Strongly Agree	2	8%	3	12%	5	20%
Agree	2	8%	4	16%	6	24%
Somewhat Agree	8	32%	8	32%	16	64%
Somewhat Disagree	7	28%	5	20%	12	48%
Disagree	6	24%	5	20%	11	44%
Participated in a book study						
Strongly Agree	2	8%	0	0%	2	8%
Agree	4	16%	1	4%	5	20%
Somewhat Agree	3	12%	7	28%	10	40%
Somewhat Disagree	8	32%	3	12%	11	44%
Disagree	8	32%	14	56%	22	88%
Participated in action research						
Strongly Agree	2	8%	0	0%	2	8%
Agree	0	0%	1	4%	1	4%
Somewhat Agree	6	24%	3	12%	9	36%
Somewhat Disagree	7	28%	6	24%	13	52%
Disagree	10	40%	15	60%	25	100%
Participated in mentoring						
Strongly Agree	4	16%	6	24%	10	40%
Agree	6	24%	3	12%	9	36%
Somewhat Agree	4	16%	8	32%	12	48%
Somewhat Disagree	7	28%	2	8%	9	36%
Disagree	4	16%	6	24%	10	40%
Had professional development on technology						
Strongly Agree	3	12%	3	12%	6	12%
Agree	4	16%	3	12%	7	14%
Somewhat Agree	5	20%	8	32%	13	26%
Somewhat Disagree	10	40%	6	24%	16	32%
Disagree	3	12%	5	20%	8	16%

Had professional development in student discipline

Strongly Agree	4	16%	7	28%	11	22%
Agree	4	16%	3	12%	7	14%
Somewhat Agree	7	28%	9	36%	16	32%
Somewhat Disagree	5	20%	5	20%	10	20%
Disagree	5	20%	1	4%	6	12%

Had professional development on teaching students with disabilities

Strongly Agree	1	4%	4	16%	5	20%
Agree	1	4%	4	16%	5	20%
Somewhat Agree	4	16%	8	32%	12	48%
Somewhat Disagree	10	40%	7	28%	17	68%
Disagree	9	36%	2	8%	11	44%

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CURRICULUM VITAE

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EDUCATION

- 2017 (Anticipated) Ph.D., University of Nevada, Las Vegas, Nevada. Major: Special education. Specialization: Autism, Intellectual Disabilities.
- 2009 M.Ed., University of Nevada, Las Vegas, Nevada. Major: Special Education.
- 2004 B.A. Ed., National University, San Diego, California. Major: Interdisciplinary Studies. Minor: Cultural Studies.

PROFESSIONAL EXPERIENCE

- 2014-Curr. Positive Behavior Support Consultant (Position Change): Missouri State University, College of Education / Regional Professional Development Center
- Assist schools/districts in implementing and sustaining school-wide positive behavior supports aligned with research proven practices
 - Guide schools and districts in data-based decision making using various sources of behavioral and academic data
 - Serve as implementation coach to teachers and teams on the implementation of effective classroom practices and behavior interventions
 - Provide training and support to teams and individuals in the development, implementation, and evaluation of functional behavior assessments and behavior intervention plans
 - Active member of state-level school-wide positive behavior support team to develop training modules and resources for dissemination throughout Missouri
 - Design and provide high-quality professional development on all components and phases of implementation of school-wide positive behavior support
 - Provide training and technical assistance to schools and districts in the areas of academic support, social emotional learning, and student behavior
 - Guide teams, schools, and districts in the integration of initiatives in a multi-tiered system of support model

- 2013-2014 Special Education Improvement Consultant: Missouri State University, College of Education / Regional Professional Development Center
- Assist schools and districts analyze student achievement data in order to determine and address areas in need of improvement
 - Assist schools and districts in the MO DESE's Collaborative Work Model
 - Provide technical assistance to schools and districts in various areas in special education including co-teaching, standards-based IEPs, inclusion, post-secondary transition, effective classroom practices for special education students, assessment practices, and determining curricular needs of special education students
 - Assist districts in improving academic achievement and post-school outcomes for students with disabilities through the provision of training, support, and coaching
 - Design high-quality professional development on the use of specific teaching practices and strategies which research indicates are effective in student learning and that meets the needs of schools and districts
- 2012-2013 Special Education Professional. Nevada Department of Education, Office of special Education
- Provided technical assistance to Local Education Agencies and other constituents regarding special education in Nevada
 - Promoted facilitation and collaboration between the state DOE and LEAs to support implementation of evidence-based practices to meet the needs of diverse learners
 - Provided oversight and management of State Personnel Development Grant (SPDG) as Co-Director
 - Developed and wrote federal reports required for compliance with the State Personnel Development Grant
 - Planned, developed, and wrote new applications for federal funds and grants
 - Developed and provided high-quality professional development for State Special Education District Administrators
 - Provided guidance and technical assistance to Focus Schools throughout state to improve performance of students in identified subpopulations
 - Assisted Local Education Agencies in meeting their needs in recruiting and retaining qualified special education teachers
- 2011-2012 Project Facilitator: 21st Century Community Learning Centers. Clark County School District, Wraparound Services
- Provided oversight and management of the 21st Century Community Learning Centers grant and corresponding federal funds

- Provided observations and consultation to schools to improve afterschool programs to result in increased student outcomes
- Provided technical assistance and resources to teachers to enhance afterschool programming to support diverse learners
- Provided ongoing coaching and feedback to teachers to improve outcomes for diverse learners to assist with closing the achievement gap to identified subpopulations
- Provided technical assistance to schools specific to grant administration
- Assisted administrators in designing and planning afterschool programming in accordance with grant guidelines
- Assisted schools with federal reporting requirements and in writing grants for new funding cycles

- 2007-2011 Special Education Teacher: Autism / Intellectual Disabilities. Clark County School District, Liberty High School
- Provided classroom instruction in accordance with best practices, students' IEPs, and school and district policies
 - Wrote IEPs based on student assessment data aligned with content standards
 - Conducted IEP meetings for all students on case load
 - Led transition planning and goal setting for students
 - Conducted all student assessments including formative, summative, district, state, and alternate
 - Collected and analyzed student data on regular basis in order to make instructional decisions and to advise on IEP goals
 - Communicated with parents and students on regular basis as to student progress

COURSES TAUGHT

- Spring 2015 **Career/Vocational Education and Transition (SPE 550/SPE 650):** comprehensive overview of transition strategies and legal mandates to support students with disabilities and those with other diverse learning needs.
- Fall 2014 **Career/Vocational Education and Transition (SPE 550/SPE 650):** comprehensive overview of transition strategies and legal mandates to support students with disabilities and those with other diverse learning needs.
- Fall 2013 **Educational Alternative for Exceptional Students (SPE340):** introduction to special education for general education majors. (Online) Missouri State University, Springfield, MO.

PROFESSIONAL PRESENTATIONS

Schwank, L. L. (March, 2013). Instructional consultation model. Poster presented at the State Personnel Development Grant (SPDG) Project Director's Conference in Washington, DC.

Schwank, L. L. (May, 2012). State personnel development grant: New grant development. Presentation to State Special Education District Administrators for the State of Nevada in Lake Tahoe, NV.

Schwank, L. L. (August, 2012). State personnel development grant: Grant application overview. Annual State Special Education District Administrators Retreat in Lake Tahoe, NV.

Schwank, L. L. (February, 2012). 21st Century community learning centers grant and school social work. Presentation to Clark County School District School Social Workers in Las Vegas, NV.

GRANT EXPERIENCE

2012 State Personnel Development Grant (existing grant). Co-Director, State of Nevada.

2011 21st Century Community Learning Centers Grant. District Facilitator, Clark County School District.

RESEARCH EXPERIENCE

Morgan, J. J., Higa, J., Liles, D., & **Schwank, L. L.** (in progress). Teaching middle school students to implement data-based decision making.

- Primarily responsible for the design of self-determination assessment instruments.
- Assisted in the design of the study, as well as analysis measures.

PROFESSIONAL SERVICE

Governor appointed member of the Governor's Council on Developmental Disabilities for the State of Nevada

Governor appointed member of the Governor's Council on Assistive Technology for the State of Nevada

Civitan International, Opportunity Village Las Vegas Chapter. Mentorship Program.

MEDIA CONTRIBUTIONS

Richmond, E. (March 17, 2009) *These cuts are good news*. Las Vegas Sun.

PROFESSIONAL AFFILIATIONS

American Education Research Association

Council for Exceptional Children

ASCD

Learning Forward

Association of Positive Behavior Supports

HONORS and AWARDS

2011 Nevada Partnership for Inclusive Education Inspiring Educators Award Nominee