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AN ASSESSMENT OF THE PROFESSIONAL DEVELOPMENT OF SPECIAL EDUCATION TEACHERS IN SAUDI ARABIA

Item Type	dissertation
Authors	Almutairi, Raja
DOI	10.7275/18641416
Download date	2025-03-25 18:17:47
Link to Item	https://hdl.handle.net/20.500.14394/18264

AN ASSESSMENT OF THE PROFESSIONAL DEVELOPMENT OF SPECIAL
EDUCATION TEACHERS IN SAUDI ARABIA

A Dissertation Presented

by

RAJA N. ALMUTAIRI

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

September 2020

College of Education

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ABSTRACT

AN ASSESSMENT OF THE PROFESSIONAL DEVELOPMENT OF SPECIAL EDUCATION TEACHERS IN SAUDI ARABIA

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The purpose of this study is to assess the current state of professional development activities of Saudi special education teachers in comparison to the research-based professional development practices of special education teachers. A survey of professional development evaluation and job satisfaction that describe three components was electronically collected from 613 special education teachers who were actively employed in Saudi public schools during the 2019/2020 school year. The results show that participating in professional development activities contributed to the study's special education teachers' satisfaction with their teaching profession. Additionally, the findings suggest that improvements to the professional development practices that are currently provided to Saudi special education teachers would be of greater benefit by more closely aligning with the literature on effective professional development.

Keywords: professional development, special education teachers, teacher change, job satisfaction

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CHAPTER I

INTRODUCTION

Background of the Study

Teachers and their teaching quality are critical to the overall quality of education (Darling-Hammond, 2000). Teachers are expected to have sufficient knowledge of their profession, be accountable for their students' performance, and teach a variety of learners. To meet the high demand and requirements for teacher quality, policymakers and researchers have found professional development (PD) to be a tool to improve the quality of education (Borko & Putnam, 1995; Coe et al., 2014; Desimone, 2009; Hattie, 2009). Guskey (2000) defines PD as "intentional, ongoing, and systematic processes and activities designed to enhance the professional knowledge, skills, and attitudes of educators so that they might in turn, improve the learning of students" (p. 16). PD is viewed as a long-term intervention that enables teachers to improve their practice (Villegas-Reimers, 2003). Many countries around the world including the United States (US) and Saudi Arabia (SA) have adopted PD as a professional practice standard for teachers.

Professional development has been a vital part of general education practices for a number of years. Recently, there has been more focus on the importance of PD in special education practice as well. In the United States, the Council for Exceptional Children (CEC) now includes PD as a standard for the professional practice of special education teachers (CEC, 2015). Prior to that, however, the Individuals with Disabilities Education Act (IDEA) 1997 & 2004 and Every Student Succeeds Act (ESSA (2015)) 2015 emphasized PD for all personnel who work with students to ensure that they have the

skills and knowledge ESSA (2015) to improve the academic achievement and functional performance of students with special needs.

Saudi Arabia has also acknowledged the importance of PD for its teachers, including special education teachers, as part of the country's educational reforms. In 2007, SA launched the King Abdullah Bin Abdul Aziz project for the development of public education, which included PD for teachers. However, even earlier, in 2001, the Regulations of Special Education Programs and Institutions (RSEPI) adopted PD as one of the requirements for special education teachers in particular in order to provide high-quality education for students with special needs.

PD is vital for teacher learning (Murphy, 2000). The discipline of special education continually undergoes dynamic evolution of the information and technologies being used. This requires an active and long-term commitment to PD for all personnel in the field. Addressing this issue in US schools, many researchers have noted that special education teachers lack adequate preparation to instruct students with disabilities (Buell et al., 1999; Cooper et al., 2008; DeSimone & Parmar, 2006; Leko & Brownell, 2009; Geiger, 2002; Singh, 2001; U. S. Department of Education, 2010a). In particular, studies suggest that special education teachers are often not well prepared to teach students with disabilities in core subjects (Leko & Brownell, 2009) and that there are few PD opportunities for special educators that focus on teaching strategies (Menlove & Lignugaris-Kraft, 2004). Yet studies have found that PD not only increases educators' knowledge and skills but also increases teacher satisfaction and lowers their attrition rate (Parkes & Stevens, 2000).

The lack of sufficient knowledge and preparation is not only present in this field of teaching in the U.S. In 2016, SA published a plan for the kingdom (2030 Saudi Vision) that included the development of various service sectors including education services. According to 2030 Saudi Vision, only 50 percent of special education teachers in 2016 passed the licensure exam. The document included the then-current status of the public services sectors and the developmental steps that needed to be taken for improvement. To comply with the reforms, special and general education teachers must have completed 18 PD credits by 2020. Currently, the average number of PD credits completed by Saudi special education teachers is only ten, leaving little time to meet this goal.

PD opportunities for teachers in most places are still few in number and use methods that are inadequate (Yoon, Duncan, Wen-Yu Lee, Scarloss, & Shapley, 2007). The use of high-quality PD might be the key to the solution of the problems facing special education. High-quality PD can increase student achievement by an average of 21 percentile points (Yoon, et al., 2007). Crafting high-quality PD begins in the planning stage and ends with student performance evaluations.

This study will examine the current PD practices for special education teachers in SA. The overall goal of this study is two-fold: first, to support PD providers in SA in their efforts to offer PD choices that are aligned with high-quality PD practices and second, to help them develop more effective PD practices through the guidelines offered by the research studies highlighted in the literature review.

Education in Saudi Arabia

Saudi Arabia is a developing country located in Western Asia and the largest sovereign state in the Middle East. It leads the world in oil production and exportation.

Oil revenues have been employed to develop the modern state of SA in the sense that they allow policymakers to investigate other countries' procedures and then promulgate new laws and regulations that encourage modernity. The field of education is a prominent focus of such reforms. The government assigns over 25% of the total annual budget to education and spends around \$13.17 billion U.S. on primary education and educational research (Ministry of Education, 2017). Saudi's educational system includes 26 government-sponsored universities, more than 33,000 schools, and a large number of colleges and training institutions.

The education system, governed by the Directorate of Knowledge, was established in 1925. It began with four schools for boys in the western region of the country (Hijaz region). In 1927, the first Council for Knowledge was launched, aiming to further develop the educational system in that region and beyond. The Directorate of Knowledge expanded from four schools in Hijaz to 323 schools throughout SA. In 1951, the Directorate of Knowledge was replaced by the Ministry of Knowledge to monitor and plan what was still a male-only education system. Less than 10 years later, in 1960, the General Presidency of Girls Education was established with 14 primary schools and one female teacher's intermediate institute. In 2002, a royal decree directed the governance of girls' education from the general presidency to the Ministry of Knowledge, which later was named the Ministry of Education. From a limited number of schools serving a limited number of primary and secondary students, education in Saudi Arabia has expanded to include the more than 33,000 schools referred to above that provide equitable learning opportunities for over five million students taught by close to half a million teachers (Ministry of Education, 2018).

Education Ladder

In 1958, SA along with other members of the Arab League shared a uniform educational system that consisted of four levels: pre-primary, primary, middle, and high school (Mission, S.A.C., 2006). Boys and girls study in separate primary, middle, and high schools. In the pre-primary level, children are educated for two years starting at the age of four. At the age of six, children enroll for six years at the primary education level (similar to grades 1-6 in the U.S. education system). The school year is divided into two semesters, each with 15 weeks of classes and two weeks of an examination period. Grades 1 through 4 students are exempt from the last weeks of examination; instead, they are evaluated regularly throughout the entire school year. The primary school weekly schedule consists of 30 class periods of 45 minutes in length. Upon the completion of primary school, students enroll in three years of middle education (similar to grades 7-9 in the U.S. education system). The school year at this level consists of two semesters; each semester has 15 weeks of classes and two weeks of an examination period. The middle school weekly schedule has 33 class periods of 45 minutes each. At the middle school level, passing an examination is mandatory in order to receive the middle school certificate. At the high school education level, students spend three years (similar to grades 10-12 in the U.S. education system). Upon the completion of 10th grade, students choose between the literary and scientific tracks. Students with an middle school certificate can also enroll in three years of secondary-level industrial institutes. In the 2016/2017 school year, there were approximately five million students enrolled in Saudi schools. Table 1 shows the enrolled students by gender and school level.

Table 1: Saudi population enrolled in school for the 2017/2018 school year, by gender and school level

School-Level	Total Enrolled	Male	Female
preliminary	264,736	130,652 (49.3%)	134,084 (50.7%)
primary	2,409,236	1,221,108 (50.7%)	1,188,154 (49.3%)
middle	1,167, 933	591,565 (50.6%)	576,368 (49.4%)
secondary	1,192,012	640,997 (53.8%)	551,015 (46.2%)

Source. Education and Training Survey 2017 – General Authority for Statistics

Special Education in Saudi Arabia

The Ministry of Education began the first special education institute in 1960 for blind male students. Until this time, the education of children with special needs was considered to be the family’s responsibility. Two years later, the Department of Special Education was established to provide education, training, and social services for male students with blindness but also with an expansion to include additional special education categories and services (Ministry of Education, 2018). In 1963, the number of institutes expanded to three, each in one of three different provinces. In 1964, the first school for female students with blindness was founded. In the same year, the Ministry of Education opened the first (separate) schools for male and female students with deafness. In 1971, the first two institutes for students with intellectual disabilities was founded to serve both males and females.

From the late ‘70s on, there has been a steady expansion of special education institutes that has included more geographic locations to meet the needs of each province. In 1984, King Saud University opened the first undergraduate special education program to prepare special education teachers. The special education program consisted of five

areas: intellectual disabilities, hearing impairments, visual impairments, learning disabilities, and gifted education. In 1991, the Ministry of Education moved to a more inclusive education style by opening special education programs in general public schools. The ministry continues to expand its services with new special education categories, new programs, and improved services. There is also an ongoing focus on upgrading special education regulations.

Special Education Regulations

The field of special education in SA is overseen by two different regulatory codes and one treaty. The Provision Code for Persons with Disabilities in Saudi Arabia was issued in 2000 and consists of 16 articles. This document states that the government is responsible for welfare, health care, education, training, and rehabilitation services as well as employment, social participation, and sports facilities for persons with disabilities. The document decrees that individuals with disabilities have the right to education and learning prior to school age and on through post-secondary education and training. The second code, the Regulations of Special Education Programs and Institutes (RSEPI) was passed in 2001 and was modeled on the U.S. IDEIA current at that time. The Regulations of Special Education Programs and Institutes aims to organize and facilitate special education services that protect the rights of individuals with disabilities and their parents (Abu Nayan, 2014). The RSEPI is based on five principles. The first principle is the *learning environment*, which emphasizes that the regular public school is the natural and appropriate environment to meet the social, psychological, and educational needs of students with special needs free of cost. The second, *diagnosis and assessment*, must be appropriate for the child and prescribed by a multi-disciplinary team

using both formal and informal assessments. The third principle, the *rights of the parents*, was included in the law to ensure their roles in their child's evaluation process and as members of the individualized education plan (IEP) team. The regulations also provide guidelines for the *transition plan and the individual education program*, as well as for a provision outlining the *qualifications for services providers*.

The RSEPI only focuses on providing special education and related services for individuals with disabilities from ages six and above. However, in 2015 a new mandate was established regarding children with disabilities and those at-risk from birth to age six. Early intervention is provided to infants and toddlers (birth to age three) in the related services centers. There are 34 related service centers distributed throughout the country. Children from age three to six receive special education and early intervention services in the pre-primary schools; currently, there are 1,172 pre-primary schools (Regulatory Guide, 2015; Saudi Arabia Ministry of Education, 2018). In 2015, the Ministry of Education issued two new documents, The *Regulatory Guide for Special Education* and the *Procedural Manual*. The *Regulatory Guide for Special Education* includes the important elements in the RSEPI and new mandates such as early intervention, a family and school partnership committee, and a committee of excellence and quality. The second document is the *Procedural Manual*, which includes 27 procedures and their required forms such as the IEP templet, eligibility evaluation and referral forms, and school transportation forms.

The third regulatory document is the United Nation's Convention on the Rights of Persons with Disabilities (CRPD) treaty (2006), which Saudi Arabia signed in 2009. This treaty affected the lives of millions of people with disabilities worldwide. The large

number of country members (176) who ratified and then signed (160) the treaty indicates the commitment of the international community to promote and protect equal rights for people with disabilities in all life aspects (United Nations, 2017). According to Quinlivan (2012), the international community was able to shift away from the medical and social welfare model to the social and human model that focuses on accessibility, inclusion, equal rights, and freedom for people with disabilities. However, the CRPD requires further action by ratified states to accomplish its purposes. There are 50 articles in the CRPD: the initial four articles on purposes, definitions, general principles, and obligations; 26 articles regarding the accessibility and rights provisions of cultural, economic, political, educational, health, and social aspects; 10 articles covering international monitoring and supervision; and 10 more articles in the final clause regarding the signature and force of the treaty (United Nations, 2017). A country that ratifies the CRPD is legally accountable to treat persons with disabilities as subjects of the law with the same clearly defined rights as any other person, and must report progress made in aligning its domestic legislation with the international standards created by the CRPD (United Nations, 2008).

These changes and expansions of special education services and legislation in SA resulted from the 1997 “Special Education Strategies” that was written as a framework for special education in the country. This framework includes ten strategies. These strategies aim to develop the quality of special education services provided for children with special needs. In 2000, there were only 54 special education programs in SA. (Al-Mousa, 2010). As of this writing, twenty years later, 2,291 special education programs are serving 28,005 students with special needs in the Riyadh region alone, and 40,174

special education teachers serve 104,152 students with special needs across 14 regional education departments and 31 provincial education departments (Ministry of Education, 2016).

Professional Development

As can be seen from the information in the previous sections, the development of the education system in SA has been dynamically changing. The current era of development in education began in 2006 when the Ministry of Education adopted King Abdullah Bin Abdul Aziz Public Education Development Project (Tatweer, 2019). The project is a national initiative to improve public education in SA through the development of the educational system with all their input, processes, and output (Tatweer, 2019). The project is comprised of four overarching elements: PD for teachers, curriculum development, school environment improvement, and the support of extracurricular activities. This project led to the creation of multiple programs related, but not limited, to school infrastructure and maintenance, public school transportation, integration of learning technologies and e-learning, early childhood development, inclusive education for all learners, and PD for teachers (Tatweer, 2019).

The innovative PD programs for teachers are described as interactive and continuous processes that target areas of teachers' practice of subject matter, pedagogy, assessment, classroom management, and leadership. The project aims to provide teachers with the skills and expertise needed in information and communication technology to enable them to employ such skills in their practice and develop a more positive attitude. The PD activities for general and special education teachers are designed for the National Center for Professional Education Development by the government-owned Tatweer

Company for Educational Services (T4edu) and through the regional departments of education, local education agencies, and social and special education institutes and organizations.

Special education teachers are encouraged by the RSEPI to attend in-service trainings. To ensure the quality of those trainings, the Regulatory Guide 2015 provides that each school with a special education program must form a Committee of Excellence and Quality. This committee is responsible for developing induction programs for new teachers and activates the learning community among all school members by conducting programs, workshops, and observational visitations (Regulatory Guide, 2015). The committee consists of the school leader (principal), the school deputy for education affairs, the school deputy for students' affairs, and three distinguished teachers. The committee aims to improve the organizational performance of the school.

Although it is clear that SA has made great progress in its attempts to improve the presence and quality of special education, it has been in the area of professional development for teachers that there have been gaps. Although the country began its project over a half-century ago, it has yet to make PD mandatory for its teachers. The Tatweer project did not include evaluation and follow-up for PD activities. The special education regulations did not define PD as was done in the U.S. regulatory IDEIA and ESSA (2015). Moreover, there are still no empirical studies directly related to PD for special education teachers in SA and neither are there any reports on the conditions of the implementation and impact of the previous PD programs. These problems might be due to the fact that SA is still a developing country and most of its focus and budget is aimed at school infrastructure, classroom equipment, curriculum and assessment development,

and the expansion of preliminary schools and related services centers.

Statement of the Problem

The nature of professional development and the money spent on its programming require careful crafting of such programs, especially those devised for special education teachers, because of their complex role within the school system. They are expected to possess a large and varied scope of practice that includes professional knowledge of all subject content areas as well as that of any Every Student Succeeds Act (ESSA; 2015), related modifications, accommodations, and assistive technology, have the capabilities to develop individualized education plans, employ any ESSA (2015) behavior interventions, create and enact the transitional plans ESSA (2015) for their students to make a passage from school to post-school life, and more. The opportunity for teachers to have access to ongoing, high-quality professional development practices is particularly important for special education teachers as a critical support mechanism in many areas of their profession. In fact, researchers have found a relationship between the presence or lack of PD and attrition (Gersten et al., 2001; Billingsley, 2004). It follows, therefore, that professional development for special education teachers must be based on their needs and the needs of their students in order to properly support teachers in improving their students' achievement and functional performance.

The quality of professional development activities for special education teachers in SA has not yet been investigated. Therefore, the importance of this study is to fill the gap in the literature surrounding PD in special education in that country. Careful examinations of Saudi special education teachers' PD experiences and the literature review in the coming chapter are starting points for further investigation.

Purpose of the Study

The purpose of this study was to explore the professional development experiences of special education teachers in Saudi Arabia. The insights gained from this study will give decision-makers and professional development providers a better understanding of the extent to which existing professional development activities align with the established research surrounding effective professional development practices.

Research Questions

This study included the following questions:

1. How do the professional development practices of special education teachers in Saudi Arabia align with the characteristics of effective professional development?
 - Do these characteristics differ by the topic, provider, or types of professional development in which teachers had participated?
2. To what degree does participation in professional development relate to job satisfaction for special education teachers in Saudi Arabia?
3. To what degree do the characteristics of effective professional development practices relate to job satisfaction for special education teachers in Saudi Arabia?
 - Does the relation between professional development and job satisfaction differ by the topic, provider, or types of professional development in which teachers have participated?

CHAPTER II

LITERATURE REVIEW

Chapter Overview

As the world population increases, the number of people with disabilities increases. According to the World Health Organization (2018), there are one billion people with disabilities including 93 million children under the age of 14. Their disabilities place them at a higher risk of receiving improper education services (UNICEF, 2017). The risk of receiving low-quality education may be due in part to the inadequate preparation of special education teachers. According to Billingsley (2004), special education teachers are the least-prepared group of teachers. The lack of well-prepared teachers may increase the difficulties in closing the achievement gap among students. Access to high-quality professional development can improve the work quality of special education teachers, which in turn improves their students' learning capabilities and experiences.

The purpose of this chapter is to provide related literature and the frameworks of high-quality PD. The literature review begins with a description of PD for teachers and the applicable federal regulatory laws. This chapter then reviews the features of effective PD and the theories of change. The third section covers PD specifically in the field of special education. The last section explains the framework for evaluating PD.

Professional Development for Teachers

There are constant changes in education systems around the world. Many countries and communities worldwide are proposing detailed education reforms and school improvement plans. Professional development practices for teachers are a critical

part of any reform and improvement plans for education practices. In this light, teachers are not only being viewed as people who can change others but also the subject of change themselves. The extensive amount of literature on PD along with the growing awareness on the part of national and international organizations that PD improves teachers' knowledge and skill levels makes it clear that it is a key element in any kind of educational reform (Villegas-Reimers, 2003). This acknowledgment of the important role of PD in education is accompanied by issues related to the value of many PD activities.

Before addressing the issues related to PD, it is important to consider what PD is or what can be defined as PD. Teachers experience a variety of events and interactions that may lead to an improvement in their knowledge and skills (Desimone, 2009). Little (1987) described PD as "any activity that is intended partly or primarily to prepare paid staff members for improved performance in the present or future roles in the school districts" (p. 491). Those experiences of PD can occur informally or formally (Broko, 2004). An informal PD experience can be as brief as a hallway or after-school conversation with colleagues to discuss a student's behavior. Formal PD activities can take the form of mentoring, involvement in improvement processes, study groups, or individually guided activities (Guskey, 2000). Regardless of the format of any particular teacher-learning activity, there is a call for a better definition of PD that is more manageable and measurable in order to more specifically examine the effectiveness of all PD programs.

The operational definition of PD is based on an extensive body of literature in the US and worldwide. In a project sponsored by the UNESCO, Villegas-Reimers (2003) reviewed the literature surrounding PD using American and international databases and

publications. Based on the thorough review, this study concluded with several recommendations for implementing effective teacher PD activities. The recommendations include:

- PD must start during the first year of teaching and continue until retirement.
- Teachers' PD activities must be systematically planned and well-supported to ensure their effectiveness.
- Teachers must be given active roles in designing, implementing, and participating in PD efforts.
- The content of teachers' PD programs must be aligned with teachers' needs and interests, and the education system in their place of work.
- The content creation of teachers' PD must be collaborative work between schools and universities.
- External agencies must offer PD activities that meet teachers' needs.
- A variety of PD opportunities and models must be always available for teachers.
- Technology and distance education should be incorporated into teachers' PD.
- PD activities must follow a logical sequence and be connected to classroom practice.
- Teachers should be provided with opportunities to collaborate during PD activities.

The operational definition of PD has many common characteristics among the bodies of evidence documented by studies in the US and worldwide. According to a variety of studies, teachers' PD opportunities should be: a) ongoing, b) aligned with teacher and student needs and school polices, c) part of school improvement planning, d)

offering active and collective participation opportunities, and e) content focused (Darling-Hammond et al., 2009; Desimone, 2009; Villegas-Reimers, 2003; Yoon et al., 2007; Garet et al., 2001).

Guskey (2000) offers another definition of PD as “intentional, ongoing and systematic processes, and activities designed to enhance the professional knowledge, skills, and attitudes of educators so that they might in turn, improve the learning of students” (p. 16). This definition includes three important characteristics—PD is a process that is intentional, ongoing, and systematic.

Professional Development as an Intentional Process

PD is a purposeful process that aims to improve and change practice. Having clear goals and vision allows PD designers to determine the intended outcomes. PD activities are not to be random or lacking in clear vision (Guskey, 2000 p.17). When the intent and goals of PD are determined and clearly stated, it becomes easier to determine the effectiveness of the PD activities. Following a model of intentional PD helps to determine which content is selected, what resources are needed, what information needs to be collected, and how to collect said information in order to ensure that the goals are met. In this process, it is important to align PD with the teachers’ and students’ needs, and school, district, and state reforms and policies (Desimone, 2009; Darling-Hammond, 2012). Data collected from teacher evaluations can be used to link PD activities with teachers’ needs (Shakman, Zweig, Bocala, & Lacireno-Paquet, 2016; Bailey, 2016; and Koedel & Li et al., 2015).

Shakman et al. (2016) investigated the alignment of evaluation systems and teachers’ PD activities. The study examined the evaluators’ prescribed professional

activities for 586 teachers who were rated non-proficient in one or more standards of their newly developed district educator evaluation system. Teachers were assessed based on four standards of effective practice: a) curriculum, planning, and assessment, b) teaching all students, c) family and community engagement, and d) professional culture. Teachers received prescriptions across all four standards with 49% of teachers receiving a prescription for standard 1 (curriculum, planning, and assessment), 52% for standard 2 (teaching all students), 51% for standard 3 (family and community engagement), and 34% for standard 4 (professional culture). There were nine professional activities provided for participants including five PD activities (workshop or course, meeting with an evaluator, formal coaching, formal meeting with a colleague, and observation of colleague) and four professional practices (document submission, reading resources, instructional strategies, and other professional strategies). The majority of participants prescribed one or two professional activities for standard 2 (61%), standard 3 (92%), and standard 4 (66%). For standard 1, the majority of participants received prescriptions with three or more professional activities (51%).

A survey was designed to examine the types of professional activities in which teachers participated that were related to each of the four standards of the evaluation system, and to ascertain if the reevaluation rating changed as a result of the prescribed activities. The data revealed that less than 40% of teachers participated in all of the professional activities that they were prescribed. Almost 80% of teachers who were prescribed for standard 1 participated in some professional activities, and 68% for standard 2, whereas only 28% of teachers who were prescribed professional activities in standard 3 and 34% of teachers who were prescribed for standard 4 participated in some

activities addressing the standard. The large participation in professional activities for standard 1 might be due to the fact that participants were prescribed with more activities for that standard than the other three standards. Standard 4 reported the least in professional activity participation because only nine out of 109 teachers prescribed for the standard were given PD activities (workshop or course, meeting with evaluator, formal coaching, formal meeting with a colleague, and observation of colleague). Meanwhile more participants were prescribed with PD activities for the other three standards. Participating in a workshop or course for all standards was the most attended PD activity.

The end of year teachers' summative evaluation showed a statistically significant difference in only one standard (curriculum, planning, and assessment) between teachers who participated in PD activities and the other teachers who did not participate. Sixty four percent of teachers who participated in activities related to standard 1 were rated at least proficient in standard 1 compared to 38% of teachers who did not participate in any professional activities for standard 1.

The professional activities were provided for all standards, but standard 1 was the only standard showing a significant difference in the summative evaluation between teachers who participated in the activities and teachers who did not. Researchers claim that the reason for the difference in standard 1 is because standard 1 (curriculum, planning, and assessment) has more professional activities (Shakman, et al., 2016). Despite the results of standard 1, less than 40% of teachers engaged in their prescribed activities. This shows a lack of alignment between prescribed activities and the activities in which teachers reported engaging. The study did not examine why there was a lack of

alignment between prescribed activities and the activities in which teachers participated, nor the quality of the feedback teachers received. However, the researchers believed that a possible explanation of the lack of alignment might be due to a gap between what administrators thought about the teachers and what the teachers felt they needed (Shakman et al., 2016).

Based on these studies, it appears that the creation of intentional PD activities with clear goals and intended outcomes would close the gap in the research surrounding in-service teacher PD content. The most important variable related to the effectiveness of PD is the clarity of the goals in terms of classroom practice and implementations to improve students' performance (Guskey, 2000, p.17). Penuel, Fishman, Yamaguchi, and Gallagher (2007) examined the perception of 456 teachers about the effects of different PD characteristics on their knowledge and program implementation. The collected survey data showed the importance of PD coherence, defined in this study as “teachers’ interpretations of how well aligned the PD activities are with their own goals for learning and their goals for students” (p. 931). Coherence was found to be the strongest predictor for teacher knowledge and curriculum implementation. This study is empirical evidence that PD activities should be responsive to teachers’ needs.

Professional Development as an Ongoing Process

The field of education is dynamic and continues to develop its knowledge base. The teaching profession requires teachers to be constant learners throughout their entire career (Guskey, 2000, p. 19). In the past, PD used to come in the form of one-day workshops without giving the teacher time to apply the newly learned practice in the classroom. This old view of PD has shifted to intensive and ongoing PD. Yoon, Duncan,

Lee, Scarloss, and Shapley (2007) examined 1,300 studies that elaborated on teacher PD in the area of content subjects between 1986 and 2006 and its effects on student learning. The authors included only nine studies in their final examinations because these studies were the only studies to meet the standards of the What Works Clearinghouse (WWC) (WWC Study Review Guide, 2018). All nine studies focused on elementary school teachers and their students. They found that teachers who participated in a PD activity that ranged from 30 to 100 hours and was spread over six to 12 months improved their students' outcomes by 21 percentile points. PD with long contact hours spreading over at least a semester is required for intellectual and pedagogical change (Desimone, 2009). Despite this evidence, most PD activities remain shorter.

In an effort to determine more information about the time element of PD offerings, a Schools and Staffing Survey (SASS) questionnaire asked teachers whether they had ever participated in PD on six topics and how much time they had spent in each PD activity related to these topics in the prior 12 months (National Center for Education Statistics, n.d). The topics included: a) the content of the subject(s) taught; b) the uses of computers for instruction; c) reading instruction; d) student discipline and management of the classroom; e) teaching students with disabilities; and h) teaching Limited English Proficient (LEP) students. Table 2 displays the percentages of participation in each topic of PD. The percentage of teachers participating in PD on each of the topics is fairly stable, with a slight increase or decrease (by 0.2% to 4.0% percentage points). The most common topic of PD was the current content of subject(s) taught with 84% in 2003-04 and 2011-12, and slight improvement in 2007-08 (87.5%). Teaching LEP students was the least commonly attended (27%) (Wei, et al., 2010; Rotermund, DeRoche, & Ottem,

2017).

Table 2: Percentage of public-school teachers participating in selected PD activities in the past 12 months

SASS Data Year	Topics					
	Content Subjects	Uses of Computers for Instruction	Reading Instruction	Student Discipline and Classroom Management	Teaching Students with Disabilities	Teaching LEP Students
2003-04	83.4	65.0	61.0	43.5	n/a	n/a
2007-08	87.5	67.0	61.5	45.7	42.3	28.0
2011-12	84.8	67.2	56.7	42.5	37.4	26.8

Table 3 displays the number of hours of PD that teachers had participated in during the 12 months prior to the study. The percentage of teachers reporting 17-32 hours and 33 or more of PD on each topic remained the same. Less than 50% of the teachers received 17 or more hours of PD on the content of the subject(s) taught, while approximately 10% received the same number for the other three topics in 2003-04 and 2007-08 (Wei et al., 2010). In the 2011-12 survey, most teachers spent eight or fewer hours on each PD activity except the content of the subject(s) they taught with 21% of eight or fewer hours (Rotermund, DeRoche, & Ottem, 2017).

Table 3: Percentage of teachers reporting the length of time they participated in PD on each topic during the prior 12 months

Topic	SASS Data Year	Percentage Reporting up to 8 Hours	Percentage Reporting 9-16 Hours	Percentage Reporting 17-32 Hours	Percentage Reporting 33+ Hours
content subjects	2003-04	23.0	17.2	20.3	23.0
	2007-08	18.3	24.5	21.0	23.8
	2011-12	21.0		53.0 ^a	26.0
uses of computers for instruction	2003-04	15.0	37.4	6.6	7.0
	2007-08	41.0	16.0	6.2	5.0
	2011-12	59.0		34.0	7.0
reading instruction	2003-04	17.0	26.0	10.0	9.0
	2007-08	28.0	17.5	9.5	7.7
	2011-12	47.0		42.0	10.0
student discipline and classroom management	2003-04	8.3	31.0	3.0	2.0
	2007-08	33.0	9.0	3.0	2.0
	2011-12	69.0		26.0	5.0

Note. Rows may not total 100% due to missing data.

^a Rotermund, DeRoche, & Ottem (2017) merged 9-16 and 17-32 into one category.

In another study, Yoon et al. (2007) found that while PD with 14 or fewer hours had no statistically significant effect on student achievement, PD that offered 30 or more contact hours did have a significant effect on student achievement gains. These findings differed from those of the national survey, which concluded that PD opportunities for teachers are likely to have little to no impact on teachers' and students' learning.

Professional Development as a Systemic Process

Systemic PD is a process that considers development at the individual and school levels, and for everyone who affects student learning (Guskey, 2000 p. 20). Approaching PD as a systemic process is ESSA (2015) because of the complexity of educational improvement and the extended period for improvement.

Research in PD emphasizes that effective PD needs to be part of a larger reform effort of the school and district, rather than an activity that is not related to other initiatives (Zhang, Parker, Koehler, & Eberhardt, 2015; Desimone, Porter, Garet, Yoon, & Birman, 2002; Penuel, Fishman, Yamaguchi, & Gallagher, 2007; Simonsen et al., 2013). Without a clear systemic PD approach, PD cannot achieve the intended outcome and set in place the implementation of such practice. For example, consider a group of special and general education teachers participating in a PD activity on cooperative teaching. Collaboration between special and general education teachers has a strong research base. However, teachers cannot implement the cooperative teaching model unless the common practice and policies encourage or require inclusive education for students with disabilities. Policy and school culture shape the PD framework and its content (Jaquith et al., 2010). At the state level, a research team from Stanford University (Jaquith et al., 2010) suggested five elements that are important for achieving success in building effective PD opportunities. These elements include:

- Aligning the vision for PD programs with policy,
- Evaluating PD quality,
- Creating a system for sustainable and ongoing PD,
- Building the infrastructure of organizations for providing PD, and
- Resource availability.

PD as a systemic process considers the individual's development and needs as well as the organizational culture and policies. It requires the collaboration of all people involved in the student's education. As such, it is the responsibility of the entire education community, including teachers, families, school staff and other stakeholders, to

improve child learning (Learning Forward, 2011). To help insure this outcome, a major component of the systemic process are the laws that guide PD.

Professional Development Laws

Regulations for PD in the U.S. have been established to ensure and guide high-quality PD. According to the U.S. Department of Education, billions of dollars of federal and state funding are spent in ensuring that teachers and schools' leaders will have access to PD, but there is little evidence of the effectiveness of the programs and therefore of PD in general. Federal laws include sections stating the most important aspects of PD besides funding such as a definition of PD, its purpose and evaluation methods, and suggested topics of PD activities. There are two main laws that govern PD in the U.S.: Every Student Succeeds Act 2015 (ESSA 2015) and the Individuals with Disabilities Education Improvement Act of 2004 (IDEIA).

Every Student Succeeds Act (2015)

Every Student Succeeds Act (ESSA 2015) was signed into law on December 10, 2015. ESSA (2015) reauthorized the original Elementary and Secondary Education Act 1965 (ESEA) that was reenacted as No Child Left Behind (NCLB) in 2002 (U.S. Department of Education, n.d.). ESSA (2015) has shifted a large part of education authority from the federal government to the states and local education agencies in an attempt to give states more flexibility within the federal framework for setting their own goals for student achievement (Sharp, 2016). The shift in power can be seen in various sections of the law such as in the elimination of the phrase "highly qualified teacher." ESSA (2015) did away with the NCLB requirement for highly qualified teachers, instead leaving it to states to define what they consider to be an "effective teacher." The

difference between NCLB (2002) and ESSA (2015) related to PD is in the definition of PD and its funding. ESSA (2015) includes terms such as job-embedded and data-driven PD, while NCLB (2002) did not (Slater, 2017). Also, ESSA (2015) uses the term “evidence-based” instead of “scientifically based” as written in NCLB (2002). Table 4 illustrates the definition of PD in ESSA (2015) including PD goals, features, topics, developers, follow-up, and evaluation.

Under the auspices of ESSA (2015), PD activities must aim to improve teachers’ knowledge of the academic content they teach, their understanding of how their students learn, and their ability to adjust their instructional strategies based on the analysis of their students’ work (ESSA, 2015). Since researchers link the performance of students to teacher quality (Barrow & Sander, 2007; Harris & Sass, 2008), it follows that the purpose of these provisions is to provide all educators with the knowledge and skills necessary to improve student achievement, support the recruitment, hiring, and training of effective teachers in general as well as those teachers and instructional staff of English language learners and students with disabilities, and to enable paraprofessionals to become certified and licensed teachers. ESSA’s (2015) goals are consistent with the research findings by emphasizing the improvement of teacher knowledge and skills, which in return enable students to succeed in meeting challenging state academic standards.

ESSA’s (2015) definition of PD demonstrates the importance of considering the PD program as a major component of any school or district-wide improvement plans and their alignment with both its organizational goals and teacher needs. ESSA (2015) allows for “personalized plans for each educator to address the educator’s specific needs identified in observation and other feedback” (p. 296). ESSA (2015) considers the

personalized improvement plans as well as school-wide collaborative PD participation. The intended recipients of PD are everyone who affects student learning. ESSA (2015) sanctions PD activities for teachers, principals and other school leaders, specialized instructional support personnel, paraprofessionals, early childhood educators, teachers of limited English proficient children, and special education teachers. PD under ESSA (2015) is not a random activity; it is a reform with an intended outcome that includes the entire school.

ESSA (2015) contains language that offers other critical features of effective PD activities, including terms such as “sustained (not stand-alone, 1-day, or short-term workshops), intensive, collaborative, job-embedded, data-driven, and classroom-focused” (p. 295). Focusing on the critical features of effective PD is a productive way of designing manageable and measurable PD (Desimone, 2009). In order to assure that there will be ways to measure the effectiveness of PD, ESSA (2015) also requires an evaluation of the impact of PD activities on teacher’s efficacy and student achievement.

With all the benefits that ESSA (2015) offered beyond the language of NCLB (2002), with ESSA’s (2015) more inclusive stand, there are still areas that ESSA (2015) does not address. Under ESSA (2015), the rules for PD activities are mainly focused on academic core teachers, and in this respect, special educators often fall short. Special education teachers present different needs than the rest of a school’s faculty because their students literally have special needs that require pre-teaching preparation programs. And while there are a large number of students in the U.S. whose needs require the intervention of special education teachers, ESSA (2015) suggests only four special education-related topics for PD activities for these teachers. Here is where IDEIA (2004)

comes into play, as its definition of PD is mainly targeted toward special education teachers and any person involved with the education of students with disabilities.

Table 4: Summary of the definition of PD in ESSA (2015)

Key Elements	Definition
purpose of PD activities	to improve teacher knowledge of the academic subjects and provide all educators with the knowledge and skills to improve students' achievement, support the recruitment, hiring, and training of effective teachers, and enable paraprofessionals to become certified and licensed teachers. The PD emphasizes the support necessary to improve the knowledge and skills of teachers and instructional staff of English language learners and students with disabilities.
features of PD activities	features include sustainable, intensive, collaborative, job-embedded, data-driven, classroom-focused PD, and evidence-based instructional strategies. The PD activities must be aligned with the educator's specific needs, and school and district academic goals.
PD developers	PD plans and activities are developed by experienced teachers from within or without a particular school, principals and other school leaders, and the faculty of such institutions.
topics of PD activities	classroom management, the use of technology, effective instructional strategies, early childhood education, the use of data and assessments to inform and instruct classroom practice, effective collaboration with parents and transition aid to elementary school. ESSA (2015) urged stakeholders to provide PD activities for special education teachers related to academic subjects and instructions, positive behavioral interventions, multi-tier systems, and the use of accommodations.
role as part of the improvement plan	PD is an integral part of any broad school and district educational improvement plan.

Key Elements	Definition
follow-up	PD activities must provide follow-up training after a sufficient time to ensure the implementation in their classrooms of the knowledge and skills learned by the teachers.
evaluation	implement regular evaluation for the impact of PD activities on teacher effectiveness and student academic achievement. The findings of the evaluations are used to improve the quality of future PD programs.

Individuals with Disabilities Education Improvement Act of 2004

IDEIA (2004) is the main oversight law for individuals with disabilities in K-12 education in the U.S. The provision of PD under the IDEIA (2004) aims to support and improve the knowledge and quality of special and general education teachers, principals, paraprofessionals, early intervention personnel, related services providers, and parents (IDEIA, 2004, p. 2770). It also promotes the recruitment and retention of highly qualified special education teachers (IDEIA, 2004, p. 2771). Designing PD activities requires alignment with state academic content standards to prepare students with disabilities for academic achievement and an alternative state assessment. To close the gap between the education laws, IDEIA (2004) requires that PD programs that target personnel involved with educating students with disabilities be consistent with ESSA’s (2015) definition of PD. In different words, any special education PD program must be an integral part of larger improvement plans and meet the features that define highly effective PD—sustained, intensive, collaborative, job-embedded, data-driven, and classroom-focused. Table 5 shows the definition of PD under IDEIA (2004).

Table 5: Summary of the definition of PD in IDEIA (2004)

Key Elements	Definition
purpose of PD activities	the purpose of PD is to support and increase the knowledge and quality of all personnel affecting the education of students with disabilities including special and general education teachers, principals, administrators, paraprofessionals, related services providers and parents, to improve learning by students with disabilities across disability categories. Additionally, it promotes the recruitment and retention of highly qualified special education teachers.
features of PD activities	features include sustainable, intensive, collaborative, job-embedded, data-driven, classroom-focused PD, evidence-based instructional strategies. The PD activities need to be aligned with state student achievement standards, content standards, functional standards, and state assessments.
PD involvement	PD collaborative groups of teachers, administrators, and in appropriate cases, related services personnel.
topics of PD activities	topics include technology, technology literacy, data disaggregation, induction program, collaboration, effective IEP design and implementation, positive behavior intervention, classroom management, response to intervention, effective instruction for children with low incidence disabilities, student transition planning, parent involvement, individualized family service plans (IFSP), effective IEP meetings, subject matter knowledge and teaching skills in the academic subject, paperwork reduction, assessment and accountability, developmental and academic characteristics of students with disabilities, instructional leadership, accommodations, curriculum modifications, and inclusion strategies.

Key Elements	Definition
role as part of the improvement plan	PD activities must be aligned with alternative assessment, functional, and content standards.
follow-up	ongoing PD activities' follow-up is essential for the development and maintenance of a coordinated and high-quality special education program.
evaluation	state educational agencies will assess, on a regular basis, the extent to which the PD activities effectively meet special education performance goals.

ESSA (2015) and IDEIA (2004) have many components that are similar regarding PD. Both laws aim to increase teacher knowledge and skills, which in return enhances student learning as well as teacher recruitment and retention. Other similarities are the features of professional activities and the use of research-based PD content. In addition, there are differences between the acts.

The first difference can be seen in the topics that are recommended for PD activities. ESSA (2015) recommended that the PD of teachers of children with disabilities be designed to give them the knowledge and skills to provide instructional and academic support for children with disabilities. These PD activities include Positive Behavioral Interventions and Supports (PBIS), a Multi-tiered System of Supports (MTSS), and the use of accommodations. However, IDEIA (2004) describes more activities for special education teachers that are not included in ESSA (2015) such as IEP design and implementation, curriculum modifications, and inclusion strategies. The differences in the PD topics between ESSA (2015) and IDEIA (2004) are not surprising because IDEIA (2004) was designed specifically for students with disabilities.

Another difference is the area of PD evaluation: ESSA (2015) evaluates the influence of PD activities on teacher effectiveness and student learning, while IDEIA (2004) evaluates the impact of PD activities on meeting special education goals. This difference may be due to the difficulty of measuring the effect of PD on student achievement because of the need for individualized goals for each student in the classroom instead of assessing the impact on professional participants' behaviors and beliefs (Nelson, 2009).

Professional Development Features and Theories of Change

As PD has become an essential part of education reforms and improvement plans, the laws and literature surrounding PD have emphasized effective PD. Effective PD programs are purposefully targeted activities to change the teacher classroom practices, attitudes and beliefs, and student outcomes. The first part of this scenario is high-quality PD. The most common features of high quality PD include content focus, active learning opportunities (such as problem-solving, role-playing, visual presentations, and discussions), sufficient duration of learning opportunities (span of time and number of hours), coherence (the alignment between teachers' PD program and their beliefs and knowledge, and district and state standards and goals), and collective participation (participation of teachers from the same school, grade, or department) (Desimone, 2009).

Most studies indicate that PD activities that include all or most of these core features have a positive impact on teachers and their students (Cohen & Hill 2001; Garet, et al., 2001; Desimone et al., 2002). The features of high-quality PD are primarily based on two sources. First are the large-scale syntheses of PD literature such as Kennedy

(1998) and Blank and de Las Alas (2009). Second are the correlational studies such as Garet et al. (2001).

Garet et al. (2001) conducted a self-reported survey questionnaire for a national probability sample of 1,027 mathematics and science teachers. This study was a large-scale empirical comparison of the effects of different features of PD on teachers' knowledge and skills and classroom teaching practices. The data were collected from the Teacher Activity Survey that was part of the national evaluation of the Eisenhower PD Program. The effective PD features were divided into two groups; structural features (form, duration, and collective participation), and core features (active learning, coherence, and content focus) (Garet et al., 2001).

According to Garet et al. (2001), the structural features are “elements that set the context in which a PD activity takes place” (p. 930); the study's results indicate there is no direct link between teacher outcomes and activity type (reform or traditional). On the other hand, Garet et al. (2001) found that the duration (time-span and contact hours) has an important influence on the core features of PD. The time-span and contact hours have a positive influence on active learning (effect size of time span = 0.30 and effect size of contact hours = 0.31) and coherence (0.26 and 0.16), and a less positive influence on the content focus (0.08 and 0.10); collective participation of teachers from the grade level, school, and subject matter has a moderate positive influence on active learning (0.13) and coherence (0.08) (Garet et al., 2001).

The core features of PD are “characteristics of the PD processes and experiences that take place during an activity” (Garet et al., 2001, p. 930). The data from this study reveals that all core PD features (active learning, coherence, and content focus) have

significant positive effects on teachers' knowledge and skills and classroom teaching practices. The active learning types examined included observing and being observed, planning classroom implementation, reviewing student work, and allowing the teacher to give presentations, lead discussions, and produce written work and the study found that active learning related to an increase in teachers' knowledge and skills ($ES = 0.14$) (Garet et al., 2001). The authors combined three specific dimensions of coherence: connections to teachers' goals and other PD experiences; alignment with state and district standards and assessments; and professional communication among teachers; taken together, these had a positive effect on enhanced knowledge and skills (0.42). The content focus also had a positive effect on enhanced knowledge and skills (0.33). The study also found that teachers who reported an increase in their knowledge and skills often reported a reciprocal change in their teaching practices. Thus, the study determined that the improvement in teachers' knowledge and skills had a positive effect on changing classroom teaching practice (0.44) (Garet et al., 2001).

The results of the study suggested that sustained and intensive PD is more likely to have a greater impact than shorter PD and also demonstrated that PD that focuses on the academic subject matter provides teachers with opportunities for active learning, and that when the PD takes into account teachers' goals, state and district standards, and assessment, it is more likely to improve teachers' knowledge and skills. As a part of this study, participants were asked to provide information about the types of activity they took part in. The types of PD activities were divided into two major types (Garet, et al., 2001; Guskey, 2000; Wycoff, Nash, Juntune, & Mackay, 2003). The first type was comprised of the traditional forms of PD activities such as workshops, college courses, and

conferences. The second type consisted of the new or reform types of activities such as teacher study groups, collaborative lesson design, examination of student work, curriculum development, and action research.

Garet et al. (2001) found that traditional and reform activities have no direct effects on teacher outcomes. However, reform activities tend to result in better outcomes because these forms of activities are usually of long duration. Garet et al. (2001) concluded that “the effect of reform versus traditional PD activities operates indirectly through the other design features and dimensions of PD” (p. 934). Overall, 79% of teachers participated in traditional types of activities. Meanwhile, Wycoff et al. (2003) found that teachers prefer more reform type activities such as study groups and action research. Seemingly in support of that, data from the School and Staff Survey (SASS) showed that in SASS 1999/2000, 95% of U.S. teachers participated in traditional type activities (workshops, conferences, or other training sessions) with a slight decrease to 92% in SASS 2003/04 (Darling-Hammond, et al., 2009).

An obvious limitation of Garet et al.’s (2001) study was that it only considered the impact of PD on teachers not students. The ultimate goal of PD activities is to improve student outcomes. Kennedy (1998) and Blank & de Las Alas (2009) examined studies of PD programs for in-service teachers and the programs’ impact on student achievement.

Kennedy’s (1998) review included 12 articles organized into four groups. Those groups were divided based on what they provided to the teachers: *Group 1* - a set of teaching behaviors that are expected to apply generically to all school subjects; *Group 2* - teaching behaviors that apply to one particular school subject; *Group 3* - general

guidance on both curriculum and pedagogy for teaching a particular subject; and *Group 4* - knowledge of subject matter.

The review analysis included the findings of the application of 12 articles that met the research criteria. Based on the analysis of effect sizes, Kennedy (1998) concluded that “programs whose content focused mainly on teachers’ behaviors demonstrated smaller influences on student learning than did programs whose content focused on teachers’ knowledge of the subject, on the curriculum, or on how students learn the subject” (p. 17). The study indicated that there is no direct link between time-span, contact hours, collective participation, and in-class visitation and an increase in student achievement. Kennedy (1998) concluded that the major influence on student achievement is programs whose content focuses on teachers’ knowledge of the subject, on the curriculum, or on how students learn the subject.

In a more recent meta-analysis, Blank and de Las Alas (2009) examined the mean effect size of mathematics and science teachers’ PD programs on student achievement. The analysis located 16 studies in which the effective features of PD were observed. All of the studies were targeted on an increase in the content knowledge of teachers as well as the promotion of active learning and collective participation.

Of the 16 located studies, the meta-analysis assessed four science studies and 12 mathematics studies. In the mathematics education studies that used the pre-post method for measuring effect size, a total of 21 effect sizes were reported and the mean effect size was 0.21. For the studies that used post-test only measures, a total of 68 effect sizes were reported and the mean effect size was 0.13. Also, the effect sizes for the studies that used randomized control trials (RCT) were significantly larger than the effect sizes of quasi-

experimental design studies (QED). For the pre-post studies, the mean effect size was 0.27 for those studies using RCT as compared to a mean of 0.17 for studies using QED. The number of effect sizes for the four science studies were small (effect sizes: 10 for pre-post designs and seven for post-only designs).

The previous research showed the link between the features of effective PD and improvement in teacher knowledge and skills, classroom practice, and student achievement. However, no evidence pointed to a link between changes in teacher knowledge and practice, and student achievement. Dunst, Bruder, and Hamby (2015) conducted a meta-synthesis of 15 research reviews for in-service PD to improve teacher content knowledge and practice, as well as student achievement. The research reviews included 550 studies of more than 50,000 early childhood, elementary, and secondary education teachers, educators, and practitioners. All of the research syntheses included studies that incorporated most or all demonstratively effective PD features. However, none of those 15-research syntheses was able to explicitly prove the relationship between changes in teacher knowledge, practices, or attitudes and beliefs and changes or improvements in student academic performance, knowledge, or behavior. Dunst et al. (2015) suggested that this shortcoming is due to the fact that none of the primary studies nor the research syntheses attempted to investigate the link among the steps of the framework model that constituted the theory of change.

The second part of the scenario is the process of teacher change. PD programs may differ in their designs in terms of content and format but all aim to change teacher classroom practices, attitudes and beliefs, and student outcomes. The process of change for in-service teachers is difficult and may only take place after a long period of time due

to teacher resistance to adopting new practices (Lortie, 1975). There are different conceptual frameworks of the process of teacher change that are needed to design and evaluate PD. Desimone's (2009) and Guskey's (2000) models are widely respected and used in the field of PD for teachers (McChenecy, 2017). Desimone (2009) suggested a framework for measuring and designing effective PD. She argues that there are five core features of PD that influence three areas of teachers' experience: knowledge and skills; beliefs and attitude, and classroom practice for students learning (see Figure 1). Guskey (2002) suggested another framework with a different sequence in which these outcomes can occur, shown in Figure 2. In a different way of explaining his findings, Guskey (2000) views PD as a complex process rather than an event. He argues that the change in teacher attitude and beliefs is a result of their evidence-based experience of student learning after they apply the new practice in the classroom.

Although displaying different sequences of response, both frameworks consist of the same elements, and those elements are widely accepted in recent models (Bubb & Earley, 2010; Coldwell & Simkins, 2011; King, 2014). The second difference between the two frameworks is that Guskey's (2000) framework focuses on helping teachers and developers understand how changes in teacher beliefs and practices occur, while Desimone (2009) focuses on assessing the impact of PD on student outcomes (Boylan, Coldwell, Maxwell, & Julie, 2018). Thus, the four elements in Guskey's model linked by linear relations with the change in teacher beliefs as a result contrasts with Desimone's (2009) results that show that changes in teachers' knowledge and beliefs are followed by changes in their practice and ultimately changes in student learning outcomes. Desimone

(2009) argues that the order of the four elements in her model is not fixed but that any PD must be based on the core features of PD.

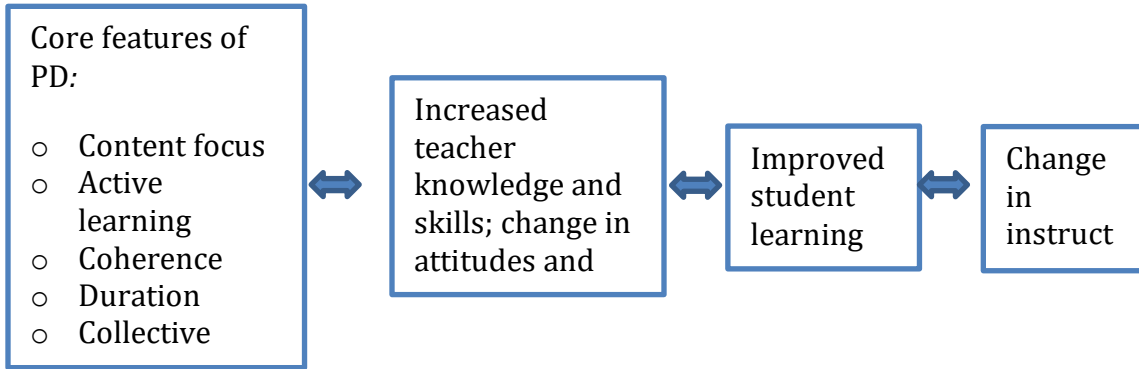


Figure 1. Desimone's framework for studying the effects of PD on teachers and students.

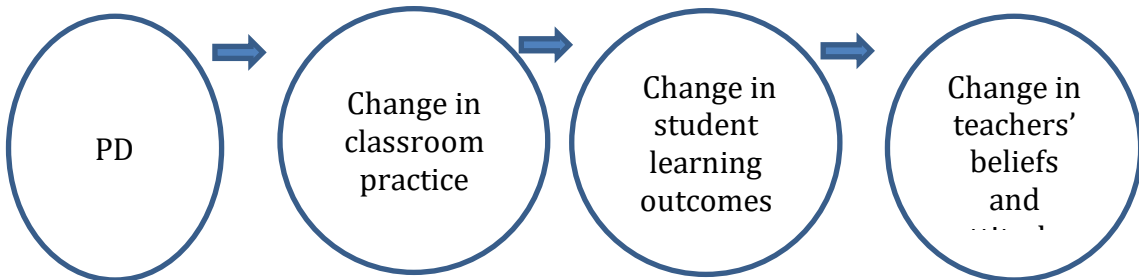


Figure 2. Guskey's (2000) model of teacher change.

Findings like those of Desimone (2009) and Guskey (2000) support the premise that while PD aims to improve teachers' practices and their students' outcomes researchers need to better articulate theories of change that explain how teachers' performance can be developed (Kennedy, 2016). According to Brownell and Leko (2018), PD studies and programs have not been clear about the theories of change that underlie its innovations. Their claim can be supported by an appraisal of available PD reviews, using design features (active learning, coherence, content focus, collective

participation, and duration), PD formats (workshop, seminar, conference, etc.), and specific techniques (coaching, video lessons, etc.) to sort and compare PD programs. The reason for using these approaches to sort PD programs is that “there is no single, overarching theory of teaching or teacher learning” (Kennedy, 2016). Also, Kennedy (2016) highlighted the fact that randomly assigning features used to design and review PD programs may make them unreliable predictors of the effectiveness of a PD program.

Kennedy (2016) proposed a framework to identify and design PD based on a theory of action. Her theory of action includes two parts: identifying the main problem the program aims to inform, and developing strategies to help teachers enact the newly learned knowledge and skills within their classrooms. She categorized four main problems that any PD practice aims to address: portraying curricular content, containing behavior, enlisting participation, and exposing student thinking. Her framework defined four different underlining features for helping teachers implement the new ideas: prescription, strategies, insight, and a body of knowledge. The program contents and mechanisms used to enact learning included in her framework were based on her review of the PD experimental studies in K-12 general education that had been published from 1975 on (Kennedy, 2016).

Other studies have offered information about this approach. According to Brownell and Leko (2018), program content is clearly set out in most PD programs, but the underling mechanisms for teacher change are not clear. The first method for enacting learning is *prescribing* teachers with a set of actions where PD providers explicitly demonstrate what they believe is the best way to solve a problem. This is the most common approach and assumed to reduce the amount of individual discretion (Kennedy,

2016). It is mostly used to explain new discipline policies, laws, and assessment systems, etc. The second approach is facilitating enactment through *strategies*. This PD approach provides teachers with multiple practices to achieve a certain goal through an explanation of how to implement them and when and why such strategies increase student engagement. Brownell and Leko (2018) believe the underlying assumption of this approach is that teachers can independently address problems of practice when they have a collection of practices and better understand the ultimate goal of these practices. The third approach to PD is used to help teachers gain *insights* into their instruction and student learning and behavior. By including proactive questions and a reexamination of common events in the classroom in any PD opportunity, teachers will be better able to gain new insights. The underlying assumption of this approach is that helping teachers gain new insights and interpretations of their classroom situations would increase teacher ability to independently make the right decision in the moment, for example understanding math misconceptions and the antecedents of a behavior problem. The final approach is helping teachers accumulate a *body of knowledge*. In this approach, teachers are provided with a coherent body of knowledge that looks like a traditional university course (Kennedy 2016). The underlying assumption is that when PD offers teachers a body of knowledge, for instance, attendance at national conference presentations, teachers learn how to make better decisions about how to teach (Brownell & Leko, 2018).

In coming to her conclusions, Kennedy (2016) sorted through almost four decades of PD experimental studies, basing her sort on her theory of change. The criteria for study selection were: the study was about PD only, it included evidence of student achievement, it controlled for motivation to learn, it had a minimum program duration of

one year, and it included follow-up over time with teachers. Twenty-eight studies met the review criteria. Table 6 displays the collected studies according to the two central aspects of their theories of action.

The within-study syntheses data revealed that PD programs addressing any of the four contents were mostly equal in increasing student achievement (Kennedy, 2016). A greater program effect was observed when using the elements of insight and strategies to facilitate enactment rather than the elements of prescription and body of knowledge. Kennedy (2016) also found that PD programs with voluntary participation had a greater effect on student achievement when compared to studies using mandatory assignments. The intensity of the PD program (amount of contact hours and span-time) had less effect when combined with the prescription method but was more effective when using insight and strategies methods. The effective professional programs found in this study were provided by people who were familiar with teachers and their problems and based their PD programs on the problems that teachers face. The main findings of this study were three-fold, suggesting the importance of designing PD using theories of change, choosing program content that is centered on the challenges that teachers encounter, and offering practical practices that teachers can implement in their classrooms.

Table 6: Distribution of programs across program content and methods of facilitating enactment

Program content	Method for Facilitating Enactment				Total
	Prescription	Strategy	Insight	Knowledge	
portraying curricular content	5	4	3	3	15

Program content	Method for Facilitating Enactment				Total
	Prescription	Strategy	Insight	Knowledge	
containing behavior	2	0	0	0	2
enlisting participation	0	4	1	0	5
exposing student thinking	1	2	3	0	6
Total	8	10	7	3	28

Note. Adapted from Kennedy (2016)

Kennedy’s framework of PD enactment is relatively new and not yet well-supported and adopted. However according to Brownell and Leko (2018) “Desimone’s framework for PD seems most aligned with what Kennedy characterizes as insight and strategies approaches, where emphasis is placed on helping teachers develop insights into the way students are learning content and then helping them implement instructional practices (e.g., active learning opportunities and collective participation)” (p. 160). The research in general education PD articulates the features of effective PD and the approaches of how those features affect teacher knowledge and skills, classroom practice, and student learning as Desimone’s work (Sindelar, Brownell, & Billingsley, 2010). The different models of PD that focus on teachers, developers, evaluators, or underlying theories of change are mostly based on general education with little to none based on special education (Brownell & Leko, 2018; Sindelar, et al., 2010).

Professional Development for Special Education Teachers

As explained in the last section, PD has been widely investigated and adopted in general education. In recent years, however, there has been more focus and development in the area of PD and special education (Brownell, 2009). IDEIA 2004 and ESSA (2015)

emphasized PD for all personnel who work with students to ensure that they have the skills and knowledge necessary to improve the academic achievement and functional performance of students with special needs. Studies have made it clear that to achieve these federally articulated goals of PD activities the PD program should be carefully crafted and based on the features of high-quality PD (Brownell & Leko, 2018; Holzberg, Clark, & Morningstar, 2018). So it is affirming to discover that the core features of effective PD that were found in general education are supported by the most recent PD studies on special education (see Table 7).

Holzberg, Clark, and Morningstar (2018) reviewed 73 articles focused on secondary transition and special education. The investigation revealed features of PD that consistently and positively impact teachers. The features of effective PD that were identified include: content focus; active learning; team-based participation; sustained planning and implementation over time; coaching and feedback; collective participation among teachers through collaboration; feedback, modeling or applied practice; and active learning embedded in PD via group activities, discussion, and problem-solving.

Table 7: Characteristics of effective PD in a range of publications

Study	Characteristics of Effective PD				
	Content Focus	Active Learning	Coherence	Duration	Collective Participation
Garet et al. (2001)	X	X	X	X	X
Penuel et al. (2007)	X	X	X	X	X
Yoon et al. (2007)	X			X	
Kennedy (1998)	X			X	
Blank and de las Alas (2009)	X	X	X	X	X

Study	Characteristics of Effective PD				
	Content Focus	Active Learning	Coherence	Duration	Collective Participation
Holzberg, Clark, and Morningstar (2018)	X	X	X	X	X

The need for well-designed PD is important for all teachers—especially special education teachers due to their higher attrition rate compared to their counterparts in general education (Nichols, Bicard, Bicard, & Casey, 2008). Despite the OSEP discretionary grants for special education personnel preparation and development, special education has the highest rate of attrition and teacher shortage (Lemons, 2011). This problem may in part due to a lack of appropriate undergraduate preparation, in situ support, the complex role of special education teachers, and general work conditions (Lemons, 2011; Berry et al., 2012).

Framework for Evaluating Professional Development

The applicable federal laws, described in previous sections of this study, clearly outline the expectations of PD activities. PD developers are expected to produce PD opportunities that are effective in changing teacher practices and improving student learning. All federally funded programs are required to be evaluated for their impact. ESSA (2015) mandated the evaluation of PD impact on teacher effectiveness in the classroom and on student outcomes. Evaluation also is a key component in IDEIA (2004). Guskey (2000) identified four essential reasons for evaluating PD including: a) the ongoing nature of the PD, b) that PD is an intentional process with systemic efforts, c) to guide educational reforms, and d) to fulfill the accountability requirements. However, evaluation of the impact of PD is still challenging (Soine & Lumpe, 2014; Guskey,

2000).

According to Guskey (2000), PD evaluation is worthy of systemic investigation. Different forms of evaluation are designed to fulfill the purposes of these effective evaluations. These purposes are divided into three categories, each with a corresponding type of evaluation. The first type of evaluation is a *planning evaluation* that takes place before the activity begins and aims to provide information and understanding of, but not limited to, what is to be accomplished and how is to be evaluated. The planning evaluation involves the evaluation of the plan to achieve and measure the outcomes including the characteristics of the participants, analysis of the context, and evaluation tools (Guskey, 2000). The second type is a *formative evaluation* that occurs during the operation to inform those responsible about the progress, the direction it is headed in, and whether any changes will be necessary to accomplish the goals. The data for the formative evaluation is collected many times throughout the program, with questions that address the participants initial reaction to the PD content and the appropriateness of the PD time and place. The third type is *summative evaluation*, which occurs in the end of the PD program to provide the overall judgment of the worthiness of the PD. These findings on teachers' professional practices and student learning would be collected in data about the student performance on state tests, school and district records, and/or by student interviews and observation.

To ensure the effectiveness of the educational evaluation and that it covers the three types of evaluation, the Joint Committee on Standards for Education Evaluation (2010) published 30 standards for education evaluation. These standards were divided into four groups; utility, feasibility, propriety, and accuracy standards. The utility

standards are “intended to ensure that an evaluation will serve the information needs of intended users” (p. 23). The feasibility standards are “intended to ensure that an evaluation will be realistic, prudent, diplomatic, and frugal” (p. 63). The propriety standards are “intended to ensure that an evaluation will be conducted legally, ethically, and with due regard for the welfare of those involved in the evaluation, as well as those affected by its results” (p. 81). The accuracy standards are “intended to ensure that an evaluation will reveal and convey technically adequate information about the features that determine worth or merit of the program being evaluated” (p. 125).

Determining what to evaluate and how to evaluate the PD program is an essential step in developing an effective PD (Fitzpatrick, et al., 2004). There is an agreement on the use of the three types of evaluation and the importance of conducting an evaluation before, during, and after PD (Guskey, 2000; Collins, 2000). These processes of effective PD evaluation can be found in the proposed guidelines for evaluating PD created by Guskey (2000). They are an integration of applicable standards of education evaluation with elements from different evaluation models such as those of Tyler and Hammond (Guskey, 2000).

Guskey’s (2000) practical guidelines for evaluating PD are divided into two separate stages of the PD process: planning guidelines and the critical five levels of evaluation. The planning guidelines are:

1. *Clarify the intended goals.* This is the first step to ensure the goals are clear in leading to the intended result that PD developers hope to see in the students and in classroom practices.

2. *Assess the value of the goals.* The second step requires more evaluation of the worthiness of the goals and their anticipated results, and to what extent they are in line with the school's mission.
3. *Analyze the context.* This step is important in designing PD programs. The analysis of the context involves an examination of the school's strengths and weaknesses, teacher and student needs and characteristics, the school climate, and the available resources.
4. *Estimate program potential to meet the goals.* This step aims to explore the literature, strengths, and weakness of the planned activity and approach, and if it is appropriate to the intended audience context and needs.
5. *Determine how the goals can be assessed.* The tools and evidence that would be used to assess the outcomes must be determined upfront. Such an assessment tool needs to be reliable and valid to ensure that the goals will be met. Also, it is important to use multiple indicators for the outcomes.
6. *Strategies for gathering evidence.* The strategies for collecting evidence include the determination of how and when data would be gathered. This step is dependent on the nature of the evidence. The evaluation should include both qualitative and quantitative data with appropriate comparison groups and pre/post-test results.

The second stage guidelines are the five critical levels of PD evaluation. These are considered to be the formative and summative evaluation. The five critical levels of PD evaluation include:

1. *Participants' reactions.* The first level of evaluation examines the initial reactions of teachers to PD sessions. For example, teachers will be given a questionnaire about their perceptions of the PD experience at the end of the session. The responses will be collected and analyzed to enhance the experience of future PD.
2. *Participants' learning.* The second level measures the knowledge and skills that were learned in the session. Measuring what has been learned at the end of the session could take many forms such as demonstrating the strategies and the use of written tests. This level provides immediate feedback on achieving the goals intended for the session.
3. *Organizational support and change.* Schools and districts have a major influence on all aspects of PD. PD designers should consider the organizational resources and attributes necessary for success, then gather and assess the information to improve organizational support.
4. *Participants' use of new knowledge and skills.* This level evaluates the extent of the new skills and knowledge that the participants learned if they have reflected on the teacher classroom practices. To measure the changes in teacher classroom practice, the data from this level will be collected after days or weeks of the PD sessions. The data could be collected through direct observation or another technique depending on the characteristics of the implemented activity.
5. *Student learning outcomes.* This level of evaluation illustrates the ultimate goal of PD. In the last level, data on student performance would be collected and compared with the previous work and performance of the students. Measuring the improvement of student outcome gives a clear indication of the quality and

usefulness of the PD because student achievement can be explained by teacher contribution.

The last five guidelines are considered the critical levels of Guskey's (2000) PD evaluation; the first six guidelines were added to improve the quality of PD evaluations at the point of development and implementation. Another proposed PD model is that of Desimone (2009). This evaluation framework has five elements including four levels of evaluation and context factors that serve as mediators such as teacher and student characteristics, curriculum, school leaders, and policies (p. 185). Desimone's (2009) four levels of evaluation are:

1. Teachers' experiences of effective PD include the core features of coherence, active learning, content focus, duration, and collective participation.
2. The experiences increase teachers' knowledge and skills and/or their attitudes and beliefs (i.e., participants' learning).
3. Teachers apply their newly learned knowledge and skills, attitudes, and beliefs to improve their classroom practice.
4. Improvement in student learning results.

Desimone's (2009) evaluation framework for PD does not specify data collection methods for the four levels of evaluation as Guskey (2000) did. Instead, she uses common notions about the strengths and weaknesses of observation, interviews, and surveys to back up her proposals. At the end of her presentation about the impressions of the strengths and weaknesses of these methods, she emphasizes that the data collection methods should be chosen based on the research question, stating that "A well-constructed and administered interview, observation, or survey protocol, when used

appropriately, can provide similarly useful data, just as a poorly constructed or administered interview, observation, or survey protocol can provide skewed and biased information” (p. 190).

Both PD evaluation models are very similar with the exception of two areas. The first level of Guskey’s (2000) critical five levels of evaluation is participant reaction, while Desimone (2009) starts with the five core features of effective PD. According to McChenesy (2017), this difference in the first level of evaluation does not cause a contradiction between the two models because PD providers can evaluate both to gain more insight to improve the PD experience. However, Guskey (2000) stated that his five-level evaluation is an integral part of the PD process that provides critical evidence to distinguish between good and bad PD experiences. Additionally, his study claims that evaluating the common characteristics of the PD practices being studied could be an indirect way of measuring the teachers’ reactions. Another potential difference between Guskey (2000) and Desimone (2009) is his third level of the organizational support and change (McChenesy, 2017). Guskey (2000) suggested that the organizational-related variables come between teachers’ learning and their use of new knowledge and skills, whereas Desimone (2009) considers the contextual factors to be influential throughout all of the PD stages. Overall, Guskey (2000) and Desimone’s (2009) frameworks align closely, are commonly used, and are supported by other literature (McChenesy, 2017).

In spite of the fact that both models play an important role in the foundation of PD evaluation, there is still a lack of practical tools to measure the impact of PD (Desimone, 2009; Goodall et al., 2005; Maerten-Rivera, 2015; Soine & Lumpe, 2014). There are different strategies widely used to evaluate the impact of PD such as post-PD activity

questionnaires (Guskey, 2000; Pedder & Opfer, 2010). Yet these only measure the participants' first reaction to the PD activity, not the overall impact of the PD. Another evaluation practice is the documentation of the number of attendance and contact hours (Guskey, 2000; Broad & Evans, 2006). However, missing from this documentation approach is any information about the impact of the PD experience.

Given the ineffectiveness and poor design of PD activities, the importance of teacher PD for improving student education, and the critical shortage of special education teachers coupled with the field's high attrition rate speaks strongly for an expansion in PD definition that makes teacher PD evaluation a key component for effective PD.

Shortage and Attrition of Special Educators

The field of special education suffers from severe teacher shortages. Schools and districts are struggling to recruit teachers for their students with disabilities.

Unfortunately, there are around one million children with disabilities in the US receiving services from unprepared educators or not provided with the mandated services because of special education teacher shortages (Tyler & Brunner, 2014). According to Thornton, Peltier, and Medina (2007), that shortage affected nearly 98% of the school districts in the US at the time of their study. Almost 10 years later, the American Institute for Research (2016) reaffirmed the existence of this problem, finding that in the 2013/2014 school year, most states reported a shortage of special education teachers.

Attrition plays a part in the teacher shortage problem (Billingsley, 2004).

Therefore, simply hiring an extensive number of special education teachers may not solve the shortage problem because of the high attrition rate. Almost half of new teachers leave the teaching profession or transfer to another position in education within their first five

years (Swars et al., 2009). Billingsley (2004) added that special education teachers are more likely to leave the job than any other teacher group. This fact bears more heavily on students with disabilities since individuals with disabilities have a harder time adjusting to routine changes and expectations, details that may change from teacher to teacher (Bull, Oliver, Callaghan, & Woodcock, 2015).

There are different factors involved in the causes of special education teacher attrition (Billingsley et al., 2011; Boe & Cook, 2006; Leko & Smith, 2010; McLeskey & Billingsley, 2008; Prather-Jones, 2011; Stephens & Fish, 2010; Thornton et al., 2007; Vannest et al., 2010). Tyler and Brunner (2014) proposed six categories of teacher-related factors that contribute to the consistently high special education teacher attrition rate: a) intolerable workplace conditions; b) the lack of administrative support; c) challenging workplace decision-making; d) a lack of teacher induction and mentorship; e) inadequate teacher preparation; and f) inadequate PD. Tyler and Brunner (2014) offered a variety of reasons for why problems in workplace conditions affect special education teacher attrition, including excessive caseload numbers, an increasing amount of paperwork, an ever-growing number of meetings, and the unavailability or inadequacy of teaching materials. The second category, the lack of workplace support, is a critical factor found to be correlated with teacher attrition (Cancio, Albrecht, & Johns, 2013). For these purposes, Tyler and Brunner, 2014 (as cited in Hughes & O'Reilly, 2015) defined administrative support as “the principal taking an active role in assisting, encouraging, and displaying approving attitudes towards teachers” (p. 130). Emotional support, e.g., appreciation and open communication, and instrumental support, e.g., materials, spare, and time, have been found to be positively correlated with job satisfaction and intent to

stay in the job (Littrell, Billingsley, & Cross, 1994). The third category, teacher decision-making, which can include any school-related decisions and actions, is the least researched cause of attrition (Tyler & Brunner, 2014). The fourth factor is the induction of new teachers. Many young and inexperienced teachers are at higher risk of leaving the job because of the initial difficulties that they face at the beginning of teaching career (Singer, 1992). Since induction opportunities offer support for new teachers in the forms of orientation workshops, classroom observations, and mentoring, a lack of these kinds of support at the beginning exacerbates the issue of special education teacher attrition because teachers are more at risk of leaving during the early years (Billingsley, 2004). Billingsley (2004) suggested that policymakers and administrators interested in increasing retention must provide effective PD and induction programs to increase teacher effectiveness at work.

The fifth category that arose from the research of Tyler and Brunner (2014) describing possible reasons for teacher attrition concerns the quality of teacher preparation. According to Billingsley (2011) and Leko and Brownell (2009), special education teachers often start their teaching careers without adequate knowledge and skills.

The final category related to special education teacher attrition described a link between PD opportunities and attrition (Bozonelos, 2008). PD opportunities that are specifically based on special education teachers' needs contribute positively to their decision to continue in the job (Billingsley, 2004, 2005; Gersten et al., 2001; Darling-Hammond, 2004, 2007; Kaufman & Ring, 2011; Leko & Smith, 2010; Stephens & Fish, 2010; Yost, Vogel, & Liang, 2009). As the research of Tyler and Brunnet (2014) has

shown, while the implementation of suitable PD may not be the only action that needs to be taken to help with rising attrition rates, it is a critical part of the solution. For optimal benefit, PD offerings must be of high quality and relevant to teachers' needs (Center of Education Innovation, 2016). Receiving effective PD opportunities correlates with an increase in special education teachers' commitment to their jobs and an increase in their confidence (Billingsley, Carlson, & Klein, 2002; Brownell, Bishop, & Sindelar, 2005; Gersten, Keating, Yovanoff, & Harniss, 2001).

An interesting outcome of a study by Smylie (1988) concerns an important connection among the issues of PD, teacher confidence, and teacher efficacy. According to Shindler (2009), teachers with high levels of efficacy have greater confidence in their students' abilities to perform well. Looking further into this area, Shindler (2009), as well as Kelm and McIntosh (2012), found that teacher efficacy beliefs impact their classroom performance and, by extension, student achievement. Smylie (1988) found that teachers are more likely to change as a result of PD if they have high levels of self-efficacy. Therefore, to positively affect the issues of teacher confidence and student achievement through effective PD programs that increase teacher efficacy, it is important to consider offering efficacy-building mastery experiences through carefully designed staff development activities (Goddard, Hoy, & Hoy, 2000). Improving teacher self-efficacy has additional benefits that include a reduction in teacher burnout and improvements in teaching practices (Billingsley, 2004a; Billingsley, 2007).

Although so far, the studies presented here have addressed attrition rates in new teachers, there is additional data that suggests that veteran special education teachers also exhibit dissatisfaction with their jobs in significant numbers. Secondary data analysis for

the SASS 2003/2004 questionnaire showed that 25% of special education teachers were thinking of transferring to another school and approximately 28% agreed with the statement that they didn't seem to have the same enthusiasm that they had when they first began teaching (Nelson, 2009). Nelson (2009) also found that nearly 30% of special education teachers stated with some level of certainty (certain, probably, might not) that they would not become a teacher if given the chance to start over; 20% planned to leave teaching in the following few years. Overall, special education teachers tend to have low levels of job satisfaction and this dissatisfaction can eventually contribute to the attrition problem (Billingsley, 2004).

As previously discussed, IDEIA (2004) included special education teacher retention as one of the goals of providing effective PD. ESSA (2015) specifically requires PD providers to evaluate the impact of PD opportunities on teacher efficacy. The regulations for PD have been created to guide the provision of high-quality PD for practicing teachers.

Importance of the Study

The quality of teachers' knowledge and skill levels are important touchstones in ensuring satisfactory student learning, making high quality professional development for in-service teachers a majorly contributing factor of the education system. Professional development programs must begin on a new teacher's welcoming day and extend to the day of retirement. The nature of teacher development and the money spent in PD programming require careful crafting, especially for special education teachers because of their complex role. This category of teacher must possess professional knowledge of all content areas, student modifications and accommodations, appropriate behavior

interventions, assistive technology, individualized education plans, special education law, the development of transition plans for post-school life—often with the lack of adequate knowledge and skills at the beginning of his or her career. These reasons cause low self-efficacy and low job satisfaction, which often leads to attrition and burnout. Giving teachers more control over their professional growth can increase their perception of self-efficacy (Beatty, 2008). PD for special education teachers must be based on their needs and the need of their students to support teachers in improving their students' achievement and functional performance.

Teacher PD is a major focus in the U.S. The educational laws in the U.S. guide the design and provision of PD activities. The massive body of literature on PD activities and the related theories, and problems facing the field such as the rate of attrition are evidence of the importance of PD. On the other hand, the main law for special education in Saudi Arabia does not define PD nor mandate PD for teachers. The attrition rate for special education teachers has not yet been identified, While the RSEPI includes attending PD as one of the special education teacher's tasks, it offers no further explanation about PD. In an attempt to remedy this situation, late in 2015, the Regulatory Guide for special education mandated the formation of a committee in each school to support both new and experienced special education teachers. Nevertheless, there are no empirical studies directly related to the PD for special education teachers in SA nor a report on the conditions of implementation and impact of the previous PD programs. The quality of PD experiences for special education teachers in SA has not been investigated yet. The importance of this study is to fill the gap in the literature surrounding the special education field in SA and guide future PD initiatives.

CHAPTER III

METHOD

Overview

The purpose of this study was to explore the professional development experiences of special education teachers in Saudi Arabia. This chapter provides information on the study design, participants, instrument, data collection, data analysis, and the administration plan. The research design and methods were selected to answer the following questions:

1. How do the professional development practices of special education teachers in Saudi Arabia align with the characteristics of effective professional development?
 - Do these characteristics differ by topics, providers, and types of professional development in which teachers had participated?
2. Does participation in professional development related to job satisfaction for special education teachers in Saudi Arabia?
3. Do the characteristics of effective professional development practices relate to job satisfaction for special education teachers in Saudi Arabia?
 - Does the relation between professional development and job satisfaction differ by topic, provider, and types of the professional development in which teachers had participated?

Design of this Study

To answer the research questions, a quantitative non-experimental, descriptive research design was used. The descriptive research design is employed in the field of special education research to describe events, experiences, attitudes, beliefs, and

behaviors (Rumrill, Cook, & Wiley, 2011). According to Creswell (2014), the descriptive research design is often used by researchers when there is little or no information about the topic that is being investigated. This design was selected because there is not enough information about professional development for special education teachers in Saudi Arabia.

Population and Participants

The target population for this study was special education teachers in SA. There are approximately 30,000 special education teachers serving 104,152 students with special needs across 14 regional learning departments and 31 provincials learning departments (Ministry of Learning, 2016). The licensure requirements and exams are the same for all special education teachers across SA. Also, the special education policies and procedures are the same across all learning agencies and departments.

The sampling procedure was cluster sampling because the survey was distributed by the Ministry Deputy of Planning and Development. The center emailed the link to all learning agencies in SA. Each learning agency was responsible for distributing the survey to all special education teachers affiliated with the agency (see Figure 3). However, no assurances from the center were given that all the learning agencies would comply or use effective modes to distribute the survey.

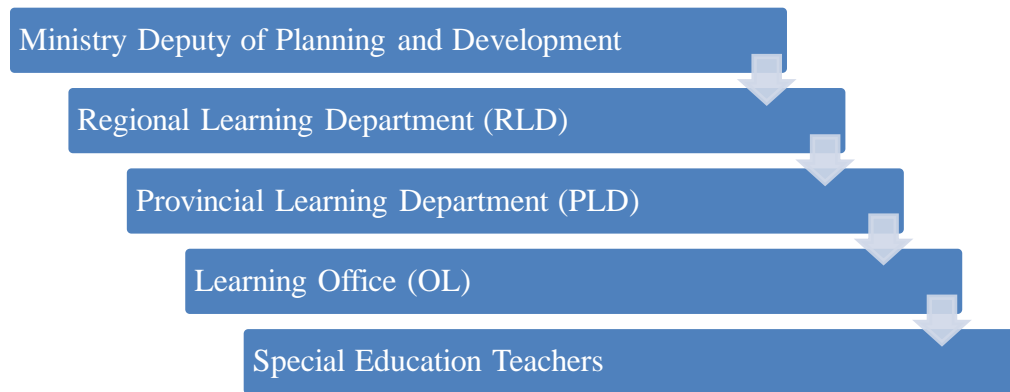


Figure 3. Survey distribution path

The survey data were collected from special education teachers who were actively employed in public schools in SA during the 2019/2020 school year. The Development and Planning Agency in the Ministry of Education sent out letters to all districts in SA with the link and barcode of the questionnaires to be distributed among special education teachers in each district (Appendix D). Unfortunately, the response rate was low; only approximately 613 teachers participated in the survey. This low response rate might have been due to the fact that the participation letters were sent one week before a two-week school vacation and many of these agencies did not respond to the researcher's follow-up calls. The survey completion rate varied between the survey questions. The completion rate for PD descriptive information was almost 78% (293 out of 377) responding to four or all five of the questions that describe their most recent PD activity (topic, type, provider, number of hours, and number of meetings). The respondents' dropout of this section might be because respondents had their most recent PD activities over more than a year and half before this survey, which complicated their recall ability. The completion rate for the outcome variable "job satisfaction" was 67.5%. The respondents' dropout for this question could be a result of the question's location at the end of the survey.

As shown in Table 8, of the approximately 613 teachers who participated in the survey, 65.0% were male and 35.0% female. Regarding the highest degree obtained, 87.0% of the respondents reported they had earned a bachelor degree, 12.5% held a master's degree, while only 0.5% reported that they held a doctoral degree. The respondents selected employment school level from among four indicated levels: early education (2.3%), middle school (17.0%), high school (14.3%), and elementary school (66.4%) likely because most elementary schools in SA have six grade levels. For the teaching certification, respondents were asked to select from among all classifications of certification systems recognized by the Ministry of Education for teaching students with disabilities (autism, emotional and behavioral disorders, hearing impairment, intellectual disabilities, learning disabilities, and visual impairment). Most respondents reported being certified in intellectual disabilities (40.8%). This might be because students with autism and multiple disabilities, and students with severe behavioral and emotional disorders were served by special education teachers who were certified in intellectual disabilities. It has only been in the past ten years that there were teacher preparation programs for autism and emotional and behavioral disorders.

The special education teachers included in the survey reported that 65.8% worked in a self-contained classroom setting as part of the public schools. Most respondents taught in these classrooms because most students with disabilities in SA are served in self-contained classrooms and integrated with general education students during recess, art, and gym classes. Regarding teaching experience, 56.5% of the respondents had been teaching for ten years or more.

Table 8: Respondents demographic information

Characteristics	N = 613
gender	
male	397 (65.0%)
female	215 (35.0%)
school level	
early education	14 (2.2%)
elementary	404 (66.4%)
middle	104 (17.0%)
high school	87 (14.2%)
area of teaching certification	
autism	33 (5.4%)
emotional and behavioral disorders (behavioral training)	11 (1.8%)
intellectual disabilities	249 (40.8%)
learning disabilities	110 (18.0%)
speech impairment	26 (4.2%)
visual impairment	34 (5.6%)
hearing impairment	112 (18.3%)
other	36 (5.9%)
teaching role	
special education institute	44 (7.2%)
in a self-contained room within general public school	402 (65.8%)
in a resource room	99 (16.2%)
co-teaching in an inclusive classroom	11 (1.8%)
special education program coordinator	15 (2.5%)

Characteristics	N = 613
special education district coordinator	15 (2.5%)
other	25 (4.1%)
highest degree obtained	
bachelor's degree	532 (87.1%)
master's degree	76 (12.4%)
doctoral degree	3 (0.5%)
years of experience	
Less than 1 year	26 (4.2%)
1-3 years	68 (11.1%)
4-6 years	97 (15.8%)
7-9 years	75 (12.3%)
10 or more years	346 (56.5%)

Development of the Instrumentation

The instrument used in this study was adapted from two previously used questionnaires (see Appendix A). The Characteristics of PD Survey (CPDS) was adapted to measure teachers' perceptions about the characteristics of their PD experiences. The second instrument was taken from the Teaching and Learning International Survey (TALIS, 2013).

The Characteristics of Professional Development Survey (CPDS)

Reliable and valid evaluation tools are costly and limited (Blank, de las Alas, and Smith, 2008). Soine and Lumpe (2014) created an evaluation tool that is reliable with acceptable validity for measuring PD experiences overall, and it can be completed online in eight to 10 minutes. The instrument evaluates such PD experience through measuring

teachers' perceptions about the five characteristics of PD (Soine & Lumpe, 2014): content knowledge, coherence, active learning, duration, and collective participation. These features appear to have compounding effects on teacher practice (Darling-Hammond et al., 2009; Desimone, 2009; Garet et al., 2001). The instrument is aligned with the definition of PD in the laws, in Guskey's (2000), and Desimone's (2009) frameworks, and in the body of literature about the effective features of PD.

An exploratory factor analysis was done on CPDS data for 379 teachers who participated in the Summit District Improvement Initiative research (Soine & Lumpe, 2014). Internal reliability coefficients and principal component analysis (PCA) were computed. The five subscales showed acceptable Cronbach's alpha scores over 0.70. A five components solution explained 51.2% of the variance. Overall, the PCA showed moderate to strong internal consistency of the five characteristics of PD.

To better fit the new context and population of this study, the instrument was adapted with the recommendations of Jessica Pearlman, a method consultant at the Institution for Social Science Research, UMass-Amherst. A 5-point Likert scale (1 – almost never true, 5 – almost always true) was replaced with a selection of “items applies.” The original instrument was developed and tested based on the Summit District Improvement Initiative research project, which was targeted to a specific population that had multiple PD experiences as a result of their district initiative. For this study, teachers were asked to reflect on their most recent PD activity, rather than the initial request of experiences from the past 12 months. Also, the wording for a few items was changed to fit the SA context such as changing the “adapted curriculum to match state learning standards” into “adapting general education curriculum for my students.”

Job Satisfaction

A questionnaire about job satisfaction with a four-point Likert scale (1- Strong disagree, 4- strongly agree) was used for this study. The questionnaire was part of the second Teaching and Learning International Survey (TALIS, 2013). TALIS is an international survey that offers the opportunity for teachers and principals to provide input into education analysis and policy development (OCDE, 2014). The responses formed a scale that showed acceptable coefficient alpha reliabilities for job satisfaction across countries (reported $\alpha > 0.70$) (pp. 206-208). The responses from the United Arab Emirates (the country most similar to Saudi Arabia) for the same scale showed good coefficient alpha ($\alpha > 0.78$).

Demographic Characteristics

The survey questionnaires began with easy and straightforward questions (demographic questions). The demographic section included gender, years of experience, level of formal education, teaching area, and certification. For gender, the researcher provided two options (male or female) because they are the legal gender identities in SA. The participants chose from five levels for their years of experience in working with students with special needs: less than 1 year, 1-3 years, 4-6 years, 7-9 years, and 10 or more years. To understand the concept of teaching areas, I included a list of the levels of schools—early childhood, elementary, middle school, and high school. Listings for the teaching certification category included all classifications of certification systems recognized by the Ministry of Education (autism, emotional and behavioral disorder, hearing impairment, intellectual disabilities, learning disabilities, and visual impairment) in alphabetical order for ease of location. Each multiple-answer question in the first

section included all the possible answers in order to avoid potential bias in the responses and reduce the frustration of the respondent (Dillman et al., 2014).

Translation Procedure to Arabic

The instrument for this study was originally written in English. To implement this study in SA, the instrument was translated into Arabic. I used three techniques to ensure the quality of the translation. The instrument went through a forward translation, a backward translation, and an expert panel. First, I and another translator independently translated the instrument into Arabic. The independent translation was produced by a bilingual translator with Arabic as his mother language and a Ph.D. in special education. At least two independent translations are recommended to compare both versions (Beaton, Bombardier, Guillemin, & Ferraz, 2002). Second, the survey was translated back from Arabic to English by a different translator to ensure that the Arabic version reflected the same item content as the original English instrument. To achieve cross-cultural equivalence, the questionnaire was sent to experts in the field of special education at King Saud University for feedback on the content and wording to address any flaws or problems in the instrument before distribution to the potential population.

Data Collection

Quantitative data was collected about PD practices for special education teachers in SA. An online questionnaire was sent to all potential participants to collect the data. Although web-based questionnaires may discriminate against teachers who do not have access to the Internet, according to Saudi's Ministry of Communications and Information Technology (2015), 88% of adults in SA use the Internet. Thus, almost all the teachers'

transactions with the Ministry and the Department of Education, including grading students, are done online.

A web-based survey was preferable for this study. According to Dillman, Smyth, and Christian (2014), the use of an online questionnaire is the fastest growing form of questionnaires worldwide because of the low cost and the speed of questionnaire distribution. An online questionnaire allows the researcher to contact participants, send reminders, and collect responses from teachers without going from school to school. Also, using online questionnaires increases teachers' response rate because they can answer the questions in their own time and place and at their own pace (Fowler, 2014). It was possible to use a web-based questionnaire for this study because every teacher in SA is required to have an email address and Internet access.

The survey was implemented using Qualtrics online survey software. Qualtrics is a private company whose web-based survey software allows customers to create and distribute surveys, collect data, and analyze these data. This software does not prevent the survey participants from completing the survey on multiple occasions. According to Global Web Index (2015), 91% of Internet users own a PC or laptop, and 80% of adults using the Internet own at least one smartphone. Qualtrics can optimize the browser and the format of the online survey to be used on any device.

Qualtrics online survey software includes different features that can reduce the complexity of the survey design and layout. Participants needed to work vertically and horizontally at the same time to read and answer the research questions. Following Dillman et al. 's (2014) advice, items were grouped according various types of questions. There were also no double-barreled questions in order to ensure that items are interpreted

more accurately. The study's survey used Arial font design and a 12-point font size. The important elements and information in the survey were bolded and underlined. Question order, layout, and visual design of self-administered questionnaires are very important because they have a significant impact on how participants respond (Dillman et al., 2014). After writing and adapting the survey questionnaire, I ensured that each question was complete, easy to understand, and able to stand alone.

Data Analysis

Upon data collection, the data was transferred from Qualtrics to IBM SPSS Statistics (SPSS) software for reporting the data and testing the relations between study variables. I used descriptive and inferential statistics to analyze the results and draw conclusions.

Descriptive statistics were used to describe the sample and PD practices. Descriptive statistics were chosen because they simplify and summarize the data in order to be more easily comprehended (Patter, 2014). Cross tabulation with percentages and counts as well as Fisher's exact test and the chi-square test were used to examine the interaction between the five PD characteristics (dependent variables) and the PD topics, providers, and types (independent variables).

Multivariate analysis of variance (MANOVA) and independent samples t-tests were used to analyze the effects of PD participation in PD activities, and the PD design factors (independent variables) on teacher satisfaction (dependent variable).

Administration Plan

After modifying and editing the survey instrument based on the committee's comments, I applied for approval from the Committee for the Protection of Human

Subjects in Research Institutional Review Board (IRB) at the University of Massachusetts Amherst, and the Ministry of Education in SA. The Deputy Ministry of Planning and Development (DMPD) requires these two approvals to distribute the survey link to all local agencies (LA). I sent an email to the DMPD containing the link and barcode of the survey and confirmed with the center that the email was being shared with other LAs. The timeline of survey reminders and responses can be viewed in Figure 3. Multiple contact attempts increase the rate of response with each contact (Dillman, et al., 2014). At the end of the survey data collection period, the data was transferred to SPSS and checked to ensure the accuracy and completeness of data files before analysis.

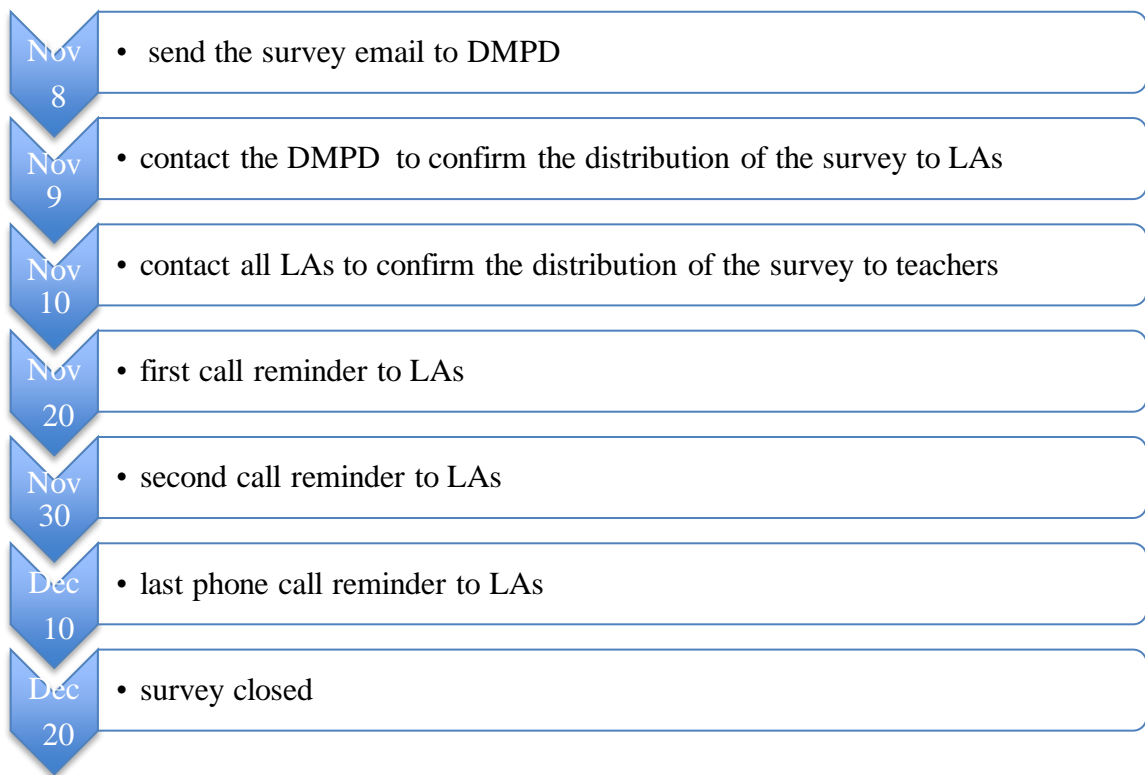


Figure 4. Survey administration plan and timeline

CHAPTER IV

RESULTS

Introduction

The purpose of this study was to explore the professional development experiences of special education teachers in Saudi Arabia. To collect data, I distributed a survey questionnaire in collaboration with the Planning and Development Agency of the Ministry of Education (see Appendix B). The data were analyzed using SPSS.

Descriptive and inferential statistics were used to answer the research questions. This chapter is divided into two sections. The first section describes the respondents' answers to the six questions of the demographic section of the survey (indicating program participation, PD participation, and PD topics, types, providers, hours, and number of meetings). The second section presents the analyses according to the research questions.

The research questions were:

1. How do the professional development practices of special education teachers in Saudi Arabia align with the characteristics of effective professional development?
 - Do these characteristics differ by the topic, provider, or types of professional development in which teachers had participated?
2. To what degree does participation in professional development relate to job satisfaction for special education teachers in Saudi Arabia?
3. To what degree do the characteristics of effective professional development practices relate to job satisfaction for special education teachers in Saudi Arabia?

- Does the relation between professional development and job satisfaction differ by the topic, provider, or types of the professional development in which teachers had participated?

Presentation of Descriptive Analysis of Data

Descriptive statistics for six variables are presented in this section using frequency and percentage. The variables are: indication of program participation, PD participation during the past two years, and PD topics, types, providers, hours, and number of meetings for the PD activities respondents participated in during the past two years.

Table 9 shows the results as to whether respondents participated in induction programs for their first regular employment as teachers. Slightly more than half of the respondents participated in an induction program in their first year working as a teacher (55.8%). Participants were also asked whether they had received PD during the previous two years. As shown in Table 9, from the approximately 613 special education teachers who responded to the survey, 61.5% respondents had participated in PD during the previous two years. As shown in Tables 10 and 11, participation in PD activities during the previous two years did not differ by respondents' demographic characteristics.

Table 9: Respondents participation in PD activities during the previous two years across respondents' demographics

Characteristics	Yes (<i>n</i> = 377)	No (<i>n</i> = 214)	Missing (<i>n</i> = 21)	Total	Final Sample
gender					
male	239 (63.4%)	144 (67.3%)	14 (66.7%)	397	383
female	138 (36.6%)	70 (32.7%)	7 (33.3%)	215	208
school level					
early education	10 (2.7%)	3 (1.4%)	1 (4.8%)	14	13
elementary	247 (65.9%)	143 (67.5%)	13 (61.9%)	403	390
middle	64 (17.1%)	37 (17.5%)	3 (14.3%)	104	101

Characteristics	Yes (<i>n</i> = 377)	No (<i>n</i> = 214)	Missing (<i>n</i> = 21)	Total	Final Sample
high school area of teaching certification	54 (14.4%)	29 (13.7%)	4 (19%)	87	83
autism	18 (4.8%)	15 (7.0%)	0	33	33
emotional and behavioral disorders (behavioral training)	7 (1.9%)	4 (1.9%)	0	11	11
intellectual disabilities	157 (41.6%)	84 (39.4%)	8 (38.1%)	249	241
learning disabilities	67 (17.8%)	38 (17.8%)	5 (23.8%)	110	105
speech impairment	17 (4.5%)	9 (4.2%)	0	26	26
visual impairment	20 (5.3%)	13 (6.1%)	1 (4.8%)	34	33
hearing impairment	71 (18.8%)	35 (16.4%)	6 (28.6%)	112	106
other	20 (5.3%)	15 (7%)	1 (4.8%)	36	35
teaching role					
special education institute	26 (6.9%)	18 (8.5%)	0	44	44
in a self-contained room within general public school	248 (66%)	139 (65.3%)	14 (66.7%)	401	387
in a resource room	62 (16.5%)	34 (16%)	3 (14.3%)	99	96
co-teaching in an inclusive classroom	6 (1.6%)	4 (1.9%)	1 (4.8%)	11	10
special education program coordinator	7 (1.9%)	7 (3.3%)	1 (4.8%)	15	14
special education district coordinator	14 (3.7%)	1 (0.5%)	0	15	15
other	13 (3.5%)	10 (4.7%)	2 (9.5%)	25	23
highest degree obtained					
bachelor's degree	321 (85.1%)	191 (90.1%)	19 (90.5%)	531	512
master's degree	54 (14.3%)	20 (9.4%)	2 (9.5%)	76	74
doctoral degree	2 (0.5%)	1 (0.5%)	0	3	3
years of experience					
less than 1 year	12 (3.2%)	14 (6.6%)	0	26	26
1-3 years	39 (10.3%)	25 (11.7%)	4 (19%)	68	64
4-6 years	63 (16.7%)	28 (13.1%)	6 (28.6%)	97	91
7-9 years	51 (13.5%)	21 (9.9%)	2 (9.5%)	74	72
10 or more years	212 (56.2%)	125 (58.7%)	9 (42.9%)	346	337

Table 10: Chi-square test for difference between PD participation and respondents' demographics

Variables	<i>N</i>	Chi Square	<i>df</i>	Sig.
gender	591	0.908	1	0.341
school level*	587	1.071	3	0.784
area of teaching certification*	590	2.724	7	0.909
teaching role*	589	7.874	6	0.247
highest degree obtained*	589	2.974	2	0.226
years of experience	590	6.558	4	0.161

*one or more cells $n < 5$, see Table 11 for Fisher's Exact Test.

Table 11: Fisher's exact test for difference between PD participation and respondents' demographics

Variables	<i>F</i>	Fisher's Test	Sig.
school level	587	0.948	0.824
area of teaching certification	590	2.899	0.901
teaching role	589	8.603	0.192
highest degree obtained	589	3.111	0.176

The teachers who participated in PD during the previous two years were asked to select the topic of their most recent PD experience. As shown in Table 12: the most selected topics were reading and writing instructional strategies (13.1%), behavior intervention plans (12.3%), technology for instructional support (9.7%); the least selected topics were student assessment (0.4%), math content knowledge (0.4%), and parental involvement (1.7%).

Table 12: Topics of most recent PD activities

	<i>n</i>	%
academic intervention and assessment	81	34.3
reading and writing content knowledge	5	2.1
reading and writing instructional Strategies	31	13.1
math content knowledge	1	0.4
math instructional strategies	7	3.0
effective instruction for children with high incidence disabilities	8	3.4
effective instruction for children with low incidence disabilities	7	3.0
student assessments	1	0.4
response to interventions	14	5.9
accommodations and modification for curriculum and assignments	7	3.0

	<i>n</i>	%
behavioral intervention and assessment	45	19.1
classroom management	16	6.8
behavior intervention plans	29	12.3
special education laws	38	16.1
the rights of people with special needs	8	3.4
special education laws and regulations	6	2.5
effective IEP design and implementation	7	3.0
developmental and academic characteristics of students with disabilities	5	2.1
inclusion	23	9.7
inclusion strategies	6	2.5
universal access	5	2.1
collaboration with general education teachers	8	3.4
parental involvement	4	1.7
transition	26	11.0
student transition planning	8	3.4
social, communication and life skills independency strategies	18	7.6
assistive technology	23	9.7
technology for instructional support	23	9.7
Total	236	100

Teachers who participated in PD during the previous two years were asked to select the type of their most recent PD experience. As shown in Table 13, the most-attended PD activities were workshops and conferences with 57.6% participating as either a presenter or attendee. Respondents were asked to select the provider of their most recent PD activities. As shown in Table 14, 73.3% of respondents received PD activities from their service agency—school, local, regional, or special education institution.

Table 13: Types of most recent PD activities

Types	N	%
university courses	16	5.2
observational visits to other schools.	51	16.6
workshops, conferences, or training sessions in which you were a presenter.	78	25.4
other workshops, conferences, or training sessions in which you were NOT a presenter.	99	32.2
school or district improvement activities such as curriculums development.	17	5.5
observe or be observed by other teachers in your classroom (for at least 10 minutes)	15	4.9
act as a coach or mentor to other teachers or staff in your school, or receive coaching or mentoring	31	10.1
Total	307	
Missing	70	

Table 14: Providers of the most recent PD activities

Providers	N	%
university	15	4.8
Tatweer company	26	8.3
your local learning agency	84	26.8
your regional learning department	117	37.3
Ministry of Education	37	11.8
your school	22	7.0
special education institute.	7	2.2
other	6	1.6
Total	314	
Missing	63	

The duration of PD activities was based on the number of contact hours and number of meetings. Respondents were asked to report both for their most recent PD experience. As shown in Tables 15 and 16, respondents reported attending 13 or fewer hours (80.8%), often spanned over 3-5 meetings, which equated to approximately 2-4 hours per meeting.

Table 15: Number of hours for most recent PD activities

Hours	N	%
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6 hours or less	105	35.2
7-13 hours	136	45.6
14-32 hours	40	13.4
33 hours or more	17	5.7
Total	298	100
Missing	79	

Table 16: Number of meetings for most recent PD activities

Meetings	<i>N</i>	%
1 meeting	48	16.0
2 meetings	68	22.7
3 to five meetings	146	48.7
6 to 8 meetings.	16	5.3
More than 9 meetings.	22	7.3
Total	300	100
Missing	77	

Presentation of Research Questions Analysis

This dissertation included three questions and two sub-questions. For statistical precision and to satisfy the analysis assumptions, the categorical levels of topics, types, providers, number of hours, and number of meetings were collapsed. The most common methods used to shorten responses after data collection are intervals and common content (Drew, Hardman, & Hosp, 2008). These two methods were used to collapse and group categories. The common content procedure allowed for reorganization of categories with a small number of participants in topics, types, and providers into their common themes to reduce category variation with less aggregation bias. To help with the analysis, the last two groups in number of hours (14-32 and 33 or more hours) and number of meetings (6-8 and 9 or more meetings) were condensed into one range: hours (14 or more hours) and meetings (6 or more meetings), because they had a small number of participants.

The topics of PD were collapsed from 23 topics into six major topics. As shown in Table 12, the six major topics are listed as headers, with the original topics collapsed

under them. For PD types, two items: “observe or be observed by other teachers in your classroom” and “act as a coach or mentor to other teachers or staff in your school,” were collapsed into one category “coaching, mentoring, or observing” (15%). See Table 17. For the PD providers, school and special education institutes were collapsed under the local learning agency, and the “other” category was removed because none of the written answers fit under any of the categories (e.g., Saudi Union of Blindness, collaboration between multiple agencies, Saudi Autistic Society). As shown in Table 18, the provider groups were collapsed from eight into five categories. As shown in Table 19, the four levels for number of hours were collapsed into three. As shown in Table 20, the number of meetings groups was collapsed from five into four categories.

Table 17: Types regrouping for PD activities

Types	<i>n</i>	%
university courses	16	5.2
observational visits to other schools.	51	16.6
workshops, conferences, or training sessions in which you were a presenter.	78	25.4
other workshops, conferences, or training sessions in which you were NOT a presenter.	99	32.2
school or district improvement activities such as curriculums development.	17	5.5
act as a coach, observer or mentor to other teachers or staff in your school, or receive coaching, observation or mentoring	46	15.0
Total	307	100

Table 18: Providers regrouping for PD activities

Providers	<i>n</i>	%
university	15	4.9
Tatweer company	26	8.4
your local learning Agency	113	36.7
your regional learning department	117	38.0
the ministry of Education	37	12.0
Total	308	100

Table 19: Number of hours regrouping for PD activities

Hours	<i>n</i>	%
6 hours or less	105	35.2
7-13 hours	136	45.6
14 or more	57	19.1
Total	298	100

Table 20: Number of meetings regrouping for PD activities

Meetings	<i>n</i>	%
1 meeting	48	16.0
2 meetings	68	22.7
3-5 meetings	146	48.7
6 or more.	38	12.7
Total	300	100

Research Question #1

The first research question asked the following:

- How do the professional development practices of special education teachers in Saudi Arabia align with the characteristics of effective professional development?

The survey questionnaires included several questions that addressed this query.

Respondents who answered yes to participating in PD during the previous two years were asked to report topic, type, provider, duration, and the effective characteristics (active learning, coherence, content focus, and collective participation as derived from the theoretical framework presented in Chapter 2) of their most recent PD activity.

The results showed that 36% of the 613 respondents did not participate in any PD activities during the prior two years. The remaining 64% participated in PD activities that varied in topics. Approximately two-thirds of the PD activities were provided by teachers' service agencies in the form of a workshop, most of which lasted fewer than 13

hours over three to five meetings. As shown in Tables 21 and 22, the responses about their most recent PD activity ranged from including none of the characteristics ($n = 31$, or 10.6%) to including all four effective PD characteristics ($n = 224$, or 76.5%). The highest selected characteristic was active learning ($n = 263$, or 90.0%), and the lowest was collective participation ($n = 223$, or 76.5%).

Table 21: Percentage and frequency of respondents' selection for each characteristic of effective PD

Eff. Characteristics	Selection		Not Selected	
	<i>n</i>	%	<i>n</i>	%
active learning	262	90.0	30	10.0
content focus	242	87.5	51	17.5
coherence	230	78.5	63	21.5
collective participation	223	76.0	70	24.0

Table 22: Number of respondents for each characteristic of effective PD

Number of Eff. Characteristics	<i>n</i>	%
0	31	10.5
1	23	8.0
2	12	4.0
3	3	1.0
4	224	76.5
Total	293	100

The first research question included a sub-question:

- Do these characteristics of professional development differ by the topic, provider, or types of professional development in which teachers had participated?

To answer this question, the chi-square test, Fisher's exact test, and cross tabulation with count and percentage were performed where appropriate. These results are presented in Tables 23-34. For each descriptive variable (topics, type, and provider), a table with the data and results of the appropriate test (Fisher's exact or chi-square) is

presented. It was necessary to provide these tables repeatedly because of the slight variation of Ns due to a non-response on the descriptive items. Alpha was set to 0.05 for significance, and Bonferroni correction was used to correct for three pairwise comparisons for each characteristic (Armstrong, 2014). The adjusted p -value is 0.017.

The Fisher’s exact test was conducted for differences in the *Active Learning* PD experience according to the PD activities’ topics, types, and providers. This test is more accurate than the chi-square test when some cells have less than five counts (Kim, 2017). As shown in Table 23, active learning PD experience does not differ by PD topics ($p = .262$). As shown in Table 24, there was no statistically significant difference between active learning PD experience and PD types ($p = 0.031$). Furthermore, the results showed no statistical difference in PD providers depending on participating in an active learning PD experience ($p = 0.274$), see Table 25.

Table 23: Fisher’s exact test for difference between PD topics and active learning PD experience

Topics	n	Fisher’s exact	Sig.
academic intervention and assessment	74	6.236	0.262
behavioral intervention and assessment	40		
special education laws	36		
inclusion	19		
transition	20		
assistive technology	21		
Total	210		

Table 24: Fisher’s exact test for difference between PD types and active learning PD experience

Types	n	Fisher’s exact	Sig.
university courses	15	11.687	0.031
observational visits to other schools.	45		
workshops, conferences, or training sessions	69		

Types	<i>n</i>	Fisher's exact	Sig.
in which you were a presenter.			
other workshops, conferences, or training sessions in which you were NOT a presenter.	74		
school or district improvement activities such as curriculums development.	17		
act as a coach, observer, or mentor to other teachers or staff in your school, or receive coaching, observation, or mentoring	40		
Total	260		

Table 25: Fisher's exact test for difference between PD providers and active learning PD experience

Providers	<i>n</i>	Fisher's exact	Sig.
university	11	4.997	0.274
Tatweer company	22		
your local learning agency	93		
your regional learning department	98		
The Ministry of Education	35		
Total	259		

The chi-square test and Fisher's exact test were performed for differences in PD topics, types, and providers, and PD experience that was focused on teachers' content knowledge of the subject taught and how students learn the newly acquired knowledge. As shown in Table 26, content-focused PD activities do not differ by PD topics. This means the topics of PD activities have statistically similar pattern of focus on teachers' content knowledge and how students learn. Respondents who had content knowledge-focused PD differ by PD types ($p = 0.005$, Fisher's exact test). See Table 27. Having a PD experience that was focused on the teacher's content knowledge and how students learn the newly acquired knowledge related to the types of PD activities. Regarding PD providers, there was no difference ($p = 0.523$, Fisher's exact test). See Table 28. In other

words, PD providers have the same pattern of focus on content knowledge of subject taught and how students learn the subject.

Table 26: Chi-square test for difference between PD topics and content-focused PD experience

Topics	<i>n</i>	<i>df</i>	Chi-square	Sig.
academic intervention and assessment	72	5	5.85	0.321
behavioral intervention and assessment	37			
special education laws	29			
inclusion	18			
transition	19			
assistive technology	17			
Total	192			

Table 27: Fisher's exact test for difference between PD types and content-focused PD experience

Types	<i>n</i>	Fisher's exact	Sig.
university courses	15	16.21	0.005
observational visits to other schools.	43		
workshops, conferences, or training sessions in which you were a presenter.	65		
other workshops, conferences, or training sessions in which you were NOT a presenter.	64		
school or district improvement activities such as curriculums development.	16		
act as a coach, observer, or mentor to other teachers or staff in your school, or receive coaching, observation, or mentoring	35		
Total	238		

Table 28: Fisher's exact test for difference between PD providers and content-focused PD experience

Providers	<i>n</i>	Fisher's exact	Sig.
university	11	3.22	0.523
Tatweer company	22		
your local learning agency	84		
your regional learning department	90		
The Ministry of Education	32		

Total	239
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The chi-square test and Fisher’s exact test were performed for differences in PD topics, types, and providers depending on the *coherence* of the PD experience. As shown in Table 29, the coherence of the PD experience did not differ based on PD topics.

However, the coherence of PD experience differed by the types of PD activities ($p = 0.011$, Fisher’s exact test). See Table 30. This means that the types of PD activities were related to having had a PD experience that was aligned with the current policies, and teachers and their students’ needs. As shown in Table 31, the coherence of PD activities didn’t differ by the providers of PD activities ($p = 0.39$, Fisher’s exact test).

Table 29: Chi-square test for difference between PD topics and the coherence in PD experience

Topics	<i>n</i>	<i>df</i>	Chi-square	Sig.
academic Intervention and assessment	69	5	5.21	0.397
behavioral Intervention and assessment	36			
special education laws	29			
inclusion	18			
transition	19			
assistive technology	15			
Total	186			

Table 30: Fisher’s exact test for difference between PD types and the coherence in the PD experience

Types	<i>n</i>	Fisher’s exact	Sig.
university courses	14	14.46	0.011
observational visits to other schools.	42		
workshops, conferences, or training sessions in which you were a presenter.	61		

Types	<i>n</i>	Fisher's exact	Sig.
other workshops, conferences, or training sessions in which you were NOT a presenter.	63		
school or district improvement activities such as curriculums development.	16		
act as a coach, observer, or mentor to other teachers or staff in your school, or receive coaching, observation, or mentoring	30		
Total	226		

Table 31: Fisher's exact test for difference between PD providers and the coherence in the PD experience

Providers	<i>n</i>	Fisher's exact	Sig.
university	11	4.06	0.397
Tatweer company	20		
your local learning Agency	80		
your regional learning department	84		
The Ministry of Education	32		
Total	227		

The chi-square test and Fisher's exact test were performed for difference in PD topics, types, and providers depending on the *collective participation* in the PD experience. As shown in Table 32, the collective participation in the PD experience did not differ based on PD topics. However, the collective participation in the PD experience differed by the types of PD activities ($p = .011$, Fisher's exact test). See Table 33. This referred to the types of PD activities related to having the collective participation of teachers from the same school, grade, or subject in a PD experience. As shown in Table 34, the collective participation of PD experiences did not differ by the providers of PD activities.

Table 32: Chi-square test for difference between PD topics and collective participation in the PD experience

Topics	<i>n</i>	<i>df</i>	Chi-square	Sig.
academic intervention and assessment	68	5	9.24	0.100
behavioral intervention and assessment	33			
special education laws	29			
inclusion	18			
transition	17			
assistive technology	13			
Total	178			

Table 33: Fisher's exact test for difference between PD types and collective participation in PD experience

Types	<i>n</i>	Fisher's exact	Sig.
university courses	15	14.46	0.011
observational visits to other schools.	43		
workshops, conferences, or training sessions in which you were a presenter.	57		
other workshops, conferences, or training sessions in which you were NOT a presenter.	58		
school or district improvement activities such as curriculums development.	16		
act as a coach, observer, or mentor to other teachers or staff in your school, or receive coaching, observation, or mentoring	30		
Total	219		

Table 34: Chi-square test for difference between PD providers and collective participation in PD experience

Providers	<i>n</i>	<i>df</i>	Chi-square	Sig.
university	10	5	4.76	0.313
Tatweer company	18			
your local learning agency	78			
your regional learning department	82			
The Ministry of Education	32			
Total	220			

Cross tabulation with count and percentage was used to observe if the duration of PD activities differed by the topics, types, and providers. The duration was measured by number of hours and number of meetings. Considering the number of hours, almost 80% of PD activities were 13 hours or fewer across different PD topics, types, and providers. See Table 35, 36 and 37. Exceptions to this were the activities provided by the university, which had 14 or more hours (41.7%), and those provided by Tatweer, which had 14 or more hours (36%).

Table 35: Cross tabulation with count and percentage for PD activities' number of hours across topics

Topics		Hours Spent			Total
		6 ≤	7 to13	14 ≥	
academic inter. & ass.	count	27	35	16	78
	% within	34.6%	44.9%	20.5%	100.0%
behavioral inter. & ass.	count	16	21	7	44
	% within	36.4%	47.7%	15.9%	100.0%
special education laws	count	8	21	9	38
	% within	21.1%	55.3%	23.7%	100.0%
inclusion	count	12	6	4	22
	% within	54.5%	27.3%	18.2%	100.0%
transition	count	5	16	4	25
	% within	20.0%	64.0%	16.0%	100.0%
assis. technology	count	7	10	5	22
	% within	31.8%	45.5%	22.7%	100.0%

Table 36: Cross tabulation with count and percentage for PD activities' number of hours across types

Type		Hours Spent			Total
		6 ≤	7 to13	14 ≥	
university courses.	count	7	4	4	15
	% within	46.7%	26.7%	26.7%	100%
observational visits to other schools.	count	26	17	6	49
	% within	53.1%	34.7%	12.2%	100%
workshops, conferences, or training sessions in	count	20	37	19	76
	% within	26.3%	48.7%	25.0%	100%

Type	Hours Spent			Total	
	6 ≤	7 to13	14 ≥		
which you were a presenter.					
workshops,	count	26	51	16	93
conferences, or	% within	28.0%	54.8%	17.2%	100%
training sessions in which you were a presenter.					
school or district improvement activities such as curriculums development.	count	6	8	3	17
	% within	35.3%	47.1%	17.6%	100%
act as a coach, observer, or mentor to other teachers or staff in your school, or receive coaching, observation, or mentoring.	count	17	16	8	41
	% within	41.5%	39.0%	19.5%	100%

Table 37: Cross tabulation with count and percentage for PD activities' number of hours across providers

Provider	Hours Spent			Total	
	6 ≤	7 to13	14 ≥		
university	count	4	3	5	12
	% within	33.3%	25.0%	41.7%	100%
Tatweer	count	5	11	9	25
	% within	20.0%	44.0%	36.0%	100%
your local learning agency	count	46	44	15	105
	% within	43.8%	41.9%	14.3%	100%
your regional learning department	count	39	54	20	113
	% within	34.5%	47.8%	17.7%	100%
The Ministry of Education	count	8	22	7	37
	% within	21.6%	59.5%	18.9%	100%

The second part of measuring duration was the number of meetings. Respondents were asked to report how many times they met for their most recent PD activities. As

shown in Table 38, 39 and 40, almost 85% of PD activities had five or fewer meetings across different PD topics, types, and providers. However, activities provided as university courses had six or more meetings (37.5%) and activities provided by the university had six or more meetings (61.5%).

Table 38: Cross tabulation with count and percentage for PD activities' number of meetings across topics

Topics		Number of Meetings				Total
		1	2	3-5	6 ≥	
academic inter. & ass.	count	14	21	37	6	78
	% within	17.9%	26.9%	47.4%	7.7%	100%
behavioral inter. & ass.	count	7	9	21	7	44
	% within	15.9%	20.5%	47.7%	15.9%	100%
special education laws	count	7	6	20	5	38
	% within	18.4%	15.8%	52.6%	13.2%	100%
inclusion	count	6	6	7	3	22
	% within	27.3%	27.3%	31.8%	13.6%	100%
transition	count	2	5	15	3	25
	% within	8.0%	20.0%	60.0%	12.0%	100%
assis. technology	count	2	2	16	2	22
	% within	9.1%	9.1%	72.7%	9.1%	100%

Table 39: Cross tabulation with count and percentage for PD activities' number of meetings across types

Type		Number of Meetings				Total
		1	2	3-5	6 ≥	
university courses.	count	2	1	7	6	16
	% within	12.5%	6.3%	43.8%	37.5%	100%
observational visits to other schools	count	11	19	13	6	49
	% within	22.4%	38.8%	26.5%	12.2%	100%
workshops, conferences, or training sessions in which you were a presenter.	count	10	19	37	10	76
	% within	13.2%	25.0%	48.7%	13.2%	100%
workshops, conferences, or training sessions in which you were a presenter.	count	13	15	56	9	93
	% within	14.0%	16.1%	60.2%	9.7%	100%
school or district improvement activities	count	1	2	12	2	17

such as curriculums development.	% within	5.9%	11.8%	70.6%	11.8%	100%
Act as a coach, observer, or mentor to other teachers or staff in your school, or receive coaching, observation, or mentoring.	count	8	11	17	5	41
	% within	19.5%	26.8%	41.5%	12.2%	100%

Table 40: Cross tabulation with count and percentage for PD activities' number of meetings across providers

Type		Hours Spent				Total
		1	2	3-5	6 ≥	
university	count	0	0	5	8	13
	% within	0.0%	0.0%	38.5%	61.5%	100%
Tatweer	count	2	3	17	3	25
	% within	8.0%	12.0%	68.0%	12%	100%
your local learning agency	count	23	34	43	5	105
	% within	21.9%	32.4%	41.0%	4.8%	100%
your regional learning department	count	14	25	58	17	114
	% within	12.3%	21.9%	50.9%	14.9%	100%
The Ministry of Education	count	5	6	22	4	37
	% within	13.5%	16.2%	59.5%	10.8%	100%

Research Question # 2

The second main question in this research was:

- To what degree does participation in professional development relate to job satisfaction for special education teachers in Saudi Arabia?

Respondents were asked to report their job satisfaction on a four-point Likert-type scale ranging from 1 = strongly disagree to 4 = strongly agree. Only 413 respondents reported their job satisfaction, and there were 200 missing cases at random. The data identified five respondents who were straight-liners in that they selected extreme responses. They appeared to race through the scale by choosing the same answer

(strongly satisfied). In order to avoid the extreme response bias, I dropped the five straight-liners. These missing data points were handled using list-wise deletion.

As shown in Table 41, the respondents’ general level of job satisfaction was moderate with a general mean of 2.91, a standard deviation of 0.53, and an approximately symmetric distribution (Skewness = -0.16 & Kurtosis = -0.68). The job satisfaction scale included two dimensions. The first dimension was satisfaction with the current job environment (mean = 3.00, SD = 0.55). The second dimension was satisfaction with the teaching profession (mean = 2.80, SD = 0.70). As shown in Table 42, there were statistically significant differences between the means—respondents were significantly more satisfied with their current school environment than their teaching profession.

Table 41: Description of responses for job satisfaction scale’s items and dimensions

Dimension	Items	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness		Kurtosis	
					Stat.	<i>SE</i>	Stat.	<i>SE</i>
satisfaction with school environment	I would like to change to another school if that were possible	406	2.40	1.03	0.04	0.12	-1.17	0.24
	I enjoy working at this school	407	3.11	0.76	-0.62	0.12	0.11	0.24
	I would recommend my school as a good place to work	405	2.97	0.80	-0.59	0.12	0.06	0.24
	I am satisfied with my performance in this school	408	3.33	0.68	-0.85	0.12	0.76	0.24

Dimension	Items	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness		Kurtosis	
					Stat.	<i>SE</i>	Stat.	<i>SE</i>
	all in all, I am satisfied with my job	407	3.37	0.70	-0.99	0.12	0.89	0.24
	Total	408	3.00	0.55	-0.30	0.12	0.03	0.24
satisfaction with teaching profession	the advantages of being a teacher clearly outweigh the disadvantages	407	2.64	0.87	-0.31	0.12	-0.54	0.24
	if I could decide again, I would still choose to work as a teacher	407	2.96	0.97	-0.61	0.12	-0.11	0.24
	I regret that I decided to become a teacher	406	3.15	0.90	-0.89	0.12	0.00	0.24
	I wonder whether it would have been better to choose another profession	405	2.59	0.98	-0.05	0.12	-0.10	0.24
	Total	408	2.80	0.70	-0.46	0.12	-0.37	0.24
	Total Scale (list-wise)	408	2.91	0.53	-0.30	0.12	-0.54	0.24

Table 42: Paired t-test for job satisfaction dimensions

		<i>M</i>	<i>SD</i>	<i>SE</i>	95% CI		<i>t</i>	<i>df</i>	Sig.
					L	U			
Pair 1	satisfaction with school environment; satisfaction with teaching profession	0.20	0.66	0.03	0.13	0.26	6.07	408	0.000

To answer this research question, independent sample t-tests were performed. Because the standard deviations for the two groups were similar (0.51 and 0.52), an “equal variances assumed” test was used. As shown in Table 43, the results indicated that there was a statistically significant difference between the mean respondents’ satisfaction with their teaching profession for PD participation ($t(406) = 2.55, p = 0.011$). In other words, teachers who participated in PD activities had significantly higher mean scores on the entry of satisfaction with their teaching profession than teachers who did not participate in PD activities. For respondents’ satisfaction with their current work environment, the results show no statistically significant difference between the mean respondents’ satisfaction with the school environment for PD participation ($t(406) = 1.10, p = 0.061$).

Table 43: Independent sample t-tests between respondents’ satisfaction with school environment and teaching profession, and PD participation

Scale		Levene's Test for Equality of Variances		t-test for Equality of Means						
		<i>F</i>	Sig.	<i>t</i>	<i>df</i>	Sig.	<i>M</i>	<i>SE</i>	95% CI	
								L	U	
satisfaction with school environment	equal var. assumed	0.15	0.69	1.10	406	0.27	0.06	0.05	0-.04	0.16
	equal var. not assumed			1.10	396	0.27	0.06	0.05	0-.04	0.16
satisfaction with teaching profession	equal var. assumed	2.38	0.12	2.55	406	0.01	0.17	0.06	0.04	0.31
	equal var. not assumed			2.53	383	0.01	0.17	0.07	0.03	0.31

Research Question # 3

The third main question in this research was:

- To what degree do the characteristics of effective professional development practices relate to job satisfaction for special education teachers in Saudi Arabia?

To answer part of this question, multiple independent sample t-tests were performed for each independent variable with two groups and dependent variables. However, independent sample t-tests could not be used for the collective participation because one of the groups had only one participant. To protect against Type I error, the alpha level 0.05 was adjusted to 0.00625 ($\alpha .05/8$). To support the third question, the frequency of, mean, and standard deviations for the dependent variables within independent variables groups were calculated. See Table 44. As shown in Tables 45, 46, and 47, no significant difference was found between job satisfaction and whether respondents participated in an active or content focused or coherent PD experience.

Table 44: Descriptive statistics of correlation between PD programs of active learning, content focus, coherence and collective participation and teachers' satisfaction with school environment and teaching profession

Effective PD Characteristics		Satisfaction with School Environment			Satisfaction with Teaching Profession		
		<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
active learning	yes	215	3.03	0.03	215	2.89	0.04
	no	4	2.75	0.20	4	2.43	0.47
content focus	yes	216	3.03	0.03	216	2.88	0.04
	no	3	2.73	0.17	3	2.83	0.22
coherence	yes	216	3.03	0.03	216	2.89	0.04
	no	3	2.46	0.17	3	2.33	0.46
collective participation	yes	218	3.03	0.03	218	2.88	0.04
	no	1	*	*	1	*	*

Note. * Mean and standard deviation cannot be calculated for group counts ≤ 1

Table 45: Independent sample t-tests for active learning PD activities, and teachers' satisfaction with their school environment and teaching profession

Scale		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	<i>f</i>	<i>df</i>	Sig.	<i>M</i>	<i>SE</i>	95% CI	
									L	U
satisfaction with school environment	equal var. assumed	1.13	0.28	-0.94	217	0.34	-0.30	0.32	-0.93	0.33
	equal var. not assumed			-1.67	2.18	0.22	-0.30	0.18	-1.03	0.41
satisfaction with teaching profession	equal var. assumed	1.42	0.23	-0.13	217	0.89	-0.05	0.38	-0.82	0.71
	equal var. not assumed			-0.23	2.17	0.83	-0.05	0.25	-0.94	0.84

Table 46: Independent sample t-tests for content-focused PD activities, and teachers' satisfaction with their school environment and teaching profession

Scale		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	<i>df</i>	Sig.	<i>M</i>	<i>SE</i>	95% CI	
									L	U
Satisfaction with school environment	Equal var. assumed	0.84	0.35	-1.02	217	0.30	-0.28	0.27	-0.83	0.26
	Equal var. not assumed			-1.37	3.20	0.25	-0.28	0.20	-0.93	0.35
Satisfaction with teaching profession	Equal var. assumed	2.01	0.15	-1.35	217	0.17	-0.45	0.33	-1.12	0.20
	Equal var. not assumed			-0.96	3.05	0.40	-0.45	0.47	-1.94	1.03

Table 47: Independent sample t-tests for coherence of PD activities, and teachers' satisfaction with their school environment and teaching profession

Scale		Levene's Test for Equality of Variances		<i>f</i>	<i>df</i>	Sig.	t-test for Equality of Means		95% CI of the Dif.	
		F	Sig.				<i>M</i>	<i>SE</i>	L	U
Satisfaction with school environment	Equal var. assumed	1.10	0.294	-1.78	217	0.075	-0.57	0.32	-1.20	0.05
	Equal var. not assumed			-3.17	2.1	0.077	-0.58	0.18	-1.28	0.14
Satisfaction with teaching profession	Equal var. assumed	0.10	0.751	-1.44	217	0.150	-0.55	0.38	-1.32	0.20
	Equal var. not assumed			-1.20	2.03	0.351	-0.56	0.40	-2.52	1.41

For the relation between teachers' job satisfaction and the duration of their most recent PD activity, descriptive summary and multivariate analysis of variance (MANOVA) were performed. Table 48 shows the descriptive statistics for PD number of hours and number of meeting across teachers' satisfaction with school environment and teaching profession.

Table 48: Descriptive statistics for PD number of hours and number of meetings in teachers' satisfaction with school environment and teaching profession

Duration		Satisfaction with School Environment			Satisfaction with Teaching Profession		
		<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Number of Hours	6 ≤ hours	82	3.03	0.06	82	2.94	0.07
	7-13 hours	96	3.04	0.05	96	2.91	0.06
	14 ≥ hours	43	3.04	0.07	43	2.77	0.11
Number of Meetings	1 meeting	33	2.95	0.10	33	2.85	0.12
	2 meetings	54	2.99	0.06	54	2.93	0.09
	3-5	107	3.05	0.05	107	2.87	0.06

meetings							
6 ≥	27	3.18	0.12	27	2.98	0.15	
meetings							

Note. Number of hours (list-wise) N = 218, and number of meetings (list-wise) N = 2018

A multivariate analysis of variance (MANOVA) was performed for the difference between job satisfaction dimensions and PD duration groups. A multivariate procedure provides a regression analysis and an analysis of variance for multiple dependent variables by multiple factor variables for balanced and unbalanced models. One assumption of MANOVA is homogeneity of covariance, which is tested using a Box's M test, also called a Box's Test for Equivalence of Covariance Matrices. A Box's M test is often used to test the assumption of homogeneity of variances in MANOVA (Tabachnik & Fidel, 2007). The Box's M test was not significant in the current study [Box's M = 45.530, $F(30, 2192.033) = 1.348, p = .099$], suggesting that the assumption was not violated and that Wilk's lambda was an appropriate test to use. The Levene's Test for Equality of Variances tested the assumption of MANOVA that the variances of each dependent variable are equal across the groups. This assumption was met for both dependent variables (satisfaction with school environment, $p = 0.111$, and satisfaction with teaching profession, $p = 0.106$). As shown in Table 49, the results of the MANOVA analysis indicated that there were no significant differences between job satisfaction dimensions and the groups of the number of hours ($V = 0.98, F(4, 410) = 0.75, p < 0.552$), and number of meetings ($V = 0.97, F(6, 410) = 1.00, p < 0.423$).

Table 49: Multivariate tests results by number of hours and number of meeting, and teachers' satisfaction with school environment and teaching profession

Effect		Value	F	df	Error df	Sig.
number of hours	Wilks' lambda	0.985	0.75	4	410	0.552
number of meetings	Wilks' lambda	0.971	1.00	6	410	0.423

The last sub-question guiding this study was:

- Does the relation between professional development and job satisfaction differ by the topic, provider, or types of the professional development in which teachers had participated?

Descriptive statistics summary and MANOVA were used to examine the relation between the teachers' satisfaction with the school environment and teaching profession, and their most recent PD activities' topics, types, and providers. As shown in Table 50, the topics variable was missing more data than other variables likely due to the long list of 23 topics that respondents had to select a topic from.

Table 50: Descriptive statistics for PD topics, types, and providers in teachers' satisfaction with school environment and teaching profession

Factors		Satisfaction with School Environment			Satisfaction with Teaching Profession		
		<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Topics	academic intervention and assessment	65	3.11	0.54	65	3.01	0.64
	behavioral intervention and assessment	33	3.13	0.48	33	3.04	0.74
	special education law	29	2.81	0.54	29	2.68	0.55
	inclusion	17	3.18	.61	17	3.11	0.56
	transition	18	2.93	0.62	18	2.75	0.71
	assistive technology	13	2.86	0.61	13	2.61	0.74
Types	university courses	14	2.98	0.56	14	3.00	0.87
	observational visits to other schools	41	2.86	0.62	41	2.68	0.69
	workshops, conferences, or training sessions in which you were a presenter.	57	3.05	0.60	57	2.87	0.64
	workshops, conferences, or training sessions in which you were not a presenter.	57	3.04	0.49	57	2.87	0.65
	school or district improvement activities such as curriculums development	16	3.12	0.59	16	3.17	0.57

Factors	Satisfaction with School Environment			Satisfaction with Teaching Profession		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
act as a coach, observer, or mentor to other teachers or staff in your school, or receive coaching, observation, or mentoring.	30	3.09	0.41	30	2.90	0.62
Providers						
university	10	3.08	0.65	10	2.60	0.80
Tatweer	19	3.01	0.38	19	3.05	0.61
local learning agency	75	2.94	0.53	75	2.94	0.63
regional learning department	81	3.10	0.59	81	2.85	0.65
The Ministry of Education	31	3.07	0.55	31	2.87	0.66

Note. Topics list-wise N= 175, types (list-wise) N= 215, and providers (list-wise) N= 216

A MANOVA was performed for the difference between job satisfaction dimensions and PD groups of PD topics, types, and providers. Pillai's trace was used to conduct the MANOVA of whether differences existed between groups. Pillai's trace is a robust and positive-valued statistic, which can be used with unequal group sample sizes (Field, 2018). Box's M was checked for the assumption of homogeneity of covariance across the groups. Box's M was not significant [Box's M = 57.172, $F(45, 1804.624) = 0.924, p = 0.616$]. Using an alpha level of 0.05, the test result was only significant for topics [Pillai's trace = 0.207, $F(10, 178) = 2.05, p < 0.030$]. See Table 51. This significant *F* means that there are significant differences among the topic groups on a linear combination of the two dependent variables.

Table 51: Multivariate test results by PD topics, types and providers, and teachers' satisfaction with school environment and teaching profession

Effect		Value	F	df	Error df	Sig.
topics	Pillai's trace	0.207	2.05	10	178	0.030
types	Pillai's trace	0.089	0.83	10	178	0.600
providers	Pillai's trace	0.052	0.59	8	178	0.780

Because the MANOVA results were significant for topic groups, discriminant function analysis (DFA) was then used to evaluate and determine which variable contributes most to a model of discrimination (Tabachnick & Fidell, 2007). The model was best fitted for the variable of teachers' satisfaction with the teaching profession, while the variable of satisfaction with school environment was removed. Therefore, the standardized coefficient for satisfaction with the teaching profession was 1.00. As shown in Table 52, DFA results showed that only one function was significant [$p = 0.045$]. In summary, the significant statistics resulting from MANOVA and DFA showed that the PD topics were the most important structural factor of PD for special education teachers' satisfaction with their teaching profession.

Table 52: Wilks' lambda for the discriminant function analysis

Test of DFA	Wilks' lambda	Chi-square	df	Sig.
1	0.93	11.35	5	0.045

Summary

The purpose of this chapter was to present the results of the analyses of the data necessary to ascertain answers to the study's research questions. The data were collected from Saudi special education teachers during the 2019/2020 school year by an online questionnaire. The results for the first research question showed that 36% of the 613 respondents had not participated in any PD activities in the previous two years. The remaining 64% had participated in PD activities that varied in topics. Approximately two-thirds of the PD activities were provided by teachers' service agencies in the form of workshops that mostly lasted fewer than 13 hours over the course of three to five meetings. The study found that 76.5% of respondents felt that their PD experiences had

the four effective PD characteristics. In addition, there was a statistical significant difference between the types of PD activities and PD activities that had content knowledge focus, coherence, and collective participation.

The results for the second research question showed a statistical mean difference between the teachers' satisfaction with the teaching profession and PD participation. However, there was no statistically significant difference between the teachers' satisfaction with their school environment and their participation in PD activities. Regarding the third question, MANOVA and DFA results depicted a statistically significant difference between PD topics and the teachers' satisfaction with the teaching profession.

CHAPTER V

DISCUSSION

The purpose of this study was to explore the professional development experiences of special education teachers in Saudi Arabia. It included an examination of the impact of PD design factors (i.e., topics, types, providers, duration, active learning, content focus, coherence, and collective participation) on teacher job satisfaction. Six hundred thirteen special education teachers were asked to describe their most recent PD activities during the previous two years and rate their job satisfaction. Respondents reported on the topics, types, providers, and duration of their PD experiences and selected one item from four clustered items representing active learning, content focus, coherence, and collective participation. For the element of job satisfaction, respondents rated their job satisfaction on nine items using a Likert-type scale ranging from 1 = strongly disagree to 4 = strongly agree. This chapter discusses the alignment of current Saudi PD with the literature recommendations of effective PD and the impact of PD activities on teacher satisfaction and the related topic of student achievement. In addition, this chapter includes information regarding the study's limitations and its implications for the field of special education, suggestions for future related research, and a concluding statement.

The State of Professional Development in Saudi Arabia

In this study, I investigated the professional activities of special education teachers in Saudi Arabia in term of topics, types, providers, and duration of their most recent PD experiences, and the characteristics of effective PD (active learning, content focus, coherence, and collective participation).

Topics

Teachers were asked about the topics of their most recent PD activity. The results showed that 34% of the teachers participated in PD activities related to academic intervention and assessment, while 19% participated in behavioral intervention and management topics. Of the other half of the teachers, the results showed that 16% participated in special education law, 11% in transition, 10% in inclusion, 11% in transition, and approximately 10% participated in the topic of assistive technology. These findings are consistent with the findings from the 2003-2004 SASS teacher survey, which found that special education teachers most often participate in PD activities covering subject areas that relate specifically to special education parameters and participate least in more general topics such as the use of computers in the classroom (Nelson, 2009).

There is no clear definition or set of guidelines in the regulations for special education teachers in SA to follow that would explain this particular set of statistical results regarding the distribution of topics. It would be logical to assume that special education teachers who are responsible for teaching students core subject matter would choose PD activities that covered academic-related topics. And in fact, 88% of the respondents were responsible for teaching core subjects; of that number, 66% were elementary school teachers whose main focus was reading, writing, and math skills. Yet only 34% of the total sample participated in academic-related PD as their most recent activity during the previous two years. In addition, while 75% spent most of the school day with their students, only 19% of them participated in topics such as behavioral intervention or classroom management-related PD activities. All combined, attendance at

academic and behavioral-related activities accounted for 53% of the topics—still short of the total one might expect given the respondents’ focus and roles.

Types

The results of this study determined that the most attended PD activities were presented in the forms of workshops, conferences, and training sessions, with 57.6% participating as either a presenter or attendee. This finding is consistent with many other studies that show that the most attended types of PD are ones offered in one of these three forms (Darling-Hammond, et al., 2009; Garet, et al., 2001; Shakman, et al., 2016). While PD providers continue to rely on workshops, conferences, and training sessions for in-service special education teachers, these types of activities are generally not recommended as effective for ongoing PD. Some studies offer reasons why this is so. Workshops do not allow teachers to apply the newly learned practices in the classroom or offer follow-up support (Guskey, 2000; Yoon et al., 2007). In addition, PD activities that are provided in the form of workshops are not consistent with many of the definitions of teacher PD. For example, Desimone (2009) defines PD activities as “sustained (not stand-alone, one-day, or short-term workshops), intensive, collaborative, job-embedded, data-driven, and classroom-focused” (p. 295).

Providers

Based on the present study sample, approximately three quarters of PD activities for special education teachers are provided by their service agency whether that is their school, district, region, or special education institute. Schools with special education programs provided 2.2% of PD activities for special education teachers, in spite of the fact that under the guidelines of the Regulatory Guide (2015), each school with a special

education program must form a Committee of Excellence and Quality whose purpose, among others, is to create a community of learning that includes all school personnel and other stakeholders. Following the intent of the guide, school-based PD offers a direct way to accomplish this goal. It allows teachers more access to active learning through their participation in learning cycles and in new ways to engage in collective participation, which builds trust among school members and affords the opportunity to engage in a more collective paradigm for the responsibility of increasing student achievement. Moreover, some studies show that PD activities are more effective when conducted in an on-going and school-embedded manor (Dufour, 2004).

Duration

Almost 81% of the respondents of this study reported that they had engaged in 13 or fewer hours of PD activities that were often spread across five or fewer meetings (87.4%). That means that on average, teachers met approximately three times a week for two hours per meeting. Similarly, the majority of respondents for the SASS in the school years of 1999/2000, 2003/4004 and 2007/2008 reported engaging in 16 or fewer hours of PD activities (Wei, et al., 2010; Nelson, 2009; Darling-Hammond, et al., 2009).

The statistics regarding duration of PD activities reported in this study was different than what has been recommended by other researchers to achieve the end goal of PD, which is improving student outcome. Yoon et al. (2007) found that PD with 14 or fewer hours had no statistically significant effect on student achievement, but that PD activity offered from 30 to 100 hours and spread over six to 12 months improves student outcomes by 21 percentile points. Most of the respondents in this study participated in PD that fell into the statistically non-significant range for duration.

Characteristics of Professional Development

Most studies indicate the importance of the characteristics of effective PD in designing impactful PD activities for teachers (Garet et al., 2001; Penuel et al., 2007; Yoon et al., 2007; Desimone, 2009; Kennedy, 1998; Blank and de las Alas, 2009; Holzberg, Clark & Morningstar, 2018). Those characteristics include content focus (e.g., content of subject knowledge, knowledge of how students learn content, knowledge of methods of teaching content), active learning opportunities (e.g., problem-solving, role-playing, visual presentations, discussions), coherence (i.e., the alignment among teachers' PD programs, their beliefs and knowledge, and district and state standards and goals), and collective participation (i.e., participation of teachers from the same school, grade, or department).

This study found that 76.5% of respondents felt that their PD experiences had all four effective PD characteristics. Most of the PD activities provided to special education teachers in SA have a broad sense of the characteristics for effective PD. The other design factors might be an indication to what extent these characteristics were applied.

The results of this study showed a significant relationship between the effective characteristics of PD and the types of PD activities. The type of PD activity sets the tone for other PD design features (Garet, et al., 2001). This study found that workshops are the most attended type of PD. This form of PD activity is associated with insufficient time, while more reform activities such as mentoring and coaching take place during the school day, allowing for more sustainable PD over time (Garet, et al., 2001). Insufficient time leads to fewer opportunities for active learning, in-depth discussion of content, and the ability for a group of teachers to address common student misconceptions and

pedagogical strategies. The traditional types of PD usually extend over one or two days, which is an insufficient amount of time for teachers to apply new practices in their classrooms and obtain feedback on their teaching. Another factor that leads to less than adequate results from PD is the location of the activities. For instance, PD workshops are often held outside of the school. Since students with special needs are often taught by general education teachers as well as special education teachers, it would be beneficial for both categories of teachers to attend workshops. While special education teachers may be more likely to attend a meeting held outside of the school when it is focused on their particular professional needs, general class teachers may not be as inclined, which might lead to less collective participation and shared responsibility of student improvement among school teachers on the job.

Teacher's Job Satisfaction

When measured on a four-point Likert-type scale, the results of the respondents of this study showed that special education teachers in SA are somewhat satisfied with their current job. Saudi special education teachers who participated in PD activities reported a statistically significant higher mean score on job satisfaction than did their counterparts who did not participate in PD activities during the previous two school years. This relation between satisfaction with the teaching profession and PD was also consistent with previous research (Cross & Billingsley, 1994; Gersten et al., 2001; Singh & Billingsley, 1996). This finding confirms Desimone's (2014) and Guskey's (2009) findings that PD leads to changes in teachers' attitudes and beliefs.

In this study, the general scale of job satisfaction included two dimensions: satisfaction with the profession and satisfaction with the school environment. Teachers

rated their satisfaction with the school environment higher than that of their satisfaction with the teaching profession. This finding might be due to the teachers' preparation, because the teachers who participated in PD activities had statistically higher mean scores on satisfaction with the teaching profession. No statistically significant differences were found between groups on a measure of satisfaction with their respective school environments. The research literature shows that increased participation in PD activities is expected to lead to better content knowledge and skills and that higher content knowledge and skills lead to higher rates of teaching self-efficacy (Billingsley, 2004a & 2007). Research further demonstrates that higher teaching self-efficacy is associated with higher job satisfaction.

Limitations

I acknowledge several limitations of this study, and therefore, the findings of this study should be interpreted with some caution. One limitation of my study was that despite the distribution of the questionnaire across all districts in SA, the response rate was low. Therefore, inference of this study findings to all in-service special education teachers' PD activities in the past two years may not be appropriate.

Second, data findings were limited by the depth to which the questions were investigated. For example, no follow-up questions were used to investigate whether coaching and mentoring PD was being used appropriately. Furthermore, the study only included the sponsors of PD activities but not the qualifications and background of those who presented the PD activities that respondents attended.

A third limitation, also related to the study questionnaire, was that only the most common types of PD activities were listed, not all possible PD types (e.g., action

research, study groups, individually guided activities). Last, the study investigated teachers' satisfaction with PD rather than outcomes. As such, inference about the impact of PD activities should be based on changes in teacher classroom practice and student achievement as well teachers' beliefs and attitudes.

Implications

Two of the most important results of the present study were that approximately 45% of the special education teacher respondents did not receive any form of induction program in their early years of employment as special education teachers and that approximately 40% of these teachers did not receive PD during the two years prior to their responses to the questionnaires. These are concerning numbers since first, other studies have proven that effectual PD must be ongoing and job embedded, and second, since one of the main goals of 2030 Saudi Vision is to develop innovative methods to train in-service teachers, it is crucial to pursue a course that ensures well-planned and well-executed PD for all teachers, and that includes special education teachers.

Unfortunately, studies have found that Saudi special education and general education teachers have not been properly prepared to instruct their students (Lakhani, 2015; Alharz, 2008; Alaqee, 2005; Al-Jarf, 2005). The findings from this study offer several suggestions for improving PD for both new and experienced special education teachers.

Induction Supports for Beginning Teachers

New special education teachers struggle with content area teaching, conducting assessments, classroom management, and managing their varied roles in the school (Billingsley, et al., 2009). The findings of this study showed that the respondents had limited access to mentoring opportunities, which could explain their low participation

rate in mentoring, and that only half of them had received some sort of induction support. Mentor-based induction can be effective in enhancing the job (Sindelar, Brownell, & Billingsley, 2010).

There are many elements to consider to ensure the effectiveness of mentoring-based induction programs. Referencing the findings of 20 research studies on the topic of mentoring new special education teachers, Griffin (2010) highlighted some of the critical elements involved:

- the physical proximity of mentors
- the availability of content support
- the presence of and methods of evaluation
- novice special education teachers prefer mentors who teach the same disability category and have enough knowledge of special education procedures, paperwork, and teaching strategies.
- mentors should be approachable, available, patient, and pose strong communication skills
- new special education teachers benefit more from mentors located within the same school for easy access and more opportunities for support
- Mentees reported the importance of having access to their mentors for emotional support and feedback, instructional materials, and information about school and district resources.

In SA, mentoring is provided by the special education program coordinators within the school. The evaluation is given by the school principal in three formal classroom visits during the novice teacher's first school year (Regulatory Guide, 2015).

To improve the mentoring practice, the following research findings should be considered: creating assessments to match mentor and mentee, self-assessment for mentees, a systematic plan for the mentoring program with clear goals and expectations, and clear directives for evaluating the success of the program. It is important that mentors and mentees be given time for common planning and observation and are offered release time for jointly attending PD (Irinaga-Bistolos, Schalock, Marvin, & Beck, 2007). In addition, regular formal classroom visits should be conducted by special education experts because feedback on classroom performance is especially important for novice special education teachers. The forms for self-assessment, mentor selection criteria, action planning, and evaluation of the mentorship program should be mandated and included in the Procedural Guide (2015). Designing effective PD programs is important for new and experienced special education teachers (Rude & Brewer, 2003).

Professional Development Activities for Experienced Teachers

The process of change for in-service teachers is difficult and may happen after a long period of time due to teacher resistance to adopting new practices (Lortie, 1975). Experienced teachers might be able to adopt new practices if they change their attitudes and beliefs (Desimone, 2009) or observe an increase in their student outcomes (Guskey, 2000). Ensuring positive impact of PD requires careful crafting of PD activities, which for special education teachers means closing the education gap between their students and general education students. Taking into consideration the goals of special education coupled with the findings of this study can provide stakeholders with better tools for assessing and designing PD.

First and foremost, PD for special education teachers in SA should be defined and described in the Regulatory Guide (2015) for special education programs, which can be adapted from IDEIA (2004). IDEIA (2004) defines key elements of PD activities including the purpose of PD and its effective characteristics (i.e., sustained, intensive, collaborative, job-embedded, data-driven, classroom-focused, and an integral part of larger improvement plans). Based on the findings of this study, Saudi policymakers should incorporate the definition and requirements that are linked to effective PD in all formal documentation.

Effective PD is driven by evaluation and teacher needs. As recommended by Guskey (2000), PD evaluation should be used in the planning phase, the formative evaluation phase during PD, and summative evaluation phase at the end of PD. The planning evaluation takes place before the activity begins and aims to provide, among other elements, information and understanding of what is to be accomplished and how it is to be evaluated. Planning evaluation involves a review of the overall goal and measures the outcomes, including the characteristics of the participants, analysis of the context, and the tools used for evaluation (Guskey, 2000). Formative evaluation occurs during the implementation period to inform those responsible about the progress being made toward reaching the goals and whether any changes are necessary to accomplish those goals. Formative evaluation data are collected many times throughout the program. Methods of data collection include questioning the participants about their initial reaction to the PD content and the appropriateness of the PD time and place. Finally, summative evaluation occurs at the end of the PD activities and provides the overall judgment of the worthiness of the PD as reflected in any changes in teacher professional practices and

responses in student learning by collecting data on student performance from state tests, from school and district record, or through student interviews and observation.

Future Research

Given the importance of PD for educational improvement, future research should continue to examine the design and impact of PD activities. The findings of this study indicated that additional research is needed for PD in Saudi Arabia. This study might be viewed as a step toward developing general knowledge about PD activities for special education teachers in Saudi Arabia. Future studies that seek to examine the design of PD should include a larger number of participants and list all PD types followed by the clustered items for each characteristic of the PD activity to provide a more complete picture of the PD experience. In addition, rigorous research is needed to examine the impact of the effective characteristics of PD on teacher practices and student outcomes. The Characteristics of Professional Development Survey (see Appendix A) should be used to align PD for experimental groups with effective characteristics and investigate the teachers' perceptions of the quality of their PD experience.

Conclusion

With an understanding that teachers must address changes in themselves as well as in their students, one very important and successful way for teachers to accomplish this task is through the application of effective professional development. PD has become a keynote for educational reforms that over time lead to improvement in student achievement. The nature of teacher development and the money spent on PD programs require careful crafting of PD activities that are geared especially for special education teachers because of the complexity of their roles in schools and their often-inadequate

preparation to successfully undertake those roles. Given the importance that PD plays in creating meaningful change in student achievement, teacher PD evaluation is a critical component. Evaluating the success and failure of PD activities involves an interrelated study of structural and core factors. This study set out to determine the ways that this can be accomplished in light of its general purpose, which was to explore the professional development experiences of special education teachers in Saudi Arabia.

One aspect of fulfilling this purpose was to examine research-based practices of effective PD for teachers and the impact of PD on teachers' satisfaction. As reported in detail earlier in chapter, the survey of Saudi special education teachers who were actively employed in Saudi public schools during the 2019/2020 school year showed that only a third of the respondents had received any professional development in the previous two years and that of those who had, most of them attended short-term workshops, which studies have found are not adequate in providing the components necessary to ensure effective teacher development. In addition, although the Saudi special education teachers were found to be somewhat satisfied with their work, their satisfaction with the school environment was statistically significantly higher than their satisfaction with the teaching profession as a whole. Especially telling was the fact that the results showed that Saudi teachers who participated in PD had a positive statistically significant difference on job satisfaction relative to their counterparts who did not participate in PD.

The findings of this study offer PD providers and policy-makers in Saudi Arabia information that may aid in reflection and future planning. In general, the findings urge stakeholders to seek out PD for special education teachers that adopts industry-wide,

high-quality PD and uses a more comprehensive approach for PD evaluation in place of the current documentation approach.

APPENDIX A
QUESTIONNAIRE

Characteristics of Professional Development Survey

First section

Q1 What is your gender?

- Male
- Female

Q2 What is the highest level of formal education you have completed?

- Associate's Degree
- Bachelor's Degree
- Master's Degree
- Doctoral Degree
- Other (please specify) _____

Q3 In which school level do you currently teach?

- Early education
- Elementary
- Middle school
- High school

Q4 How many years have you been teaching in special education?

- Less than 1 year
- 1-3 years
- 4-6 years
- 7-9 years
- 10 or more years

Q5 What is your area of teaching certification?

- Autism
- Emotional and behavioral disorders (behavioral training)

- Hearing impairment
- Intellectual disabilities
- Learning disabilities
- Visual impairment
- Other (please specify) _____

Q6 What is your teaching role in special education?

- In a self-contained room
- In a resource room
- An itinerant for multiple locations
- Co-teaching in an inclusive classroom
- Special education coordinator
- Other (please specify) _____

Q7 In your first regular employment as a teacher, did/do you take part in any induction program?

An 'induction program' is defined as a range of structured activities to support your introduction into the teaching profession, for example peer work with other new teachers, mentoring by experienced teachers, etc.

- Yes
- No

Professional Development

Second section.

In this section, you will be answering questions related to your professional development (PD) experiences.

PD is broadly defined as “a comprehensive, sustained and intensive approach to improving teachers’ and principals’ effectiveness in student achievement” (National Staff Development Council, 2010). PD may be job-embedded or discrete, and could include such activities as, but not limited to, the following: coaching, data analysis, lesson study, action research, conferences, workshops, in-service training.

Please only consider PD you have taken after your initial teacher training/education.

In the past 2 years, have you participated in any PD activities?

- Yes
- No → go to job satisfaction

Professional Development

For the most recent PD activity in which you participated in the past two years (if you participated in more than one PD activity, please pick the most recent one **only**).

1. Please select the topic of professional activity you had

Reading and writing content knowledge	<input type="radio"/>
Reading and writing instructional strategies	<input type="radio"/>
Math content knowledge	<input type="radio"/>
Math instructional strategies	<input type="radio"/>
Effective instruction for children with high incidence disabilities	<input type="radio"/>
Effective instruction for children with low incidence disabilities	<input type="radio"/>
Classroom management	<input type="radio"/>
Student Assessments	<input type="radio"/>
Behavior Intervention Plans	<input type="radio"/>
Effective IEP design and implementation	<input type="radio"/>
Student Transition Planning	<input type="radio"/>
Parental involvement	<input type="radio"/>
Response to interventions	<input type="radio"/>
Technology for instructional support	<input type="radio"/>
The rights of people with special needs	<input type="radio"/>
Collaboration with general education teachers	<input type="radio"/>
Social, communication, and life skills independency strategies	<input type="radio"/>
Developmental and academic characteristics of students with disabilities	<input type="radio"/>
Inclusion strategies	<input type="radio"/>
accommodations and modification for curriculum and assignments	<input type="radio"/>
Universal access	<input type="radio"/>

2. What was the type of this activity?

- University courses (non-degree)
- Observational visits to other schools.
- Workshops, conferences, or training sessions in which you were a presenter.
- Other workshops, conferences, or training sessions in which you were NOT a presenter.
- School or district improvement activities such as curriculum development.
- Observe, or be observed by, other teachers in your classroom (for at least 10 minutes).
- Act as a coach or mentor to other teachers or staff in your school, or receive coaching or mentoring.

3. Please indicate which of the following providers you have received the PD activity from?

- University
- Tatweer
- Your local learning agency
- Your regional learning department
- The Ministry of Education
- Your school
- Special education institute
- Other organizations. Please specify

4. How many hours did you spend on this program?	
(If do not remember the exact hours, please estimate: one day is six hours)	
Six hours or less	<input type="radio"/>
Seven-13 hours	<input type="radio"/>
14-32 hours	<input type="radio"/>
33 hours or more	<input type="radio"/>
5. How many times did you meet for this program?	
One meeting	<input type="radio"/>
Two meetings	<input type="radio"/>
Three to five meetings	<input type="radio"/>
Six to eight meetings.	<input type="radio"/>
More than nine meetings.	<input type="radio"/>

Characteristics of Effective Professional Development

1. For the most recent PD program in which you participated, please select which of the following activities related to active learning in the classroom you did.

- | | |
|--|-----------------------|
| Analyzed student work. | <input type="radio"/> |
| Created instructional materials for use in my classroom. | <input type="radio"/> |
| Completed the work or problems myself that the students would be doing in class. | <input type="radio"/> |
| Wrote learning objectives. | <input type="radio"/> |
| Adapted general education curriculum for my students. | <input type="radio"/> |
| Reflected on the effectiveness of a lesson. | <input type="radio"/> |
| Wrote assessments to match the learning objectives. | <input type="radio"/> |

2. For the most recent PD program in which you participated, please select which of the following activities related to active learning beyond the classroom you did.

- | | |
|---|-----------------------|
| Observed videos of classroom instruction. | <input type="radio"/> |
| Practiced a new skill under simulated conditions. | <input type="radio"/> |
| Made a presentation to colleagues. | <input type="radio"/> |
| Reflected on my new learning in a journal. | <input type="radio"/> |
| Participated in a coaching cycle (planning, observation, feedback). | <input type="radio"/> |
| Discussed articles from an educational journal or book. | <input type="radio"/> |

1. For the most recent PD program in which you participated, please select which of the following activities that you did related to teacher's content knowledge and how students learn the content.

- Gained a deeper understanding of the subjects I teach.
- Learned more about the content by teaching it to my students.
- Raised my expectations for student performance because I understood the content more thoroughly.
- Became more confident in my ability to answer student questions about a topic.
- Became more interested in a subject.
- Changed the way I thought about a subject.
- Learned more about the content on my own.
- Used the teacher resources provided in the curriculum to learn more about the content.
- Learned how to recognize and address common student misconceptions.
- Developed skills to connect students' new learning to prior learning and experiences.
- Became more confident in my ability to know the next step I needed to take to deepen students' conceptual understanding.
- Expanded my understanding of how students learn
- Learned ways to use data to assess student learning needs.

2. For the most recent PD program in which you participated, please select which of the following items related to the PD program you did in terms of coherence.

- Designed to build upon each other as the year progressed.
- Planned based on analysis of student data.

Aligned with our school's mission and vision.	<input type="radio"/>
Part of a coherent program for teacher growth.	<input type="radio"/>
Aligned with the district's learning improvement goals.	<input type="radio"/>
Designed to support state or district assessments.	<input type="radio"/>
Focused on improving student learning.	<input type="radio"/>
Designed to support state performance expectations or grade level expectations.	<input type="radio"/>
Spread evenly throughout the school year (duration).	<input type="radio"/>

3. For the most recent PD program in which you participated, please select which of the following activities related to collective participation you did.

Collaborated with grade level colleagues to improve student learning.	<input type="radio"/>
Spent time building trusting relationships with my colleagues.	<input type="radio"/>
Collaborated with the teachers at other schools in my district.	<input type="radio"/>
Created norms for effective social interaction with my colleagues.	<input type="radio"/>
Attended PD activities with a team from my school.	<input type="radio"/>
Collaborated with colleagues to design flexible groups based on student need.	<input type="radio"/>
Shared effective instructional strategies with colleagues.	<input type="radio"/>
Co-taught lessons.	<input type="radio"/>
Learned effective ways to collaborate to improve student learning.	<input type="radio"/>
Collaborated with the teachers in the grade level below me.	<input type="radio"/>

Was a member of a professional learning community.	<input type="radio"/>
Felt a sense of collective responsibility for improved student performance.	<input type="radio"/>
Observed colleagues and provided feedback.	<input type="radio"/>
Followed norms to maximize group effectiveness.	<input type="radio"/>
Collaborated with the teachers in the grade level above me.	<input type="radio"/>
Was encouraged by my colleagues to grow professionally.	<input type="radio"/>

Teacher Job Satisfaction Scale

Third Section. How you generally feel about your job. How strongly do you agree or disagree with the following statements?

Please mark one choice in each row.

	Strongly Agree	Agree	Disagree	Strongly Disagree
The advantages of being a teacher clearly outweigh the disadvantages.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I could decide again, I would still choose to work as a teacher.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would like to change to another school if that were possible.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I regret that I decided to become a teacher.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy working at this school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wonder whether it would have been better to choose another profession.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would recommend my school as a good place to work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think that the teaching profession is valued in society.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with my performance in this school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All in all, I am satisfied with my job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX B

EXPERT EVALUATION FORM

Expert Evaluation Form

You are being invited to participate as an Expert rater in a research study titled “An Assessment of the PD of Special Education Teachers in Saudi Arabia.” This study is being done by *Raja Almutairi* from the University of Massachusetts Amherst as a part of my degree requirements. The purpose of this research study is to identify the PD programs for special education teachers and to which extent these programs aligned with the standards of effective PD, and the association of PD and your job satisfaction.

The instrument used in this study is a translation of assessment survey for the characteristics of teacher PD developed by Soine & Lumpe, 2014. Since you have expertise in special education and the English language, I am sending a draft copy of the instrument and requesting your assistance in evaluating if items translation is semantically and technically equivalent through a simple “Yes” or “No” answer. Please feel free to suggest any changes in the comment’s column

Kind regards,

Raja Almutairi
College of Education
University of Massachusetts-Amherst
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(970)534-5669

		Translation Equivalence		
	Item/translation	yes	no	comments
Activities related to active learning in the classroom				
1	Analyzed student work. تحليل اداء الطلاب			
2	Created instructional materials for use in my classroom. عملت مواد تعليمية للاستخدام في الصف الدراسي			
3	Completed the work or problems myself that the students would be doing in class. اكملت العمل أو المشكلة التي سيقوم الطلاب بتأديتها			
4	Wrote learning objectives. كتابة الأهداف التعليمية			
5	Adapted general education curriculum for my students. التكيف والتعديل في المنهج ليتناسب مع الاهداف التعليمية			
6	Reflected on the effectiveness of a lesson. التفكير في مدى فعالية الدرس			
7	Wrote assessments to match the learning objectives. كتابة أداة التقييم التي تتطابق مع الاهداف التعليمية			
Activities related to active learning beyond the classroom				
1	Observed videos of classroom instruction. متابعة فيديو متعلق بالموضوع			
2	Practiced a new skill under simulated conditions. ممارسة مهارة جديدة عن طريق المحاكاة			
3	Made a presentation to colleagues. قمت بعمل عرض حول الموضوع لفائدة الزملاء			
4	Reflected on my new learning in a journal. كتابة تقرير او نص عما تعلمته في البرنامج			
5	Participated in a coaching cycle (planning, observation, feedback). شاركت في دورة تعليمية (التخطيط، المتابعة، التغذية الراجعة)			
6	Discussed articles from an educational journal or book.			

مناقشة مقالات من كتاب أو مجلة				
Activities related to teacher's content knowledge and how students learn the content				
1	Gained a deeper understanding of the subjects I teach.			
	اكتسبت فهماً أعمق للمواد التي ادرسها			
2	Learned more about the content by teaching it to my students.			
	تعلمت أكثر حول المحتوى التعليمي عن طريق تدريسه لطلابي.			
3	Raised my expectations for student performance because I understood the content more thoroughly.			
	رفعت سقف توقعاتي بخصوص أداء الطلاب بسبب تعمقي في فهم المحتوى التعليمي.			
4	Became more confident in my ability to answer student questions about a topic.			
	أصبحت أكثر ثقة بقدراتي عند الإجابة على أسئلة الطلاب.			
5	Became more interested in a subject.			
	أصبحت أكثر اهتماماً بالمادة العلمية			
6	Changed the way I thought about a subject.			
	غيرت طريقة تفكيري حول المادة العلمية			
7	Learned more about the content on my own.			
	تعلمت أكثر عن المحتوى العلمي بنفسني			
8	Used the teacher resources provided in the curriculum to learn more about the content.			
	استخدمت الموارد التعليمية الخاصة بالمعلمين فيما يتعلق بالمنهج الدراسي للتعلم أكثر عن المحتوى.			
9	Learned how to recognize and address common student misconceptions.			
	تطورت مهارتي في التعرف والتعامل مع المفاهيم الخاطئة لدى الطلاب.			
10	Expanded my understanding of how students learn.			
	تطور معرفتي في كيفية التعلم لدى الطالب.			
11	Learned ways to use data to assess student learning needs.			
	اكتسبت طرق جديدة للتعرف على احتياجات الطلاب من خلال نتائج التقييم			

items related to the PD program in terms of the coherence with teachers' needs and circumstances				
1	Designed to build upon each other as the year progressed. تم تصميم برنامج التطوير المهني بطريقة متسلسلة ومتراصة على مدار العام الدراسي			
2	Planned based on analysis of student data. تم التخطيط لهذا البرنامج بناء على نتائج الطلاب			
3	Aligned with our school's mission and vision. البرنامج متنسق مع رسالة ورؤية الوزارة.			
4	Part of a coherent program for teacher growth. البرنامج كان جزء من برنامج متكامل لتنمية المعلم.			
5	Aligned with the district's learning improvement goals. البرنامج متنسق مع الأهداف التطويرية للمنطقة التعليمية			
6	Designed to support state or district assessments. تم تصميم البرنامج لدعم توقعات الاداء المأمول من طلابك في نفس المرحلة الدراسية			
7	Focused on improving student learning. البرنامج يركز على تحسين تعلم لدى الطلاب			
8	Spread evenly throughout the school year. البرنامج التطويري كان موزع بشكل متوازي على مدار السنة الدراسية.			
Activities related to collective participation				
1	Collaborated with grade level colleagues to improve student learning. تعاونت مع زملائي المعلمين في نفس المرحلة الدراسية لتحسين تعلم الطلاب			
2	Spent time building trusting relationships with my colleagues. قضيت وقتا في بناء علاقات قوية مع زملائي			
3	Collaborated with the teachers at other schools in my district. تعاونت مع زملائي في مدارس أخرى في منطقتي			
4	Created norms for effective social interaction with my colleagues. خلقت مبادئ فعالة للتفاعل الاجتماعي مع زملائي			

5	Attended PD activities with a team from my school. حضرت برنامج التطوير المهني مع فريق من مدرستي.			
6	Collaborated with colleagues to design flexible groups based on student need. تعاونت مع زملائي في تصميم مجموعات مرنة حسب احتياجات الطلاب			
7	Shared effective instructional strategies with colleagues. تبادلنا استراتيجيات فعالة للتدريس			
8	Co-taught lessons. درست مع زملائي في نفس الصف			
9	Learned effective ways to collaborate to improve student learning. تعلمت طرقا فعالة للتعاون لتحسين عملية التعلم لدى الطلاب.			
10	Collaborated with the teachers in the grade level below me. تعاونت مع معلمين صفوف أدنى مني			
11	Was a member of a professional learning community. كنت عضوا في مجتمع تعليمي مهني.			
12	Felt a sense of collective responsibility for improved student performance. شعرت بالمسؤولية الجماعية لتحسين اداء الطلاب.			
13	Observed colleagues and provided feedback. لاحظت اداء المعلمين وابدت رأيي فيه.			
14	Followed norms to maximize group effectiveness. اتبعت مبادئ تحسين فاعلية العمل الجماعي.			
15	Collaborated with the teachers in the grade level above me. تعاونت مع معلمين صفوف اعلى مني.			
16	Was encouraged by my colleagues to grow professionally. وجدت تشجيع من زملائي لتطوير نفسي مهنيا			

APPENDIX C

INSTITUTIONAL REVIEW BOARD APPROVAL

UMassAmherst

Human Research Protection Office

Mass Venture Center
100 Venture Way, Suite 116
Hadley, MA 01035
Telephone: 413-545-3428

LETTER OF EXEMPT DETERMINATION

Date: November 27, 2019

To: Professor John Hosp and Raja Almutairi, Education

From: Professor Lynnette Leidy Sievert, Chair, University of Massachusetts Amherst IRB

Protocol Title: *An Assessment of the Professional Development of Special Education Teachers in Saudi Arabia*

Protocol ID: 1530

Review Type: EXEMPT -NEW

Category: 2

Review Date: 11/27/2019

No Continuing Review Required

UM Proposal #:

The Human Research Protection Office (HRPO) has reviewed the above named submission and has determined it to be EXEMPT from the federal regulations that govern human subject research (45 CFR 46.104)

Note: This determination applies only to the activities described in this submission. All changes to the submission (e.g. protocol, recruitment materials, consent form, additional personnel), must be reviewed by HRPO prior to implementation.

A project determined as EXEMPT, must still be conducted in accordance with the ethical principles outlined in the Belmont Report: respect for persons, beneficence, and justice. Researchers must also comply with all applicable federal, state and local regulations as well as UMass Amherst Policies and procedures which may include obtaining approval of your activities from other institutions or entities. All personnel must complete CITI training.

Consent forms and study materials (e.g., questionnaires, letters, advertisements, flyers, scripts, etc.) - Only use the consent form and study materials that were reviewed by the HRPO.

Final Reports - Notify the IRB when your study is complete by submitting a Final Report Form in the electronic protocol system.

Serious Adverse Events and Unanticipated problems involving risks to participants or others - All such events must be reported in the electronic system as soon as possible, but no later than five (5) working days.

Annual Check In - HRPO will conduct an annual check in to determine the study status.

Please contact the Human Research Protection Office if you have any further questions. Best wishes for a successful project.

APPENDIX D

MINISTRY OF EDUCATION LETTERS

Ministry of Education Letters



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الرقم الموحد : 41102691317



وزارة التعليم
Ministry of Education

المملكة العربية السعودية
وزارة التعليم

وكالة التخطيط والتطوير
مركز بحوث سياسات التعليم

الموضوع: بشأن تسهيل مهمة الباحث / رجا المطيري

سعادة مدير عام التعليم بالمنطقة الشرقية
السلام عليكم ورحمة الله وبركاته
تجدون سعادتكم أدناه باركود و رابط استبانة للباحث بجامعة الملك سعود / رجا بن
نقاء المطيري، بعنوان "تقييم برامج التطوير المهني المقدمة لمعلمي ومعلمات التربية
الخاصة بالمملكة العربية السعودية".
آمل من سعادتكم التكرم بالتوجيه باستيفائها من معلمي ومعلمات التربية الخاصة لجميع
المراحل الدراسية - بعد الفراغ من أعمال الاختبارات - على الباركود أو الرابط التالي:



https://umassamherst.co1.qualtrics.com/jfe/form/SV_4OrvGzZSWK5Rsgt

وللاستفسار يمكن التواصل مع الباحث على البريد التالي:

raja.almutairi@gmail.com

وتقبلوا تحياتي وتقديري

مدير عام مركز بحوث سياسات التعليم

أ.د. عبد الرحمن بن عبد الكريم مرزا



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مركز بحوث سياسات التعليم

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وفقه الله

سعادة مدير عام التعليم بمنطقة تبوك

السلام عليكم ورحمة الله وبركاته

تجدون سعادتكم أدناه باركود و رابط استبانة للباحث بجامعة الملك سعود / رجا بن نعاء المطيري، بعنوان "تقييم برامج التطوير المهني المقدمة لمعلمي ومعلمات التربية الخاصة بالمملكة العربية السعودية".

أمل من سعادتكم التكرم بالتوجيه باستيفائها من معلمي ومعلمات التربية الخاصة لجميع المراحل الدراسية - بعد الفراغ من أعمال الاختبارات - على الباركود أو الرابط التالي:



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وفقه الله

سعادة مدير عام التعليم بمحافظة الطائف

السلام عليكم ورحمة الله وبركاته

تجدون سعادتكم أدناه باركود ورابط استبانة للباحث بجامعة الملك سعود / رجا بن نقاء المطيري، بعنوان "تقييم برامج التطوير المهني المقدمة لمعلمي ومعلمات التربية الخاصة بالمملكة العربية السعودية".

آمل من سعادتكم التكرم بالتوجيه باستيفائها من معلمي ومعلمات التربية الخاصة لجميع المراحل الدراسية - بعد الفراغ من أعمال الاختبارات - على الباركود أو الرابط التالي:



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وفقه الله

سعادة مدير عام التعليم بمنطقة الرياض
السلام عليكم ورحمة الله وبركاته

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مركز بحوث سياسات التعليم

الموضوع: بشأن تسهيل مهمة الباحث/ رجا المطيري

سعادة مدير عام التعليم بمحافظة الأحساء
السلام عليكم ورحمة الله وبركاته
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أمل من سعادتكم التكرم بالتوجيه باستيفائها من معلمي ومعلمات التربية الخاصة لجميع
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الموضوع: بشأن تسهيل مهمة الباحث / رجا المطيري

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مدير عام مركز بحوث سياسات التعليم

أ.د. عبد الرحمن بن عبد الكريم مرزا

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