12-1-2015

Evidence-~based Practices: An Exploratory Study Concerning School District Professional Development Considerations

Pamela Marie Juniel
University of Nevada, Las Vegas

EVIDENCE-BASED PRACTICES: AN EXPLORATORY STUDY CONCERNING SCHOOL

DISTRICT PROFESSIONAL DEVELOPMENT CONSIDERATIONS

By

Pamela Marie Juniel

Bachelor of Arts in General Studies
University of Nevada, Reno
May 1999

Master of Education in Special Education
University of Nevada, Las Vegas
August 2007

A dissertation submitted in partial fulfillment
Of the requirements for the

Doctor of Philosophy - Special Education

Department of Educational and Clinical Studies
College of Education
The Graduate College

University of Nevada, Las Vegas
December 2015

UNLV | GRADUATE COLLEGE

Dissertation Approval

The Graduate College
The University of Nevada, Las Vegas

November 9, 2015

This dissertation prepared by

Pamela M. Juniel

entitled

Evidence-Based Practices: An Exploratory Study Concerning School District
Professional Development Considerations

is approved in partial fulfillment of the requirements for the degree of

Doctor of Philosophy – Special Education
Department of Educational and Clinical Studies

Kyle Higgins, Ph.D.   Kathryn Hausbeck Korgan, Ph.D.
Examination Committee Chair   *Graduate College Interim Dean*

Monica Brown, Ph.D.
Examination Committee Member

Joseph Morgan, Ph.D.
Examination Committee Member

Richard Tandy, Ph.D.
Graduate College Faculty Representative

ABSTRACT

**Evidence-based Practices: An Exploratory Study Concerning School District
Professional Development Considerations**

By Pamela M. Juniel

Dr. Kyle Higgins, Committee Chair
Professor of Special Education
University of Nevada, Las Vegas

The identification and implementation of evidence-based practices by special education
and general education teachers continues to be an issue in the field of education (Cook & Cook,
2011; Cook, Tankersley, Cook, & Landrum, 2008). Since the mandates of providing students
with disabilities access to the general education curricula (IDEA, 2004) with services based on
empirical research (NCLB, 2001) are required, teachers are implored to improve their teaching
skills (Cook et al., 2008). Recently, the field of education has made efforts to support teachers in
the identification and use of evidence-based practices by establishing a system and process for
identifying evidence-based practices (Cook, Tankersley, & Landrum, 2009). A key element of
this process requires a systematic approach to evaluate research that supports evidence-based
practices in pre-service teacher education and in school-based professional development (Cook,
et al., 2008; Hornby, Gable, & Evans, 2013; Odom, 2009; Whitehurst, 2002).

Currently, little research exists focusing on: (a) the translation of educational research
into daily practice in schools and classroom settings, (b) the incorporation of evidence-based
practices in teacher training or in school-based professional development, and (c) the
effectiveness of specific strategies on improved student outcomes (Avalos, 2011; Hornby, et al.,
2013). The research-to-practice gap continues to be an issue in schools because professional
development initiatives do not include data collection on the implementation of evidence-based

practices in school-based settings (Hornby, et al., 2013). At this point, there is no national data available to determine what school district professional development providers consider important when planning professional development for educators.

The purpose of this study was to examine and compare which quality indicators and classifications of evidence-based practices were considered important by school district professional development personnel based on specific characteristics (e.g., education level, years of experience, where curricular decisions are made) when they plan and create school-based professional development for general and special educators. This study was conducted using a national sample of 736 school districts in small, medium, and large school districts. A questionnaire containing 28 items broken into two categories: (a) quality indicators, and (b) classifications was used to collect responses from professional development coordinators across the United States.

The results of this study indicated that school district professional development providers may not consider the evidence-based practice standards prescribed by the Council for Exceptional Children (2014) when planning school-based professional development for general and special educators. The results of this study also provided the foundation needed for future research to support the identification and use of evidence-based practices as a component in teacher education and professional development in the field of education.

ACKNOWLEDGMENTS

I would like to thank God for all of the blessings that have been bestowed upon my life. I would like to thank my dissertation committee beginning with Dr. Higgins. Thank you for your brilliance and vision that resulted in a study that will provide a platform for the next era of educational research. Dr. Tandy, thank you for your expertise and allowing me to rely on my own judgment to improve my understanding of statistics. Dr. Morgan, thank you for your assistance with bringing consistency to the interpretation and importance of this study. Dr. Brown, thank you for your constant encouragement and support in seeing this to its expected end. I would like to thank my mentors Dr. Christine Clark, Dr. Antonio Gutierrez, and Mr. Leon Green for your wisdom and support navigating this process.

I would like to thank the Rhodes, Thrasher, Weinert, and Hightower families for supporting me and embracing Layla as a part of each of your families for the duration of my studies. I was able to excel knowing that she was in great hands. A special thanks to Marc Louis for always being there for Layla when she needed you. Layla truly is a reflection of all of your collective love and affection. I appreciate the Mosley, Gray, Denson, Robinson, Parson, and Mason families for your constant prayers, encouragement, and support. I felt your acceptance and support every step of the way.

I would like to thank my aunt Lois Mack--you inspire me with your wit and wisdom of 44 years of teaching experience—you are the greatest person in the world! Thank you to retired faculty-emeritus Hazel Ralston for being my first mentor in higher education—thank you for more than 20 years of friendship, guidance, prayers, and love. I would like to thank my sister, Lakeisha who kept me grounded and was my voice of reason during this process. Thank you for helping stay true to myself and stand up for myself when the going got tough. I love you for

giving me fashion advice when I was too tired to care or dress myself. Thank you to my great friends Wendie, Allenda, Joanne, Patrick, and Troy for being sounding boards and shoulders to lean on when I had my weary moments. A special thanks to Dr. Neal Nguyen whose friendship was always true and for going to bat for me when others shied away—you are the activist I aspire to be. Thank you to my Kermit R. Booker Innovative School family. To all of the administration, staff, and students--thank you for such a wonderful environment to grow as a professional and continue to live out my life's purpose.

Finally, I would like to thank the person who sacrificed the most and saw me the least—my amazing daughter, Layla DeNise Juniel. Thank you Layla for always understanding when I had to work late, study for days at a time, present at conferences, and for joining me to spend countless hours in the library. Thank you for believing in me and being there with me for all of it. Just know that every minute I spent away from you was to open doors for you and—to show you that with God, (and hard work), all things are possible. This degree is just as much yours as it is mine. Layla, you truly are my greatest accomplishment and contribution to the world. Mommy will always love you.

Dedications

This study is dedicated to my grandparents, family, and friends who did not live to see me finish this degree--your lives give me the strength I need to keep moving forward. I am eternally grateful for your legacy and what you brought to my life.

For all of my students for whom I am honored and privileged to serve—you are the reason I wake up every day and pay it forward with pride.

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CHAPTER ONE

INTRODUCTION

Evidence-based practice (EBP) has been discussed in the fields of medicine, psychology, and education for 20 years (Spring, 2007). In terms of education, the major discussion has occurred over the past 15 years (Cook, Tankersley, & Landrum, 2009; Odom, et al. 2005). Although the *Individuals with Disabilities Education Act* (IDEA, 2004) requires that students with disabilities have access to general education curricula and be educated with students without disabilities as appropriate (Yell, Shriner, & Katsiyannis, 2006), the *No Child Left Behind Act* (NCLB, 2001) specifically mandates that all children and youth receive educational services based in empirical research with evidence of positive outcomes. Since the emergence of standards-based education, inclusion, and required proficiency testing, teachers have been charged to improve their teaching practices (Cook, Tankersley, Cook, & Landrum, 2008).

Historically, some attempts have been made to bridge the research-to-practice gap in the identification and utilization of evidence-based practices in special education (Kretlow & Blatz, 2011; Mostert & Crocket, 2000). Recently, efforts have been made to support teachers in the identification and use of evidence-based practices. The field of education has moved forward in establishing a system and process for identifying evidence-based practices (Cook, et al. 2009). The What Works Clearinghouse established by the federal government in 2002 aimed to identify evidence-based practices in education for the general student population—typical students without documented disabilities. In recent years, the What Works Clearinghouse developed the *Design and Implementation Assessment Device* (DIAD), an evaluation tool that is used to determine the strength and effectiveness of previously published group and quasi-experimental research designs.

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In 2014, the Council for Exceptional Children published the *Standards for Evidence-based Practices in Special Education* (Cook, et al. 2014). This monograph outlined specific standards teacher educators, researchers, and professional developers should use in evaluating research in the field. However the research-to-practice gap continues (Cook & Odom, 2013). Currently, little research exists focusing on the incorporation of evidence-based practices in teacher training or in school-based professional development (Cook & Odom, 2013).

Definitions of Evidence-based Practice

Several disciplines have defined and refined the premise of an evidence-based practice. The topic of evidence-based practices initially surfaced in the medical field in the 1990s (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996). It appears that the term evidence-based practice reflects philosophical differences across professional disciplines in terms of identification and utilization (Eddy, 2005). The fields of medicine, psychology, and education have a variety of definitions and characteristics of evidence-based practices that focus on improved outcomes for individuals within the respective fields, but not how they are determined (Cook & Odom, 2013; Kretlow & Helf, 2013; Mouton, 2010).

The Field of Medicine

In medicine, an evidence-based practice is defined as a problem-solving approach that uses the best evidence available to make decisions about patient care (LoBiondo-Wood, & Haber, 2014). Evidence-based practice is demonstrated through a systematic search and critical appraisal of relevant clinical data, expert opinion, family values, and patient needs to answer the clinical question asked (Melnyk & Fineout-Overholt, 2011). Evidence-based medicine involves the integration of clinical expertise and the clinical research evidence (Sackett, et al. 1996).

The Field of Psychology

The field of psychology defines evidence-based practice as a process involving the explicit and judicious use of current best evidence when making decisions about the care of an individual client (Sackett, et al. 1996). An EBP in psychology is based on a spectrum of normative guidelines (e.g., treatment recommendations, interventions lists, decision-making principles) (Spring, 2007).

Barkham and Mellor-Clark (2003) believe that it is difficult for psychological practitioners to use true evidence-based practice in therapy because clinical settings differ substantially, resulting in a large range of treatment options. This similarity is found in education. However, most psychologists define evidence-based practice as a paradigm founded on efficacy research and resulting in applied science (e.g., professional activity) (Peterson, 1991).

The Field of Education

Historically, the field of education did not have an established process for identifying evidence-based practices. Recently evidence-based practices have been defined as those shown to be credible and proven effective through rigorous scientific research (Cook, Cook, Landrum, & Tankersley, 2008; Odom, et al. 2005).

There were significant discrepancies in the field of education in determining the efficacy and effectiveness of practices when a specific practice, supported by research, is adopted and used in schools (Walker, 2004). For example, practices that produced positive outcomes in research conditions may not produce similar outcomes in an actual school setting (Cook & Odom, 2013). Because of this discrepancy, once a practice was determined to be an evidence-

based practice, the average time for adoption and implementation in schools may take an average of 10 years (Hall, 2015; Hornby, Gable, & Evans, 2013; Walker, 2004).

Research-based Versus Evidence-based Practices in Education

There has been confusion regarding the terminology used to distinguish the difference between research-based and evidence-based practices (Cook & Cook, 2011). A practice may be labeled as: (a) data-based, (b) empirically validated, (c) research supported, or (d) evidence-based (Cook & Cook, 2011). Additionally, any practice was research-based as long as it had one or more published studies to support it, whereas evidence-based practice is determined by one or more studies that support a strategy, tool, or practice which resulted in improved student learning (Cook & Cook, 2011).

Differences associated with quality indicators of research refer to the components of proposed and completed studies (Horner, et al. 2005; Gersten, et al, 2005; Odom, et al. 2005). The strength of these studies was based on prescribed quality indicators, whereas evidence-based practice refers to characteristics or elements that must be present in a collective group of studies to support a specific tool, strategy, practice, or program used in educational settings (Cook & Cook, 2011; Cook et al. 2008; Gersten, et al. 2005).

Quality Indicators of Research

Many practices that are used by teachers in classrooms are often based on individual research studies for which results have been reported on student outcomes (Cook & Landrum, 2013). While the National Research Council (NRC, 2002) maintained that research in education could not be held to the same standards as traditional sciences (e.g., biology, chemistry), the What Works Clearinghouse (2014), maintained that randomized experimental research was the

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only method to establish if an intervention was evidence-based. Additionally, the What Works Clearinghouse made recommendations for the general education student population (Biesta, 2007). Berliner (2002) countered that there was confusion in how research should be conducted and members of the NRC conceded that other research methodologies should be considered credible in education (Feuer, Towne, & Shalveson, 2002). They suggested that a variety of research methodologies are appropriate to determine evidence-based practices (Feuer, et al. 2002).

The decision by the NRC (2002) led several educational researchers in the field of special education to identify essential quality indicators for group experimental, quasi-experimental, and single-subject studies to be used in the development of research proposals and articles (Gersten, et al. 2005; Horner, et al. 2005; Odom, et al. 2005). The focus of this literature was to provide researchers, teacher educators, school-based professional development teams, and practicing educators with a roadmap to use when reading (or writing) research. The goal was to facilitate the selection of appropriate evidence-based practices to implement with specific populations of students.

To assess whether research is of high or acceptable quality, the prescribed components must be present and clearly evident (Gersten, et al. 2005). Five indicators were agreed upon in the literature. First, the conceptualization of the study must contain a review of relevant literature, establishing a context for the study (Gersten, et al. 2005). Secondly, the participants must be thoroughly described (e.g., disability, gender, age) and randomly assigned to treatment or control groups (Cook, et al. 2009; Gersten, et al. 2005; Horner, et al. 2005). The third indicator involved a detailed description of the intervention that was implemented and the fidelity of its implementation (Gersten, et al. 2005; Horner, et al. 2005). The fourth indicator

focused on the measurement of effective outcomes. These must be determined using more than one measure and be operationally defined to ensure the reliability of the study. Finally, the fifth quality indicator focused on the analysis of the data collected. The appropriate statistical analysis must be conducted (Cook, et al. 2009; Gersten, et al. 2005).

Characteristics of Evidence-based Practices

Cook and Cook (2011) defined evidence-based practices as those that were supported by multiple, high-quality studies that utilize research designs in which causality can be determined as impacting student outcomes. In the field of education, an evidence-based practice also was defined in terms of the synthesis of professional wisdom used in concert with effective interventions based on data (Biesta, 2007). The premise of evidence-based practices was that professionals administer an intervention to bring about certain effects (Cook, et al. 2008; Gersten, et al. 2005).Thus, for a practice to be considered evidence-based, it must have documented improvement of student learning or improved student behavior (Biesta, 2007; Cook, et al. 2008).

Cook, Tankersley and Harjusola-Webb, (2008) suggested that in order to determine if a practice is evidence-based, educators must locate high-quality experimental research that examined the effectiveness of the specific practice and determine if the results from the studies indicated improved learner outcomes. Similar to the fields of clinical psychology and general education, the characteristics of evidence-based practice in special education were founded on: (a) the design of supporting research studies, (b) the quality of supporting research studies, (c) the quantity of supporting research studies, and (d) the magnitude of effect of the supporting research studies (Cook, et al. 2009).

Other support for evidence-based practices included: (a) results from multiple, high-quality (experimental or quasi-experimental) studies, and (b) meaningful impact on student outcomes (Cook & Odom, 2013). When determining evidence-based practices in special education, group experimental, quasi-experimental, and single-subject designs were considered because of the degree of experimental control present within the research design. Although there was debate amongst experts about which types of research designs were used in research to identify evidence-based practices, the What Works Clearinghouse (WWC, n. d.) only required one true experiment (randomized-control trials) with positive outcomes in general education (Cook, et al., 2009).

In special education, it was recommended that either two high quality or four acceptable quality group studies support an evidence-based or potentially evidence-based practice (Gersten, et al., 2005; Horner, et al., 2005). Additionally, experts recommended that evidence-based practices were supported by at least five single-subject research studies with a minimum of 20 participants where at least three researchers conducted them in three different geographical locations.

When considering methodological quality of research studies that were used to identify evidence-based practices, experts in the field of special education made recommendations that differed from the fields of clinical psychology and general education in terms of requiring: (a) four essential and eight desirable quality indicators for group studies, (b) seven quality indicators containing 21 criteria for single-subject research, and (c) comparability between interventionists in group studies were established (Cook, et al., 2009). Although there were differing criteria for methodological quality of research studies that identify EBPs, there were some similarities to clinical psychology.

A final characteristic of evidence-based practices in special education related to the magnitude of effect. According to Gersten, et al., (2005) group experimental studies had to have an effect size greater than zero, whereas Horner, et al, (2005) did not make any effect size recommendations for single-subject research. There was some variation in the criteria in the fields of clinical psychology and general education in that effect sizes were standard and considered in the absence of statistical significance when determining if a practice has positive effects. Additionally, functional relationships may be established through visual inspection of data points to assess the magnitude of effect in single subject studies (Cook, et al., 2009).

After the criteria to identify EBPs in special education were established, field testing was conducted to apply the quality indicators and standards for research by expert reviewers. Philosophical differences and discrepancies in how the quality indicators and standards were applied were found. The result of these field tests generated additional areas of focus for future research and refinement of the EBP identification process (Cook, et al, 2009).

Cook et al. (2014) synthesized the five quality essential indicators for research and the four characteristics of evidence-based practices for the Council for Exceptional Children. This synthesis resulted in eight standards and five classifications. The eight standards for identifying a practice as evidence-based are: (a) context and setting, (b) participants, (c) intervention agent, (d) description of practice, (e) implementation fidelity, (f) internal validity, (g) outcome measures/dependent variables, and (h) data analysis (Cook, et al. 2014). Additionally, five classifications should be used to determine the evidence base supporting the practice through the collective studies that support it and the scores on the eight standards (Cook, et al., 2014). These classifications are: (a) evidence-based practice, (b) potentially evidence-based practice, (c) mixed evidence, (d) insufficient evidence, and (e) negative effects (Cook, et al. 2014). The combination

of these quality indicators and classifications provide a more concise means for determining if a practice, strategy, or program has a strong foundation of research studies to support it.

The Philosophy of School-based Professional Development

The ongoing education of teachers began in the early 1930s with the expectation that teachers be lifelong learners (Herner-Patnode, 2009). This evolved into professional development that is a continuation of learning begun in university studies and involves updating and informing the educator on the most current educational innovations (Odom, 2009). Because the academic field of education currently is focused on the use of evidence-based practices with all children, it is critical to ascertain the importance school districts place on the standards and classifications of evidence-based practices as they plan professional development for general and special educators.

Slavin (2008) stated that there was limited research evaluating specific programs, practices, or strategies that are being taught to teachers. Additionally, any research that was available has little impact on educator decisions about what is taught in classrooms (Landrum, Cook, Tankersley, & Fitzgerald, 2007; Mason-Williams, Frederick, & Mulcalhy, 2014). Because of these issues, many decisions about identifying and using evidence-based practices were often limited to tradition, marketing, inaccurate demonstrations, and political influences (Anderson & Herr, 2001; Burns & Ysseldyke, 2002; Slavin, 2008; Webster-Wright, 2009). This resulted in the temporary adoption of programs and practices that were widely used and then evaluated to determine if they worked better than traditional beliefs and practices (Slavin, 2008).

Recently, school-based professional development encompasses field-based education for all teachers and involves training in the implementation of current interventions for students in

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different educational settings (Carnine, 1997; Kwakman, 2003; Warby, Greene, Higgins, & Lovitt, 1999). Professional development provides the means for teachers to hone current skills and knowledge as well as to keep abreast of new knowledge, theories, and methods (Borko & Putnam, 1996). Current data in the field for post-degree professional development often referred to efforts of increasing teacher self-efficacy and retention, but not in the identification and implementation of evidence-based practices (Lee & Shaari, 2012; Williams, Martin, & Hess, 2002).

School-based professional development has evolved in education as a result of the mandates of IDEA (2004) and NCLB (2001). The focus of both of these legislative mandates was to educate all students in the least restrictive environment while implementing practices supported by a strong empirical research base. Thus, the role of professional development has become a dynamic and involved process for educators (Klingner, 2004; Klingner, Boardman, & McMaster, 2013; Odom, 2009; Schmoker, 2012).

Traditionally, professional development was delivered in a linear manner and was organized around brief, one-time workshops and lectures (Keengwe & Kang, 2013; Klingner, et al. 2013). This method relied heavily on trained experts in the content with no long-term support provided to participants (Klingner, et al. 2013; Lindsey, White, Korr, 2013; Sandholtz, 2002). The outcomes from this type of professional development often were ineffective in providing substantial and impactful changes in practice on student achievement (Fullan, 2009; Guskey & SukYoon, 2009; NJCLD, 2000).

In recent years, education has shifted to incorporate more interactive forms of professional development for teachers. Odom (2009) contended that professional development for teachers must be more dynamic in terms of focusing on teacher engagement. This method of

professional development involves the teacher actively using the evidence-based practice the same way it would be used when working with students in the classroom (Keengwe & Kang, 2013). Although there are changes in the delivery of professional development, there are different perspectives on specific components that constitute effective professional development that reinforces the identification and implementation of evidence-based practices in the field of education (Avalos, 2011; Pagoto, Spring, Coups, Mulvany, Contu & Ozakinci, 2007). The most recent literature in the field of education revolved around the following themes: (a) professional learning, (b) mediations and partnerships, (c) conditions and factors that influence professional learning, and (d) the overall effectiveness of professional development—not specifically on data collected on explicit training using EBPs (Anderson & Herr, 2011; Avalos, 2011; Pagoto, et al. 2007).

Currently, professional development is attempting to provide teacher training in evidence-based practices to meet the needs of all learners. One of the themes of research focuses on professional learning in terms of how teachers are trained through reflective practices, the utilization of tools as learning instruments, and how issues are addressed for teachers (Avalos, 2011; Hornby, et al. 2013; Keengwe & Kang, 2013). The professional development literature has at its foundation the continued evolution of educators from the beginning of their careers, to mid-career, and to senior career (Avalos, 2011; Lee & Shaari, 2012; Roberts, Benedict, & Thomas, 2014). This continued development focused specifically on a more efficient workforce, better student learning outcomes, and higher teacher satisfaction (Roberts, Benedict, & Thomas, 2014; Vescio, Ross, & Adams, 2008). The current literature in the field of education contains little research on topics relating to the identification and use of evidence-based practice, thus this

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philosophical foundation provides a base on which to overlay evidence-based practices (Cook & Odom, 2013; Slavin, 2008; Webster-Wright, 2009).

Evidence-based Practices and School-based Professional Development

Although education has begun using scientific evidence to select and adopt teaching practices, there is concern that these practices were not consistently being used in schools (Odom, et al. 2005). For this reason, researchers have discussed the need for school districts to participate in the dissemination, implementation, adherence, and adoption of EBPs through professional development (Cook, Cook, & Landrum, 2013; Klingner, et al. 2013). The professional development community has not readily embraced evidence-based practices to the level deemed acceptable to researchers (Anderson & Herr, 2011; Schmoker, 2012; Burns & Ysseldkye, 2008). While evidence-based practices are considered tools to be used in concert with an educator's knowledge, some researchers have indicated that they may not be used immediately after being identified by the research community (Cook & Cook, 2011; Cook, et al. 2008). It is unclear if this issue can be attributed to: (a) a lack of knowledge or understanding of evidence-based practices, (b) the lack of research-to-practice translation, or (c) the result of the type of pre-service education or school-based professional development teachers are receiving (Cook, et al. 2008; Desimone, Smith, & Ueno, 2006; Klingner, et al. 2013; Webster-Wright, 2009).

Institutional Impact on Professional Development

School district leadership must consider the importance of professional development in terms of supporting district efforts to make significant change, improve teaching and learning, and provide professional accountability (Fixsen, Blasé, Metz, Van Dyke, 2013; Johnson &

Chrispeels, 2010; Klingner, et al. 2013). It is the educational leadership of a school district that plays an integral role in facilitating the translation and diffusion of research into classroom practice (Desimone, Porter, Birman, Garet, & Yoon, 2002; Franklin, 2007; Gersten & Dimino, 2001).

For the past several years, there has been increased focus on identifying evidence-based practices, programs, and strategies to produce better outcomes for students with and without disabilities (Brownell, et al., 2014; Fixsen, et al. 2013). Although the amount of evidence-based practices that are available has increased, achieving routine incorporation and implementation has continued to be an obstacle (Archambault, Wetzel, Foulger, & Williams, 2010; Hall, 2015; Pagoto, et al. 2007). Education now focuses on the impact of the research on the contexts for which it was targeted (Greenlaugh, Robert, MacFarlane, Bate, & Kyriakidou, 2004; Fixsen, et al. 2013).

Levin (2010) maintained that it is critically important to understand the system through which professional development leaders find and use research. This includes the specific factors used in promoting the use of research in professional development (Pagoto, et al. 2007; Sandholtz & Scribbner, 2006). It has been recommended that a major goal of school districts should be on the training and implementation of EBPs as well as the process for selection, implementation, and monitoring of these practices (Franklin, 2007; Klingner, et al. 2013; Webster-Wright, 2009). This is important in that research indicates that teachers are committed to using evidence-based practices (Schmoker, 2012). However, 80% of teachers indicated that they need more training with concrete examples of how the practice relates to their students and their classroom (Klingner, 2004; Mathis, 2008; Paulsen, 2005). Currently, the factors that influence the use of research by professional development leaders in their decision-making

concerning school-based professional development are unknown (Hornby, et al. 2013). Schofield (2004) indicated that expertise of professional development leadership in implementing the incorporation of EBPs in professional development is a missing component.

Research suggested that effective professional development involving the incorporation of EBPs should contain six components: (a) justification for the practice, (b) potential for the improvement of student outcomes, (c) novelty in terms of older/current practice, (d) mentoring and coaching for teachers, (e) open communication, and (f) the provision of resources and materials (Klingner, 2004). However, the current literature on professional development indicates that evidence-based practices are taught in isolation with little follow-up or feedback (Cook, et al. 2013). Because it is mandated by law that evidence-based practices be used for all students, some barriers have been identified that hinder the successful implementation of this initiative (Hornby, et al. 2013; Webster-Wright, 2009). Some of the barriers experienced in the field by professional development providers are: (a) state-mandated use of programs which have little impact on service delivery, (b) programs that produce good outcomes are used for a limited time, and (c) limited programs have plans for widespread implementation (Fixsen, et al. 2013). Within school settings, the barriers are: (a) teachers do not trust educational research that supports the use of EBPs, (b) the confusion of terminology used for practices, (c) the professional development provided is ineffective, and (d) the traditional culture in schools is to continue using practices currently in place (Hornby, et al. 2013; Pagoto, et al. 2007). Other barriers include whether or not an EBP addresses: (a) specific issues, (b) service delivery in different settings and contexts, and (c) cultural differences (Brownell, et al., 2014; Hornby, et al. 2013; Pagoto, et al. 2007).

Knowledge concerning what constitutes effective professional development has changed in recent years in terms of the identification and use of EBPs (Cook & Odom, 2013; Darling-Hammond & McLaughlin, 1995). Other specific issues that may affect the identification and implementation of evidence-based practices by teachers after professional development are: (a) they are not guaranteed to work with every student, (b) they may not have an extensive research base, (c) educators may not be able to recognize and consider EBPs in relation to the standards used to identify them, and (d) incorporation of EBPs is a gradual process (Cook, et al. 2013; Cook et al. 2008; Klingner, Arguelles, & Hughes 2001; Webster-Wright, 2009). For these reasons, it has been suggested that school-based professional development may be a fruitful place to begin in terms of supporting educators in the use of EBPs in the classroom setting (Cook, et al. 2008; Cook, et al. 2013).

Statement of the Problem

Presently, there are no national data concerning the importance that school districts place on the incorporation of the identified evidence-based standards and classifications into the selection of appropriate professional development topics or interventions. Additionally, the research-to-practice gap continues to be an issue in schools because professional development initiatives do not include data collection on the incorporation and implementation of evidence-based practices in school-based settings (Hornby, et al. 2013; Pianta, 2011; Wallace, 2009). Since professional development leadership is currently being held accountable for making sustainable impact for teachers and students at the practice level, focusing on these leaders and their impact on the process is important (Fixsen, et al. 2013). Because little data is available concerning the translation of educational research into daily practice in schools, classroom

settings and its effectiveness on improved student outcomes, the need for additional research on what school district professional development providers consider important when planning professional development for educators is critical. Thus, it is important to ascertain if educational levels, years of experience, and levels at which decisions are made may impact the incorporation and implementation of evidence-based practices in the creation of professional development.

The purpose of this study was to examine which characteristics (e.g., level of education, time in education, where decisions are made) impact the consideration of evidence-based standards by school district professional development personnel when they plan and create school-based professional development for general and special educators. The focus was on the standards and classifications of evidence-based practices defined by Cook, et al. (2014). The study addressed the following questions:

Research Question 1: Do the responses of school-based Professional Development Coordinators differ based on their educational level concerning their consideration of the eight quality indicators of evidence-based practices for general and special educators when planning professional development (e.g., context, participants, intervention agent, description of practice, implementation fidelity, internal validity, outcome measures, data analysis)?

Research Question 2: Do the responses of school-based Professional Development Coordinators differ based on their educational level concerning their consideration of the five evidence-based classifications for general and special educators when planning professional development (e.g., evidence-based practice, potentially evidence-based practice, mixed evidence, insufficient evidence, negative effects)?

Research Question 3: Do the responses of school-based Professional Development Coordinators differ based on their years of experience serving as a coordinator concerning their

consideration of the eight quality indicators of evidence-based practices for general and special educators when planning professional development (e.g., context, participants, intervention agent, description of practice, implementation fidelity, internal validity, outcome measures, data analysis)?

Research Question 4: Do the responses of school-based Professional Development Coordinators differ based on their years of experience serving as a coordinator concerning their consideration of the five evidence-based classifications for general and special educators when planning professional development (e.g., evidence-based practice, potentially evidence-based practice, mixed evidence, insufficient evidence, negative effects)?

Research Question 5: Do the responses of school-based Professional Development Coordinators differ based on where professional development decisions are made (e.g., school level, district level, state level) concerning their consideration of the eight quality indicators of evidence-based practices for general and special educators when planning professional development (e.g., context, participants, intervention agent, description of practice, implementation fidelity, internal validity, outcome measures, data analysis)?

Research Question 6: Do the responses of school-based Professional Development Coordinators differ based on where professional development decisions are made (e.g., school level, district level, state level) concerning their consideration of the five evidence-based classifications for general and special educators when planning professional development (e.g., evidence-based practice, potentially evidence-based practice, mixed evidence, insufficient evidence, negative effects)?

Significance of the Study

Achieving broad implementation of evidence-based practices by special education and general education teachers has not been a simple task (Cook et al. 2008). This process requires a systematic approach in school-based professional development (Cook, et al. 2008; Pianta, 2011; Whitehurst, 2002). Teachers ultimately determine if evidence-based practices will be used, implemented, and if they will affect student outcomes (Cook, et al. 2008). A key element in the implementation process is school-based professional development (Hornby, et al. 2013; Odom, 2009; Wallace, 2009). Thus, it is timely to explore the importance school-districts place on the standards and classifications of evidence-based practices when planning school-based professional development.

In education, researchers have defined evidence-based practices as strategies and programs supported by high-quality research that have meaningful effects on student outcomes (Cook et al. 2013; Pianta, 2011). The most common thread of discussion pertaining to evidence-based practices refers to identification (Cook & Cook, 2011). Although the standards and classifications of evidence-based practice have now been identified, it is unclear which of these are considered important at the school district level when planning professional development (Klingner, et al. 2013).

The purpose of this study was to determine which characteristics (e.g., level of education, years of experience, what level decisions are made) of school-based professional development leadership influenced their consideration of the quality indicators and classifications of evidence-based practices when designing school-based professional development for general and special educators. This will contribute to the current literature base by focusing on school-based professional development as it is the continuation of teacher learning from pre-service training to

classroom implementation. This study is a first step in ascertaining the importance school districts place on the standards and classifications of evidence-based practice as defined by the research (Cook, et al. 2014) This information is important to the efforts to improve teacher effectiveness and positive student outcomes.

Definitions

The definitions below are used in this study. They contribute to the understanding of this study.

Access to the general education curriculum. In a classroom setting, students with disabilities adhere to curricular standards, content, and materials that are similar to those of their classmates without disabilities (Hitchcock, Meyer, Rose, & Jackson, 2002).

Children and youth with disabilities. Children with disabilities are students who receive special education services according to P.L. 108-446, *Individuals with Disabilities Education Improvement Act* of 2004 (IDEA, 2004). These disabilities include: (a) specific learning disabilities, (b) intellectual disabilities, (c) blindness and visual impairments, (d) deaf - blindness, (e) multiple disabilities, (f) emotional disturbance, (g) other health impairments, (h) orthopedic impairments, (i) autism, (j) traumatic brain injury, (k) deafness, (l) hearing impairment, (m) speech and language impairments, and (n) developmental delays.

Context and setting. Information concerning the: (a) type of classroom or program (e.g., preschool, public, private), (b) geographic location or physical location(s) (e.g., classroom, schools, districts), or (c) curriculum that is relevant to a particular research study (Cook, et al. 2014; Gersten, et al. 2005).

Criteria. Specific standards used to determine if a practice has enough empirical research and evidence to support generating positive outcomes for students (e.g., research design, quantity of research, quality of research, effect size) (Cook, et al. 2009).

Data analysis. Appropriate statistical tests conducted on observations or variables to: (a) determine experimental control, (b) determine the effectiveness of a practice, (c) answer the research question(s), and (d) support/disprove the hypotheses posed in the study (Cook, et al. 2009; Gersten, et al. 2005).

Description of the practice. Using specific designs (e.g., single subject, group experimental, quasi-experimental) to ensure that the instructional practice or intervention (independent variable) is the primary cause for the improved outcome (dependent variable), ruling out any other explanations (Gersten, et al. 2005).

Elementary level. Grade levels ranging from pre-kindergarten through the 5th grade in which students receive instruction in core subjects, physical education, and the arts within a single classroom setting in a public school (NCLB, 2001).

Evidence-based practice. An evidence-based practice is defined as a strategy, program, or intervention supported by characteristics of credible research (e.g., research design, quantity, methodological quality, magnitude of effect) that produces improved student learning or behavior (Cook & Cook, 2011; Cook et al. 2008).

Exemplar. The use of an ideal model of research or a study to provide an illustration in support of a theory or concept with limited support in a field (Cook, et al. 2009; Gersten, et al. 2005).

General education. An educational setting in which curricula and instruction are provided for students. This setting also is considered the least restrictive environment for all students (NCLB, 2001).

Implementation fidelity. Clear and concise descriptions of the features within an intervention or practice are provided so that it can be easily replicated (Gersten, et al. 2005).

Insufficient evidence. Little or no evidence exists for an intervention from the research literature (Cook, et al. 2014).

Internal validity. The researcher explains how the study was controlled to limit outside factors (other than the intervention used) and how it impacts the results (Horner, et al. 2005).

Intervention agent. Information concerning the individual(s) (e.g., teachers, para-professionals, graduate students) providing the intervention or strategy in a study (Cook & Cook, 2011).

Mixed evidence. One or more studies meet the requirements of evidence-based practice or produce neutral effects (Cook, et al. 2014).

Negative effects. One or more studies that are methodologically sound, but do not have a positive impact on student outcomes (Cook, et al. 2014).

Outcome measures. Measures taken at appropriate times to determine a balance and/or difference between intervention conditions and generalized performance (e.g., minimal familiarity of data collectors, inter-scorer agreement), and to determine the effectiveness of the intervention (Cook & Cook, 2011).

Participants. Researchers must provide concrete information about the individuals who are being observed or receiving treatment. This may include whether or not individuals may or may not have a specific disability or difficulty (Horner, et al. 2005).

Potentially evidence-based. One or more studies that produce positive effects and meet 50% of the following: (a) a single group comparison study with randomly assigned participants, (b) two to three group comparison studies not randomly assigned, or (c) two to four single subject studies. These studies must not contain negative effects, but contain more positive result studies than those that produce mixed or neutral effects (Cook, et al. 2014).

Professional development. Professional training (e.g., independent study, courses, conferences, workshops) provided by school districts for educators to improve the learning or behavior of their students (Burns, 2007).

Quality indicators. Specific elements that are present in high-quality research (e.g., research design, description of participants/settings, independent variable/comparison condition, outcome measures) (Cook, et al. 2008).

Research-based practice. A practice that is considered effective because one or more studies exist to support it (e.g., correlational, qualititative, case study research) (Cook & Cook, 2011).

Secondary level. Grade levels ranging from the 6th through the 12th grade in which students receive instruction in core subjects, physical education, and the arts within a single classroom setting in a public school (NCLB, 2001).

Special education. Specially designed instruction for students with disabilities delivered by a school district in a general education or special education classroom setting (e.g., general education, resource room, self-contained) (IDEA, 2004).

Teacher education. A formal preparation program provided for elementary and secondary-level teachers including special education and general education teachers (Pugach, Blanton, & Corea, 2011).

Limitations of the Study

The limitations of this study were:

1. The questionnaire was available in an online format, therefore participation and responses have a tendency to be lower and may differ than if responses were secured via face-to-face contact with participants.

2. This study used self-reporting in which the data may not have been completely accurate in terms of participant understanding of the criteria relating to evidence-based practices.

3. The study had a small sample and resulted in a very low return rate. It is unknown why this occurred. Thus, the results must be reviewed with caution.

Summary

To date, little research has been conducted focusing on the incorporation of evidence-based practices in school-based professional development (Cook, et al. 2013; Schmoker, 2012; Burns & Ysseldyke, 2008). Additionally, there is a gap in the research-to-practice initiative of using evidence-based practices in general and special education professional development (Gersten, Vaughn, Deschler, & Schiller, 1997; Opfer & Peddler, 2011). Although attempts have been made to bridge this gap, the field of education remains uncertain of the importance evidence-based practice is given at the district and state levels (Kretlow & Blatz, 2011; Mostert & Crocket, 2000).

The inclusion of evidence-based practices in the development of school-based professional development programs has been suggested in the literature (Cook, et al. 2013). However, currently no data exists concerning whether or not school district professional developers consider the standards and classifications of EBPs to be important. This study was

designed to provide data in this area to establish a baseline from which to move forward to fill

the research-to-practice gap (Cook, et al. 2013; Schmoker, 2012; Burns & Ysseldyke, 2008).

CHAPTER TWO

REVIEW OF THE LITERATURE

The identification and implementation of evidence-based practices by special and general educators continues to be an issue in the field of education (Cook & Cook, 2011; Cook, Tankersley, Cook, & Landrum, 2008). Since the mandates of providing students with disabilities access to the general education curricula (IDEA, 2004) have been in place, teachers are required to use evidence-based practices in their classrooms (Cook et al. 2008; Warby, Greene, Higgins, & Lovitt, 1999). Recently, the field has begun to support teachers in the identification and use of these practices by establishing a system to define and implement evidence-based practices (Cook & Cook, 2011; Cook, et al. 2014; Cook, Tankersley, & Landrum, 2009). A key element of this process involves a systematic approach in pre-service teacher education and school-based professional development (Cook, et al. 2008; Hornby, Gable, & Evans, 2013; Odom, 2009; Whitehurst, 2002).

Currently in education, little research exists that focuses on: (a) the underlying ethics for the foundation and theory of evidence-based practice, (b) a process of defining an evidence-based practice, (c) the incorporation of evidence-based practices in pre-service teacher training or school-based professional development, or (d) the translation of educational research into daily practice in schools and classroom settings (Avalos, 2011; Cook & Cook, 2011; Hornby, et al. 2013). The research-to-practice gap continues to be an issue in education because professional development initiatives often do not collect data concerning the implementation of evidence-based practices in school-based settings (Cook & Odom, 2013; Hornby, et al. 2013; Kretlow & Blatz, 2011; Kretlow, Cooke, &Wood, 2012). Therefore, the need for additional research

focusing on school district considerations when planning professional development dealing with evidence-based practices for instruction is essential.

Characteristics of Evidence-based Practices

It is necessary to use a variety of research designs (e.g., single subject, mixed methods) and methodologies to identify best practices for use with students with disabilities (e.g., learning disabilities, autism, intellectual disabilities) (Gersten, Fuchs, Compton, Coyne, Greenwood, & Innocenti , 2005). Thus, Gersten, et al. (2005) provided general guidelines that must be present in the research methodologies: (a) group experimental and quasi-experimental, (b) single subject, (c) correlational, and (d) qualitative research. Many suggestions have been made to assist researchers, practitioners, and other stakeholders in identifying an evidence-based practice using sound research. As these guidelines were being evaluated, Cook, et al., (2011) clarified research supporting evidence-based practices include the following characteristics: (a) methodological design of supporting studies, (b) quantity of supporting studies, (c) methodological quality of supporting studies, and (d) the magnitude of effect of supporting studies.

Odom, Brantlinger, Gersten, Horner, Thompson, and Harris (2005) established the context for developing quality indicators of research as guidelines to identify evidence-based practices in the field of special education. They discussed: (a) the rationale for multiple research methodologies, (b) the quality indicators of research methodologies, (c) the foundation of evidence-based practices in respective fields, and (d) recommendations for the next steps in developing standards for evidence-based practices. This was supported by *No Child Left Behind* (NCLB, 2001) that required teachers to use practices supported by scientific evidence of effectiveness. The National Research Council (NRC) published a report maintaining that

educational research requires different types of research questions and methodologies (Shavelson & Towne, 2002).

The rationale for multiple research methodologies in special education stemmed from the results of an examination on educational interventions for children (Committee on Educational Interventions for Children with Autism, 2001). This committee suggested that the different types of educational research questions must be scientific and require different types of methodologies. These research questions were grouped as follows: (a) description, (b) cause, or (c) process or mechanism (Shavelson & Towne, 2002). Each question must be paired with a matching methodology necessary to conduct the research (Odom, et al. 2005). Because special education is an extremely complex field due to the variability of its participants with disabilities, it is difficult to conduct research in a consistent manner (Berliner, 2002). Additionally, the educational context in the field of special education differs from a general education setting due to the continuum of services, settings, and characteristics of individuals as outlined by the *Individuals with Disabilities Education Act* (IDEA, 2004). While special education has employed a variety of methodological tools to conduct research, the current tools are more complex (Odom, et al. 2005). The field of special education has used research syntheses from professional organizations to establish standards for research that identify and support the use of evidence-based practices.

In 2005, Odom, et al., maintained that there was a need in the field of special education to clarify the following: (a) matching research questions to the appropriate methodologies, (b) knowing the features of methodologies that denote high quality, and (c) using the research findings as scientific evidence for effective practices in the field. They recommended the coordination of quality indicators for research and the identification of evidence-based practices

in the areas of: (a) experimental group and quasi-experimental, (b) single-subject, (c) correlational, and (d) qualitative research.

In efforts to address the initiative to establish standards for high quality research that would aid in identifying evidence-based practices in special education, Gersten, Fuchs, Compton, Coyne, Greenwood, and Innocenti (2005) recommended that specific prescribed components be present and evident in all research studies. They identified five quality indicators for research proposals: (a) a conceptualization of the study based on a review of relevant literature establishing the context of the study, (b) a thorough description of the participants (e.g., disability, gender, age) which are randomly assigned to treatment or control groups, (c) a description of the intervention implemented and reported fidelity of implementation, (d) a measurement of outcomes that is operationally defined, and (e) a data analyses based on the appropriate statistics (Gersten, et al. 2005).

Gersten, et al. (2005) also proposed desirable quality indicators necessary to assess the quality of pre-existing research proposals and articles with less stringent guidelines. These indicators provided other considerations for determining the quality of research studies that may not contain essential quality indicators, but may be deemed acceptable. These are: (a) participant attrition, (b) reliability, study conditions, and outcome measures, (c) intervention effect beyond post-test, (d) validity (e.g., construct, criterion-related), (e) implementation fidelity and quality of implementation,
(f) procedures described for comparison conditions, (g) audio or video recordings, and (h) clear presentation of results (Gersten, et al. 2005). For studies conducted before the quality indicators were introduced, less stringent requirements were suggested (Gersten, et al. 2005). Since these studies and reports were already published, the same specific components were suggested to help

readers determine if the studies met the criteria to support a practice that might be considered having an evidence base.

While the initiative to outline standards for evidence-based practices were underway for interventions within classrooms, Gersten and Edyburn, (2007) used the prescribed quality indicators for research and evidence-based practices to enhance the evidence base for the use of technology in the field of special education. Since there is no validated measurement tool for the use of technology in the field of special education, Gersten and Edyburn (2007) proposed an adaptation of the quality indicators for research in special education for the use of determining technology-based quality indicators.

Gersten and Edyburn (2007) contended that the advances in educational technology have a foundation in theoretical ideology instead of valid research and effective outcomes. They used Blackhurst's (2005) terms to define the different types of technology used in special education: (a) instructional technology, (b) assistive technology, (c) medical technology, (d) technology productivity tools, and (e) information technology. In addition, Gersten and Edyburn (2007) included distance education technology and universal design for learning. The quality indicators prescribed for technology research are: (a) conceptualization of the research study, (b) disclosure, (c) consumer sampling, (d) participant description, (e) implementation of the intervention, (f) outcome measures, (g) data analysis, and (h) publication and dissemination. Gersten and Edyburn (2007) suggest that the prescribed quality indicators are an initial step in enhancing the research base for technology. They recommended that field-testing and revision of the quality indicators be conducted to validate their use in measuring quality research.

There is still debate in the field of special education concerning the determination whether a practice is evidence-based. Unfortunately, there are few empirical studies that test the

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quality indicators and classifications for evidence-based practices for educational research. However, this area of inquiry is beginning to evolve.

In a study designed to identify the quality indicators that appeared in special education journals from 2004 to 2008, Krengel (2010) performed a meta-analysis. The purpose of the study was to determine the quality research indicators that were most prevalent in peer-reviewed journals and develop recommendations for the evaluation of future intervention studies.

Articles were selected from five journals that focused on interventions for students with high-incidence disabilities and related to academic improvement. Of the 711 articles identified, 118 were selected for analysis based on the research designs (e.g., randomized experimental design, quasi-experimental design, single-subject design). The studies also contained: (a) a description of the participants, (b) a student with a high-incidence disability, (c) an acceptable description of the intervention, (d) information concerning the duration of the intervention (e.g., minimum of three hours), (e) at least 20 participants, (f) information on effect size, (g) control groups, (e.g., group designs), and (h) functional control (e.g., single subject designs).

Krengel (2010) then developed an instrument, *Quality Indicators of Special Education* (QISE). It was based on the research quality indicators outlined by Gersten, et al. (2005) and Horner, et al. (2005) and was used to assess each study for each quality indicator. The QISE contained 15 quality indicators broken into 44 sub-components. The QISE also contained four classification levels: (a) evidence-based, (b) promising, (c) inconclusive, or (d) negative.

Results of the meta-analysis indicated that none of the 118 studies selected met all of the quality indicators prescribed or recommended. Only one study contained 62% of the prescribed quality indicators and one study contained only 8% of the quality indicators. The quality indicator that was missing the most in all of the studies was the description of the intervention

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procedure. Krengel (2010) also found that the majority of the studies did not provide information concerning fidelity of implementation.

Krengel (2010) concluded that many of the studies in the meta-analysis were conducted before the quality indicators were developed. Thus, future research should consider the quality indicators as studies are designed and conducted. Krengel (2010) recommended using the QISE as a tool to review research in the design phase as well as to evaluate evidence-based practices in special education.

In a similar study, Friedt (2012) used a meta-analysis to determine if the reported effect size of an intervention was related to quality of a study as indicated by the quality indicators prescribed by Gersten, et al. (2005). In short, the academic rigor (e.g., high quality, acceptable, not acceptable) of the intervention was evaluated.

The quality indicators as described by Gersten, et al. (2005) were applied to 32 studies focusing on mnemonic strategies in science, social studies, and vocabulary with students with learning disabilities. The results indicated that none of the studies met the criteria to be determined *high quality* research. Twelve of the studies met the criteria to be labeled *acceptable quality* research. While 20 of the studies failed to be labeled as *acceptable quality* research.

Friedt (2012) concluded that using meta-analyses with the prescribed quality indicators provided information concerning the quality of research already conducted. He recommended that this information can be used to provide practitioners information to support decision-making regarding specific practices (Friedt, 2012).

Swanson, Wanzek, Haring, Ciullo, and McCulley (2011) investigated the number of times that the fidelity of implementation was reported in special education research journals. The

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purpose of the study was to determine if fidelity of implementation was reported with accuracy in terms of the quality indicators for research proposed by Gersten, et al. (2005).

Swanson, et al. (2011) selected journals based on the following criteria: (a) identified as general education or special education according to the Institute for Science Information, (b) published intervention research in the areas of math, reading, or writing, and (c) included in the top five journals with the highest impact factor. Five general education and five special education journals were selected. Articles published from 2005 until 2009 in the journals were read and coded according to the following criteria: (a) participants were school-age (e.g., kindergarten through 12th grade), (b) the independent variable was measured at the student level based on a manipulation or intervention, (c) a researcher, teacher, or paraprofessional delivered the intervention, (d) student data were collected and reported, and (e) the research design was reported (e.g., single subject, experimental, quasi-experimental). A coding sheet was developed to ensure systematic data collection and a simple count conducted. Each article was coded for: (a) journal title, (b) intervention type, (c) research design, (d) number of intervention sessions, (e) session length, (f) duration of the overall intervention, (g) intervention frequency, (h) fidelity data collection, (i) procedural explanation, and (j) fidelity measures. Seventy-six articles were coded.

The count found that 50 articles reported intervention fidelity. Intervention fidelity was determined based upon: (a) research design, (b) sample size, (c) intervention type (e.g., reading, writing, mathematics, math combined with reading), (d) intervention duration, and (e) the individual implementing the intervention (Swanson, et al. 2011).

Swanson, et al. (2011) concluded that two-thirds of the articles published in the ten selected journals provided sufficient information on the fidelity of implementation. These

findings indicated an increase in fidelity reporting from previous research, however, they maintained that a standard for reporting fidelity data is needed in intervention research. They recommended that improvement is still needed in the reporting of intervention fidelity.

In the field of education, evidence-based practice is defined as a synthesis of professional wisdom and the use of effective interventions (Biesta, 2007). The premise of evidence-based practice in education is that professionals administer a treatment or an intervention to bring about certain effects. This also means that for a practice to be determined to be evidence-based it has to be the cause of improved student learning or behavior (Biesta, 2007; Cook, Tankersley, Cook, & Landrum, 2008).

Until recently, little research has focused on establishing standards to identify evidence-based practices in education (Cook & Cook, 2011). Recommendations in the field include the: (a) use of a tool to review research designs and evidence-based practices, (b) combination of the prescribed quality indicators with meta-analysis results to determine if interventions are supported by *high quality* or *acceptable quality* research, or (c) continued improvement of reporting fidelity of implementation in future research articles. Because minimal research is currently available on the effectiveness of the recently published *Standards for Evidence-based Practice in Special Education* (Cook, et al., 2014), additional research, field testing, and revision using the prescribed standards is critical.

Evidence-based Practices in Pre-service Teacher Education

Pre-service teacher education typically consists of college-level coursework to train teachers who will enter the field with no prior experience (Harvey, Bauserman, & Merbler, 2010; Newman-Thomas, 2014). Evidence-based practices are taught in courses, practica, and fieldwork

experiences (Darling-Hammond, 2006). Due to the variation of pre-service education, it is difficult to ascertain the type of evidence-based practices taught as well as the quality of preparation programs (Stephenson, Carter, & Arthur-Kelly; 2011; Powell, 2015).

O'Neill and Stephenson (2014) designed a study to determine if evidence-based practices were included in the coursework offered in Australian undergraduate teacher education in the areas of classroom and behavior management (CBM). The purpose of the study was to: (a) identify the practices reported in the literature as effective, (b) identify models that included evidence-based practices, and (c) identify texts with evidence-based practices.

They established a set of CBM practices supported by empirical research by using the *Behavior Management Strategies Scale* (BMSS) developed in 2012 (O'Neill & Stephenson, 2012). Fifty-five practices were identified based on the characteristics of: (a) motivation, (b) prevention, (c) reduction, and (d) communication. Nineteen models of strategy intervention were identified by searching the indices, table of contents, chapter headings, and subheadings of the 39 texts. Of the texts selected, 12 met the criteria of containing evidence-based practices.

According to their analyses, they found that 18 of the 55 practices from the BMSS were found in the books. The most frequently reported evidence-based strategies were decisive discipline, assertive discipline, positive classroom discipline, and applied behavior analysis.

O'Neill and Stephenson (2014) concluded that evidence-based practices taught to beginning teachers should be effective proactive strategies supported by research. They recommended that the practices they identified could be a starting point for teacher educators when designing behavior management course content.

Hill, Flores, Kearley, (2014) designed a study to investigate the ability of pre-service teachers to implement positive behavior interventions and supports (PBIS) with children with

disabilities. Twenty-six undergraduate and graduate pre-service students participated in the study. The participants were enrolled in a practicum while participating in an extended school year (ESY) program during the summer. The pre-service students provided services for approximately 50 children with autism spectrum disorder (ASD), developmental delay (DD), intellectual disabilities (ID), orthopedic impairments, (OI), emotional and behavioral disturbance (EBD), and other health impairments (OHI).

The pre-service students participated in a two-day training on the components of PBIS in which they were taught to plan ahead and prepare the classroom and materials. The students were encouraged to implement the following strategies with the children they were teaching: (a) direct instruction (DI), (b) discrete trial teaching (DTT), (c) picture exchange communication system (PECS), (d) individual work systems, (e) incidental teaching (IT), and (f) visual supports (Hill, et al., 2014). Preference assessments were conducted to determine the reinforcements for the children in the classrooms.

The study was conducted for 21 days with each pre-service student working with six to eight children in their assigned classrooms. Daily schedules were used in each classroom and included: (a) introductory activities, (b) language and learning activities, (c) social skills instruction, (d) breaks and snacks, (d) math activities, (e) check out and departure preparation, and (f) program meeting. Three types of data were collected to measure the implementation of PBIS: (a) peer recommendation for meeting expectations, (b) satisfaction with the program, and (c) number of positive comments during instruction with students. Peer recognition was modeled by the university personnel for the pre-service students. The pre-service teachers received a star for arriving early, being proactive, and using positive language.

A reversal design was used to record student progress. Every 4th day, the intervention returned to baseline (e.g., B-A-B-A-B-A-B) and ended in intervention phase. Finally, a survey containing seven questions was completed by the pre-service teachers to determine program effectiveness (Hill, et al., 2014).

The data were analyzed for: (a) preference assessments, (b) peer recognition, (c) positive comments with students, and (d) program effectiveness. The preference assessments for the pre-service teachers indicated they wanted gift cards and supplies (e.g., paper clips, markers) as incentives for correct implementation of PBIS with the students. A total of 97 stars were earned by all of the pre-service teachers. Each participant earned an average of 4 stars. The stars were placed daily in a container from which two winners were selected and allowed to choose a token reinforcer. Twenty-three pre-service teachers completed the program satisfaction survey. Ninety-one percent indicated that the preference assessments were useful (Hill, et al., 2014).

Hill, Flores, and Kearley (2014) concluded that using a summer extended school year (ESY) to support pre-service students in the implementation, progress monitoring, and instructional delivery of PBIS with students was effective. This training model allowed participants the additional benefit of interacting with parents to create a home-school connection. Hill, et al., (2014) recommended that this type of training was instrumental in allowing teachers the opportunity to set up their classrooms, conduct essential assessments, and implement interventions with greater fidelity.

Barrio and Combes (2015) explored general education pre-service teacher concerns when implementing Response to Intervention (RtI) using the Concerns-Based Adoption Model (CBAM) (Hall & Hord, 2011). The purpose of the study focused on pre-service teacher effectiveness in terms of implementing RtI and its components. Three hundred and two pre-

service teachers participated in this study. The teachers were enrolled in their last two semesters of their teacher preparation program and were completing fieldwork in a professional development school setting.

The pre-service students worked at the professional development school two days a week during the first semester and five days a week during the second semester. While the pre-service students were at school, they were required to use the content knowledge they learned in their courses in the fieldwork setting (Barrio & Combes, 2015). Data were collected using a 53-item questionnaire and semi-structured interviews. The questionnaire collected the following information: (a) demographic characteristics, (b) knowledge of RtI, and (c) the stages of concern as it related to the implementation of RtI. Qualitative information was collected from two focus groups who expressed their greatest concerns when asked open-ended questions about implementing RtI.

A mixed-methods research design was used to answer the qualitative and quantitative questions posed in this study. The qualitative information was analyzed to determine the themes that emerged in terms of the concerns of the pre-service teachers had regarding the implementation of RtI. Barrio and Combes (2015) performed a canonical correlation analysis to determine if a correlation existed between teacher knowledge of RtI and levels of concerns when quantitative data were collected using the questionnaire.

The results indicated that teachers were unconcerned about their future implementation of RtI. Additionally, the pre-service teachers had reservations about their abilities to implement RtI in terms of their experiences working in the professional development school.

Barrio and Combes (2015) concluded that general education pre-service teachers who had less knowledge about RtI appeared to have greater concerns about implementing it with

fidelity. They recommended that additional research be conducted that focuses on pre-service teacher preparation and the use of evidence-based practices in the implementation of RtI and its components to determine its impact on teacher knowledge, skills, and concerns.

Bain, Lancaster, Zundans, and Parkes (2009) designed a study to measure the differential effects on teacher achievement when evidence-based practice was embedded in an inclusive education teacher preparation course. The purpose of the study was to determine if the use of evidence-based practices would impact pre-service teacher mastery and performance.

The participants in the study were 90 pre-service teachers enrolled in a mandatory teacher education course. Seventy two of the participants were general education majors and 18 were in a dual-degree program. The students were divided into four instructional groups: (a) adaptation, (b) collaborative problem-solving, (c) instructional design, and (d) professional dialogue. The students were instructed to use evidence-based practices to help create differentiated instruction within the instructional group in which they participated (Bain, et al. 2009).

The students participated in a weekly teaching cycle in which they worked in the following lessons: (a) pre-reading, (b) lecture, (c) skill-building immersion workshops, (d) lesson drafting, (e) collaboration and feedback, (f) lesson submissions, and (g) quizzes. Each lesson was sequential and built upon work completed in the previous lessons. Student achievement was measured by scores on three quizzes.

The quiz scores were analyzed using a repeated measures ANOVA to determine if there were any significant differences across the four instructional groups. The mean scores for the quizzes ranged from 79% to 80%, approaching the predicted mastery criteria of 80%. Bain, et al. (2009) found that student mastery was related to the instructional method employed regardless of when quizzes were delivered.

The results of this study indicated that pre-service educators attained mastery level knowledge of the course content as it related to the selected instructional approach (e.g., adaptation, collaborative problem-solving, instructional design, professional dialogue). Bain, et al. (2009) concluded that using embedded design would be beneficial in maintaining the rigor of teacher preparation programs for pre-service teachers. They recommended that applying an embedded design for teacher preparation courses would improve classroom practice.

Sandholtz (2011) explored pre-service teacher descriptions of effective and ineffective teacher practices at the conclusion of a teacher preparation program. The purpose of the study was to ascertain pre-service teacher perceptions of: (a) instruction or classroom management, (b) understanding descriptions of practices, and (c) factors impacting student learning based on their actions. Two hundred ninety pre-service teachers participated in this study. The participants were enrolled in a combined Master's degree and teacher credential preparation program for five years. They completed university coursework and fieldwork simultaneously in a public school setting.

During their capstone course, the students analyzed their teaching practice by viewing video-taped sessions of their teaching, reviewing student work samples, and completing a performance assessment. Data were collected via the following means: (a) content analysis of student descriptions of effective and ineffective practices related to classroom management and instruction, (b) sub-coding of classroom management (e.g., policies/procedures, teacher actions, student incidents, class incidents, master teacher intervention) and instruction (e.g., planning/preparation, instructional strategies, standards/objectives, restructured lessons, student participation, student understanding, student knowledge, subject-matter knowledge, time pressure), and (c) referencing main and sub-codes to participant understanding.

Qualitative analysis was used to determine how the students/teachers focused on: (a) classroom management and instruction, (b) identified student understanding, and (c) the impact of their actions on child learning. Patterns were observed individually for each teacher and for the entire group of participants (Sandholtz, 2011).

The results of the data analysis indicated that 75% of the participants had increased concerns about their effective instructional practices near the end of the program. While 77% of the participants were concerned about student participation, 30% were concerned with student understanding, and less that 5% were concerned with restructuring a lesson to address student understanding. However, 53% of the participants discussed instructional practices that were ineffective, such as group work and a lack of hands-on activities for students (Sanholtz, 2011). Seventeen percent of participants indicated that they were incorrect in their assessment of student ability and prior knowledge while 8% reported that they rushed through material while teaching students because of time constraints. Only 12% of the participants focused on classroom management in terms of incidents with individual students (e.g., talking, not paying attention, disruption) and the lack of policies or procedures (e.g., not following established rules/consequences).

Sandholtz (2011) concluded that pre-service teachers: (a) focused on instructional practices over classroom management, (b) concentrated on issues related to student understanding, (c) reflected on approaches related to reducing student confusion, and (d) engaged in critical examination of teaching practice. She recommended that reflective practice be used in pre-service teacher education to increase the use of evidence-based practices. She maintained that reflective practice in teaching and learning allowed the teachers to examine their level of effectiveness while teaching.

It is apparent that pre-service teacher education may be a proactive means to teach evidence-based practices supported by research to beginning teachers (Bain, et al., 2009; Hill, et al., 2015). Recommendations made in the research suggest that pre-service teacher training include: (a) teacher educator identification of evidence-based practices in the design of course content, (b) a focus on pre-service teacher preparation and the use of evidence-based practices at the component level to increase teacher knowledge and skills, and (c) incorporation of reflective practice to increase pre-service teacher use of evidence-based practices to close the research to practice gap (Barrio & Combes, 2015; O'Neill & Stephenson, 2014; Sanholtz, 2011).

Evidence-based Practices in In-service Professional Development

Teachers have the opportunity to refine their skills, incorporate new methods and knowledge through professional development (Birenbaum, Kimron, Shilton, & Shahaf-Barzilay, 2009; Borko & Putnam, 1996). Comprehensive school-based professional development has been a challenge because the professional development community has not consistently incorporated evidence-based practices recommended by the research community (Anderson & Herr, 2011; Hornby, et al. 2013; Kang, Cha, & Ha, 2013; Pagoto, et al. 2007; Schmoker, 2012; Burns & Ysseldkye, 2008). To address this issue, the professional development community has begun to implement more interactive forms of teacher engagement to incorporate the identification and use of evidence-based practice (Boe, Shin, & Cook, 2007; Keengwe & Kang, 2013; Odom, 2009).

In a study designed to measure the influence professional development has on teacher practice in terms of student achievement, Wallace (2009) controlled for teacher characteristics and the teacher preparation of participants. The purpose of this study was to determine the effects

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of teacher professional development on: (a) teacher practices in mathematics and reading, and (b) subsequent student mathematics and reading achievement. Participants were selected from national databases (e.g., Teacher Preparation Survey, National Assessment of Educational Progress, resulting in 1,000 teachers who provided instruction for approximately 6,400 students in the states of Connecticut and Tennessee.

To conduct this study, Wallace (2009) created a hybrid structural equation model based on relationships indicated by the literature. Using the large extant data sets, the model was first tested using a smaller data set, then confirmed using larger state and national data sets. The variables used were: (a) professional development, (b) teacher practice, and (c) student achievement. The outcome variables for student achievement were the one-time scores provided by the NAEP however, five values were used from math and reading scores to compute the single value used to indicate student achievement (Wallace, 2009).

There were a total of eight structural equation models across six data sets. The data were analyzed to answer questions concerning the effects of professional development and teacher practice on student achievement outcomes. The structural equation models for mathematics and reading were completed for Connecticut, then followed by analyses for Tennessee and the NAEP.

The findings indicated that professional development had moderate effects on teacher practice and very small, but sometimes, significant effects on student achievement. Wallace (2009) concluded that in spite of differences in the samples, academic subjects, and assessments, the effects of professional development on teacher practice and student achievement do exist. Wallace (2009) recommended that it is important to measure effects across teacher professional development to determine its impact on student achievement.

Klingner, Arguelles, and Hughes (2001) conducted a study to ascertain the educational

outcomes in two elementary schools after four years of receiving support to restructure their

special education program. This study also collected data on of the use of practices (e.g., partner

reading, Collaborative Strategic Reading, Making Words) among all teachers after eight of their

colleagues were provided a year-long professional development program.

The purpose of this study was to determine the extent to which all of the teachers in the

two schools learned, implemented, modified, and sustained three different instructional practices

that were taught to them by eight of their peers who received professional development. The goal

was to identify how and why the teachers learned the practices they used (Klingner, et al. 2001).

Ninety-eight teachers participated in this study.

The instruments and measures used in the study included: (a) a 15-item instructional

practices survey, (b) focus group interviews, (c) video-simulated recalls (VSRs), (d) semi-

structured interviews, and (e) implementation checklists (Klingner, et al. 2001). The instructional

practices survey included questions related to the past and present use of the three selected

practices (e.g., partner reading, Collaborative Strategic Reading, Making Words) and previous

training experiences. All interviews were audiotaped and recorded.

Klingner, Arguelles, and Hughes (2001) provided a year-long professional development for

the eight target teachers focusing on: (a) partner reading, (b) Collaborative Strategic Reading,

and (c) Making Words. After training, the eight teachers were observed weekly and feedback

was provided through consultation, in-class demonstrations, and collaborative problem-solving.

Data were collected during the first six months of the study. All teachers completed a 15-

item instructional practice survey. Eighteen teachers were selected to participate in group and

individual focus groups, complete checklists, and be observed during the last four months of the

academic year. Qualitative analysis was used to code and analyze the data from interviews and observations of the participants.

Klingner, Arguelles, and Hughes (2001) found that 93% of all the teachers in both schools implemented at least one of the practices and more than 50% of the teachers continued to use one or more of the practices on a regular basis. Some teachers reported that they implemented at least one of the practices (e.g., 72 used partner reading, 67 used Making Words, 57 used CSR). Eighty-nine teachers reported that they learned the strategies from a teacher who participated in the year-long professional development. However, 69 teachers named an individual who had not received the training as instrumental in their implementing the practices. Sixty-one of the teachers named university faculty working in their school as influential in their use of the practices.

Klingner, et al. (2001) concluded that teacher implementation of a practice is supported by: (a) research that produces positive student outcomes, (b) the availability of the necessary tools and resources for appropriate implementation, and (c) the freedom to adapt the practice to the needs of the students and the teachers. They recommended that change is a gradual process and not an isolated event which supports the use of the train-the-trainer models and professional development that supports and reinforces the use of evidence-based practices.

Vavasseur and MacGregor (2008) conducted a study to determine the effectiveness of professional development when it is delivered online. The participants in this study were 427 teachers and 336 principals from two middle schools in the same school district. The teachers taught core subjects (e.g., English, math, language arts, science, social studies) in the sixth, seventh, or eighth grades. Some of the teachers taught the content areas within a resource room setting. In both schools, some teachers experienced difficulty with the integration of technology

into their teaching. The professional development was implemented during teacher teaming time and involved a learning module designed to increase technological integration into the curriculum. The module was based on the results of a needs assessment conducted prior to the implementation of the professional development (Vavasseur & MacGregor, 2008).

Face-to-face sessions occurred twice a week during the team teaching planning time. Collaboration among teachers and support from principals was augmented by the online community. Math and science teachers were paired and English and social studies teachers were paired to collaborate for the duration of the professional development. Two online communities were created using the Blackboard Courseware Management System (2007). The teachers were able to participate in discussion forums, email messages, and access external links related to the content of the professional development topics. After face-to-face sessions were held, discussion topics were presented within the online forum once a week. Prompts and scenarios were provided to elicit teacher beliefs, levels of knowledge, teaching and learning practices, and descriptions of individual experiences.

Quantitative data were collected via a teacher efficacy survey administered to all teachers and the technology-enhanced lesson/unit plans. Data were analyzed by exploring the following: (a) teacher reflections, (b) teacher efficacy survey results, (c) teacher focus group interviews, and (d) unit lesson plans created by teacher teams (Vavasseur & MacGregor, 2008). A MANOVA was used to determine if a significant difference was present for the teacher growth scores of each school.

The teachers at School A had more positive growth in efficacy than the teachers at School B. The teachers at both schools showed growth in valuing the use of computers and technology

in their teaching practice. Most teachers indicated that principal participation influenced their success in the professional development experience.

Vavasseur and MacGregor (2008) concluded that teachers in the study were actively engaged in collaborative reflection. They maintained that the teachers identified problems and solutions to issues encountered in their daily practice and the experience provided principals a means to support teachers and dialogue with teacher teams. Vavasseur and MacGregor (2008) recommended that online professional development provides a platform for the integration of technology and instructional leadership in the in-service training of teacher and providers flexibility in addressing the needs of teachers.

Erickson, Noonan, and McCall (2012) examined the effect of online professional development for secondary special education teachers. The purpose of this study was to compare the effects online training for teachers located in rural and non-rural educational settings based on: (a) increased knowledge, (b) increased efficacy when implementing evidence-based practices, and (c) the implementation of research-based transition practices.

The teachers were grouped by different job titles: (a) transition coordinators or specialists, (b) administrators, or (c) other transition specialists who completed a transition seminar program (e.g., *Transition Seminar Series*) between 2007 and 2010. Of the 149 participants, 86 were from rural communities, with the rest from non-rural communities.

Erickson, et al. (2012) conducted this study by using the following measures: (a) demographic survey, (b) competency pre/post survey, (c) quality indicators of transition status, (d) goal attainment scaling, (e) case-based pre/post assessment of learning, and (f) a satisfaction survey. The demographic information was collected during the first week of the study. A 40-item competency survey was distributed prior to the transition seminar. During the second four-week

seminar, each participant provided ratings of the quality of the transition programs being implemented in their schools. The educators were asked to provide goals based on the results of data collected from these quality indicator ratings for their school. Each four-week seminar contained 16 to 20 performance-based assessments and multiple-choice questions to determine levels of change in content knowledge. Finally, after completing the case-based learning exercises for each of the seminars, participants completed a satisfaction survey using a 5-point Likert scale (Erickson, et al. 2012).

This mixed methods study incorporated the use of several measures to collect the necessary data to answer the research questions. The data were analyzed for each portion of the study according to each of the measures: (a) demographic survey, (e.g., descriptive and comparative analyses), (b) competency pre/post survey (e.g., comparative analysis, (*t*-tests), (c) quality indicators of transition status (e.g., individual results of perceived level of implementation of research-based transition practices), (d) goal attainment scaling (e.g., individual level of attainment based on universal implementation strategies), (e) case-based pre/post assessment of learning (e.g., raw scores converted to percentages), and (f) a satisfaction survey (e.g., 5-point Likert scale to measure the perceived effectiveness of the online professional development analyzed via *t*-tests.

The results of this study indicated that the participants rated their competency ranging from 2.07 (e.g., not prepared) to 2.98 (e.g., somewhat prepared). This indicated that the participants had a low level of knowledge of the legal requirements for transition before participating in the online seminars. Prior to the beginning of the seminars, non-rural educators had a significantly higher average transition competency (e.g., non-rural, 2.61; rural, 2.46). At the end of the 20-week training, the rural educators were considered as competent as the non-rural participants.

The rural and non-rural educators gained knowledge at the same rates based on the pre-and-post curriculum and content-based assessments (Erickson, et al. 2012).

Based on these results, Erickson, et al. (2012) concluded that the online *Transition Seminar Series* was an effective method for delivering professional development. They recommended that additional data be collected to determine the effect the online professional development had on the communities and schools in which the teachers worked. They also recommended that future research focus on the impact of online professional development on teacher retention.

Buczynski and Hansen (2010) investigated the impact of professional development on teacher practices and student achievement in science. The purpose of the study was to determine if professional development involving the Inquiry Learning Partnership (ILP) in science was being implemented in classrooms and if it resulted in improved science achievement for students. The participants in this study were 118 teachers from two low-performing urban schools. The teachers taught a total of 3,450 students in the 4th, 5th, and 6th grades.

The procedures for this study consisted of the following components: (a) professional development using standards-based science content and inquiry-based strategies, (b) pre-professional development focus groups, (c) pre/post content tests, (d) teacher surveys, (e) classroom observations, and (f) student achievement scores. The professional development was altered from the traditional lecture to a constructivist format with increased interaction. The training was delivered using the new format, group work, and hands-on experiences. Each teacher received 80 hours of math and science content-specific instruction.

The first session of the ILP training occurred in the summer and focus groups were conducted to collect information on teacher experiences teaching science for students in grades

four through six. On Saturdays, the teachers received a pretest at the beginning of the training session, then a post-test at the end of the same session to measure changes in their knowledge of the content/subject matter. The teachers were also evaluated at the conclusion of each of the Saturday sessions. These evaluations at the conclusion of the summer institute were used to determine the: (a) level of teacher satisfaction, (b) areas of need for additional professional development, and (c) necessary schedule and curriculum modification for future trainings (Buczynski, et al. 2010). Six teachers were visited in their classrooms for the duration of the training and observed to document specific examples of the implementation of the inquiry-based strategies. The one-hour observations were video-taped and field notes were recorded (Buczynski, et al. 2010).

To determine if the ILP professional development intervention had an impact on student achievement, the data were analyzed in the following areas: (a) teacher content knowledge, (b) student science content knowledge, and (c) implementation of skills taught in professional development. Of the teachers who completed the entire professional development program, teachers gained 34% additional content knowledge based on the pre/post-test scores. The teachers indicated that the content enrichment they received in professional development increased the effectiveness of their teaching.

In terms of student achievement, the standardized science test scores of 5th grade students who were taught by teachers who did not receive the professional development were compared to students who were taught by teachers who received the ILP training. Students taught by teachers who received professional development raised their scores by 9%, while control group scores stayed the same.

In terms of teacher satisfaction with the professional development, 92% of the teachers reported an increase in the use of inquiry-based practices. The end of the year survey data indicated that the teachers believed they had: (a) increased their teacher effectiveness, (b) enhanced their knowledge of inquiry-based instruction, (c) increased student engagement, (d) increased the alignment of content to standards, and (e) increased student achievement in science and math (Buczynski, et al. 2010).

Buczynski, et al. (2010) concluded that teachers provided with a deeper understanding of content translates into higher student achievement. They recommended that professional development programs begin to document the gains of teacher content knowledge. They also suggested that science professional development be designed using inquiry-based strategies for students in elementary classroom settings.

Penuel, Sun, Frank, and Gallagher (2012) examined how teacher interactions in professional development could increase teacher learning using the National Writing Project (NWP) format in a Local Writing Project (LWP). The purpose of the study was to determine the change in classroom practices. The participants in this study were teachers located at 39 partnership schools serving 611 students in middle grades across the United States.

The procedures of this study involved an experimental design in which 20 schools were assigned to the Local Writing Program (LWP) partnership, and 19 schools were assigned to the delayed partnership group. Prior to the implementation of the professional development, survey measurements of implementation were collected for three years (e.g., one year of baseline for planning, two years for implementation) (Penuel, et al. 2012). The data from annual surveys were used to examine: (a) professional development, (b) teacher professional networks, (c)

instructional practices, (d) school contexts, and (e) individual demographic background information.

The data from the 20 schools that were assigned to the LWP partnership were analyzed using descriptive statistics and paired *t*-tests. Descriptive statistics were used to estimate the differences between writing practices and teacher characteristics, direct professional development, and experience gained by interactions with peers in the second year of the study (Penuel, et al. 2012).

The results of the study indicated that teachers in LWP partnership schools received an average of ten hours of professional development resulting in increased expertise related to interactions with colleagues. The teachers with the highest frequency of engaging students in writing processes in the first year of the study also received the most hours of professional development during the third year in the study. The teachers who showed the lowest frequencies of engaging students in writing instructional practices from the first year increased their interactions by an average of five interactions with their students by the third year. The teachers who engaged their students in writing practices with the highest frequency in the first year decreased their frequency over the three years of the study. This indicated that teachers with lower levels of implementation had greater increases while teachers with the highest levels of implementation decreased. However, the teachers who participated in professional development and interaction with peers in the second year of the study exhibited stronger instruction at the end of the study. The combination of professional development and teacher interaction produced better results than professional development and prior practices alone.

Penuel, et al. (2012) concluded that teachers who have the opportunity to interact with peers and receive professional development may show a change in their own teaching practices. They

recommended that professional development may be a predictor for better instructional practices. Penuel, et al. (2012) also recommended that using teacher interaction in conjunction with direct professional development may be a productive method to increase teacher expertise in a specific instructional practice.

Dingle, Brownell, and Leko (2011) conducted a study to explore the contextual factors of professional development that may impact teacher implementation of Literacy Learning Cohorts (LLC) (Desimone, 2009). The purpose of the study was to examine the implementation of LLC strategies (e.g., word study, word fluency) in relation to variations found within the learning context and level of teaching experience.

Three special education teachers participated in this study. The participants were selected based on the following criteria: (a) certification (e.g., traditional, general education, alternative route), (b) prior knowledge of the teaching of reading, (c) years of experience, and (d) the level of incorporating previous professional development into classroom practices (Dingle, et al., 2011). The study was conducted in an urban school district in which 75% of the students were from diverse groups and receiving free and reduced lunch.

The study was conducted in a series of procedures involving: (a) an initial Professional Development (PD) institute, (b) monthly cohort meetings, (c) an online community forum, (d) coaching, and (e) reflective practice. The PD Institute provided teachers with additional content knowledge concerning the teaching of reading and word study for students with disabilities. To help the teachers incorporate the different teaching strategies taught, 90-minute monthly cohort meetings were held. The participating teachers were also provided a website that included a discussion forum, videos, and other resources to support the information provided in the professional development. The teachers were video-taped each month using a pre-determined

reflection format in which coaches provided feedback and support. Data were collected from interviews, field observations and ratings, transcribed notes, and knowledge surveys (Dingle, et al., 2011).

The research design used to analyze the data collected was a case study in which cross-case analysis was conducted. Three interrelated themes were identified from the data from each of the three participants: (a) knowledge of reading instruction and pedagogy skills, (b) motivation to change instruction, and (c) integration of LLC into classroom content and curricula. The data indicated that one of the three teachers consistently used content knowledge and incorporated reading strategies in daily practice. Two teachers struggled with developing sound lessons based on explicit systematic instruction. One teacher used the professional development as an avenue to find new information, while two teachers needed additional time to relate what was taught in professional development to improving classroom practice. All of the teachers decided to adapt and implement the LLC curriculum differently from how it was taught in their professional development.

Dingle, et al., (2011) concluded that the provision of the professional development resulted in teachers making adjustments to the curriculum as prescribed by the LLC framework. These changes did result in improved teaching practices. Dingle, et al., (2011) recommended that additional research be conducted with a larger sample of teachers, taking into consideration of the variations in content and pedagogical knowledge teachers possess, specific content, and the curricula that may impact teacher implementation. Finally, Dingle, et al., (2011) recommended that researchers and teacher trainers consider different methods to motivate teachers to change their teaching practices.

Frey (2009) investigated the use of a project-based online professional development with special educators. Four teachers participated in the study. Each of the participants were full-time special education teachers who were completing the professional development for credit toward a graduate degree in special education. The online project-based professional development was facilitated by a university that provided graduate coursework for state-required licensure for special educators.

The procedures of the study involved a project-based format and was structured to provide opportunities to implement practices taught to produce positive student outcomes. The teachers completed 12 journal entries in which they provided detailed information about their experiences (e.g., student characteristics, classroom dynamics). The online community was delivered using Computer Mediated Communication (CMC) in which the teachers could ask questions and receive feedback from other participants.

There were three types of data collected in the study: (a) discussion forums, (b) student data, and (c) digital video observations and reflections. After the data were collected, it was transcribed. Qualitative data analysis consisted of the organization, sorting, and coding of the collected data using the constant comparative method. The results from the qualitative analysis revealed the following themes: (a) teachers experienced an increased level of skills and conceptual knowledge, (b) students with disabilities improved performance over the duration of the project, and (c) student improvement increased teacher likelihood to implement the strategies taught.

Frey (2009) concluded that online project-based professional development may have a positive impact on special education teachers and their students. Frey (2009) recommended that

future research must make a connection between teacher growth and student improvement when using an online professional development approach.

Suhrheinrich (2011) examined the efficacy of a 6-hour workshop combined with individualized coaching for teachers focused on pivotal response training (PRT). The purpose of the study was to determine the effects the 6-hour training on teacher implementation of the components of PRT. Twenty teachers (e.g., K -2nd grade) participated in the study.

The group training was conducted on a university campus. Student participants were recruited to help in the workshop and were unfamiliar to the teacher participants. For the district-selected group, the group training workshop took place in the school. The training consisted of modeling and PRT component practice.

Approximately one week before training began, the teachers were videotaped for 10 minutes in their classroom with their students. They were asked to use PRT or a similar strategy with their students. For the training sessions, a protocol for the group training was developed that included: (a) didactic instruction, (b) modeling, and (c) feedback provided from a professional. The teachers attended a 6-hour training session that included 2 hours of didactic instruction, 1 hour of modeling viewing videos, 1 hour of modeling with a child with autism by the trainer, 1 hour of practice implementing PRT with a child with autism (typically a student who was unfamiliar to the teacher), feedback on improving their PRT use, and 1 hour discussing questions and implementation techniques. After the workshop was complete, the teachers received ongoing feedback during individual coaching sessions in their classrooms.

All coaching sessions were coded to assess the teacher fidelity of implementation of the PRT. Mastery criteria were established at 80% correct implementation of each component of PRT over a 10-minute videotaped sample. For each minute, all components of PRT were

evaluated and rated as either correct or incorrect. The percentage of minutes in which each

component was correctly implemented was calculated. Although none of the teachers, in either

group (e.g., university, school based),demonstrated mastery of PRT at pre-training, at post-

training 70% of the teachers in the university group attained mastery of the PRT components

compared to only 10% of the teachers in the district group. On completion of all training, 100%

of the teachers in the university group and 10% of the teachers in the district group mastered all

components of PRT (Suhrheinrich, 2011).

Results indicated that the workshop alone was only effective in training 15% of the

teachers to meet the mastery criteria for PRT. However, the majority of teachers showed

improvement following individual coaching. The findings suggest that attending a group

workshop was insufficient training for most teachers to demonstrate mastery of PRT, but a

modest amount of time spent in individual coaching with observation and feedback helped the

teachers master PRT techniques.

Suhrheinrich, (2011) concluded that although EBPs such as pivotal response training

(PRT) exist, teachers often lack adequate training to use these practices. They recommended that

teachers receive a combination of workshop training and individualized coaching to ensure

mastery of implementing strategies and that training must include learning opportunities beyond

the workshop to maximize effectiveness.

The literature in the field suggests that change is not an isolated event, but a gradual process

(Gersten & Edyburn, 2007; Gersten, et al. 2005; Odom, et al. 2005; van den Bergh, L., Ross &

Beijaard, 2015). Researchers recommend that in-service professional development include the

following components: (a) integration of instructional leadership in professional development,

(b) measurement of effects from teacher change to student achievement, (c) documentation of

teacher content knowledge, (d) assessment of the different delivery systems for professional development, (e) the use of teacher interaction in conjunction with direct professional development, and (f) measurement of teacher growth and student improvement.

Evidence-based Practices in Special Education Classrooms

Although identified evidence-based practices in the field have increased, it is essential that these practices are used in classroom settings with students with disabilities (Brock & Carter, 2013; Greenlaugh, et al., 2004; Fixsen, et al. 2013; Franklin, 2007). Recently, the field of special education has begun to focus on the implementation of evidence-based practices within special education contexts (Bowman-Perrot, Greenwood, & Tapia, 2007; Cook & Cook, 2011).

Burns and Ysseldyke (2009) examined the frequency with which evidence-based practices EBPs (e.g., applied behavior analysis, direct instruction, formative evaluation, and mnemonic strategies) were used to support students with disabilities. The purpose of the study was to determine if EBPs with reported large effect sizes were used more frequently than those that did not have large effect sizes (Burns & Ysseldyke, 2009).

One hundred seventy-four special education teachers and 333 school psychologists participated in this study. These participants were selected from the membership lists from the Council for Exceptional Children and the National Association of School Psychologists respectively.

The teachers and school psychologists completed separate 12-item surveys in which they rated the frequency of use of eight practices used in special education. These practices were: (a) applied behavior analysis, (b) direct instruction, (c) formative assessment, (d) mnemonic strategies, (e) modality instruction, (f) perceptual-motor training, (g) psycholinguistic training,

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and (h) social skills training. The special education teachers were permitted to select choices more than once, however, the school psychologists were permitted to rate practices only once.

The first research question was answered using descriptive statistics. The use of the following practices were reported most frequently: (a) applied behavior analysis, (b) direct instruction, (c) formative evaluation, and (d) mnemonic strategies. The data used for the second research question were analyzed using the Friedman non-parametric test and the Wilcoxan signed-rank non-parametric analyses.

The responses from the special education teachers and the school psychologists indicated that direct instruction was the most frequently used instructional practice and that perceptual-motor training was the least frequent. School psychologists ranked applied behavior analysis higher than social skills training and direct instruction higher than modality instruction.

Burns and Ysseldyke (2009) concluded that some practices with little empirical support (e.g., modality instruction) were used with some frequency and that special educators reported using ineffective approaches (e.g., social skills training) as frequently as they did approaches with a strong research base (applied behavior analysis). Burns and Ysseldyke (2009) recommended research is needed to explore why ineffective practices were used most frequently regardless of its low effect size.

Carter, Strnadova, and Stephenson (2012) completed two replication studies based on the research of Burns and Ysseldyke (2009). The purpose of the study was to determine the prevalence of the implementation of evidence-based practices in the Czech Republic.

Special educators (n = 531) living in different areas of the Czech Republic participated in this study. There are no formal educational programs in which pedagogy and teaching practices

are provided for teachers, however, 46% of the participants indicated they had a Master's degree. The teachers were selected from four school in which students with disabilities were enrolled.

Carter, Strndova, and Stephenson, (2012) adapted the survey used by Burns and Ysseldyke (2009). The survey was translated into Czech and reviewed by three additional individuals to ensure accuracy of all of the survey items. The data were recorded and analyzed based on participant ranking of their use of practices from one (1-almost every day) to five (5-almost never). Multiple comparisons were made.

Carter, Strndova, and Stephenson (2012) found that approximately 91% of the participants reported using direct instruction more frequently than any other practice. Additionally, applied behavior analysis and social skills training were reported to be used the most. Other findings included significant differences in the implementation of psycholinguistic training, but no significance was found for comparisons among formative evaluation, modality training, and perceptual motor training. Variations in the types of disabilities that the teachers worked with and the educational settings may have impacted the practices reported.

Carter, Strndova, and Stephenson (2012) concluded that there are similarities, on an international scale, concerning the use of practices considered to be evidence-based. They recommended that additional research be conducted to ensure teachers are trained to use appropriate evidence-based practices in their classrooms.

In a study designed to identify evidence-based practices used to deliver content instruction at the secondary level reported in education-related journals (1984-2006), Scruggs, Mastropieri, Berkeley, and Graetz, (2010) conducted a meta-analysis. The purpose of the study was to determine the practices that were most prevalent in 15 peer-reviewed journals and develop recommendations for the evaluation of future experimental studies.

The studies were selected from 15 journals that focused on interventions for students with high-incidence disabilities and contained original content-area research with students at the secondary level. Of the 70 articles selected for the study, all contained the following information: (a) study identification information, (b) student sample characteristics, (c) intervention description, (d) design features, (e) type of effect, and (f) effect size.

Scruggs, Mastropieri, Berkeley, and Graetz, (2010) developed a coding instrument based upon: (a) reading standard score, (b) reading percentile, and (c) reading grade equivalent. Additional coding was conducted to categorize the different interventions (e.g., highlighting/underlining, partial outlines/guided notes). All coders participated in reliability testing and until 100% agreement was achieved.

Results of the meta-analysis indicated that the primary intervention for content area instruction was explicit instruction, followed by study aids, classroom learning strategies, mnemonic strategies, special organizers, hands-on and activity-based learning, peer mediation, and computer-assisted learning. All of the studies included criterion-referenced assessment as dependent measures of mastery. Assessment for skill maintenance was present in 22.9% of the studies and generalization assessment was conducted in 12.9% of the studies included in the meta-analysis. Scruggs, Mastropieri, Berkeley, and Graetz, (2010) included the intervention weighted effect sizes as they related to their respective categories. They reported that explicit instruction had the highest overall mean effect size at 1.68, and computer-assisted instruction had the lowest overall mean effect size of 0.63.

Scruggs, et al., (2010) concluded that all of the interventions reported were effective. However, they maintained that the process may miss practices that may be ineffective. They

recommended that additional research in content area instruction be conducted to identify evidence-based practices for students with disabilities at the secondary level.

Allinder (1994) investigated the relationship between teacher efficacy and service delivery by special education teachers who provided direct instruction to students and those who were consultants to general education teachers. The purpose of this study was to determine if special education teacher behaviors and attitudes were correlated to differences between the two service delivery types (e.g., direct instruction to students in resource rooms, indirect consultation with teachers).

Eight hundred special education teachers were selected randomly from four states in the Midwestern region of the United States to participate in this study. All teachers taught students with learning disabilities, intellectual disabilities, or behavioral disorders and provided direct instruction or indirect service (e.g., consultation) for students at the elementary level. A total 437 special education teachers completed the study.

The teachers were asked to complete a questionnaire containing the following questions: (a) demographic, (b) teacher efficacy, and (c) teacher characteristics. Each teacher was mailed a four-page questionnaire containing a description of the study, demographic information, teacher efficacy, and teacher characteristics scales. The teachers who did not respond to the initial mailing were sent another mailing three weeks after the first mailing.

Data from the survey were analyzed using a one-way analysis of variance (ANOVA). The data indicated that indirect service providers were more likely to engage in more innovative methods to teach students. The teachers who had a greater belief in their teaching abilities (efficacy) were more likely to be: (a) experimental in their instructional practices, (b) business-

like in classroom organization and in student interactions, (c) confident in instructional delivery, and (d) confident about teaching (Allinder, 1994).

Allinder (1994) concluded that teachers who were more experimental in their teaching practices also more organized, planned, and dealt with students fairly. Teachers who provided indirect services were more likely to experiment or change their instruction than those who provided direct services. Allinder (1994) recommended that prospective and practicing special education teachers: (a) be instructed in specific methods to change their teaching behaviors, and (b) evaluate their personal beliefs.

Jones (2009) conducted a study to determine the perceptions of novice teachers pertaining to research as well as their use of six research-based practices for students with high-incidence disabilities. The purpose of the study was to identify if a gap existed between the teachers' current beliefs and their time in their teacher training.

Ten teachers, with less than three full years of teaching experience, who taught students with high-incidence disabilities participated in the study. The teachers taught in educational settings, ranging from kindergarten through 12th grade.

Structured interview protocols and classroom observations, using the Validated Practices Rating Scale (VPRS), were conducted (Jones, 2009). The interview protocols consisted of questions relating to teaching styles, teaching methods, and decision making involved in the selection of specific instructional practices. Each participant was observed in their classroom at least three times for 40 to 60 minutes. The goal being to identify practices based on research such as: (a) direct instruction, (b) peer-mediated learning, (c) content enhancement, (d) self-management, (e) technology integration, and (f) effective teaching behaviors. After the observations and interviews, participants were asked to rate the six practices using a five-point

Likert scale in terms of how often they believed they implemented the practices. Follow-up interviews were conducted with specific participants to control for any incongruences from the data collection and analysis.

The data from the interviews were transcribed using open coding. The development of data summaries and drawing conclusions were used.

The novice teachers were grouped into three different groups: (a) definitive supporters who believed research was essential for teacher effectiveness, (b) cautious consumers who were unsure of the value of research as it related to teaching, and (c) critics who believed that research had very little value and should not be relied upon to guide practice (Jones, 2009). Other data indicated that few novice teachers used more than two research-based practices and then only for a short period of time.

Jones (2009) concluded that new special educators should be taught to search for credible research, employ skills to interpret research, and become consciously aware of their own practices. Jones (2009) recommended that future research explore formal and informal support systems for novice teachers to eliminate the gap between pre-service teacher training and field-based experience concerning the use of evidence-based practices.

Kutash, Duchnowski, and Lynn (2009) investigated the impact of the use of evidence-based strategies manuals (ESMs) on teacher implementation of evidence-based practices. The purpose of this study was to determine the level of implementation of evidence-based practices educators used for students with disabilities in secondary schools relating to the outcomes after using ESMs.

Ten middle school and five high school teachers working with eighty-seven students participated in the study. The students were identified as having a specific learning disability (SLD), emotional or behavioral disorder (EBD), or having an intellectual disability (ID).

In the study, each teacher worked with the students in a special education setting for half of the school year. The teachers were then trained over the course of two years for five sessions, one session, and six sessions, respectively to implement evidence-based practices and strategies (e.g., reading comprehension, formative assessment, positive behavior supports (PBS), family involvement). The teachers were assessed longitudinally to see if implementation of the practices were sustained over time (Kutash, et al., 2009).

The instruments used to collect data were: (a) the Wide Range Achievement Test III (WRAT3) (Wilkinson, 1993) to measure student academic achievement, (b) class schedules, absences, and disciplinary records, (c) an ESM teacher fidelity measure, (d) validity and reliability of the fidelity measure, (e) and the measure of student exposure to interventions.

The data were analyzed using an ANOVA in the areas of determining: (a) the level of implementation by the teachers of the strategies listed in the ESMs, (b) the level of exposure to intervention strategies received by the students, (c) if the use of the new strategies produced positive student outcomes, and (d) the levels of outcomes across the different disability categories (Kutash, et al. 2009). Post-hoc tests were conducted to determine if there were any significant differences and changes over time.

The results of this study indicated that the teachers implemented 62% of the interventions listed in the ESMs. The most commonly used strategy was positive behavior support (PBS), followed by parent involvement. The strategy with the lowest rate of implementation was

reading. The overall student outcomes indicated that students increased their reading achievement.

Kutash, et al. (2009) concluded that lower levels of implementation over longer periods of time may be more effective than high levels of implementation for shorter periods of time. Kutash, et al. (2009) recommended that, for evidence-based practices to be used over time, teachers must be provided: (a) appropriate teacher training, (b) continued support during implementation, and (c) a measure of implementation fidelity.

Hall, (2015) evaluated a cohort of teachers six years after their graduation with a Master's degree in autism. The purpose of the study was to examine the sustained use of EBPs over time. The participants in this study taught students with autism. All data were collected in their classrooms.

Hall (2015) reviewed the training program in which the teachers had participated. The program components consisted of: (a) reviewing the literature, (b) implementing 24 EBPs with mentor support, (c) evaluating practices via research projects, and (d) presenting their findings. Other data collected in the study was derived from surveys, data summary forms, interview protocols, and intervention fidelity checklists. The participants completed the following items: (a) a 14-item questionnaire via email, (b) a semi-structured interview at their school or via telephone, and (c) video samples taken prior to the beginning of the study. The data from the interviews were analyzed using qualitative analysis and the data from video samples were analyzed using quantitative analysis.

The results indicated that 12 of the graduates continued working with students with ASD and/or supervised other individuals who worked with students with autism. All of the participants reported that they collected data for progress monitoring, with 10 participants

reporting that they graphed their data to help make decisions. The participants also reported that they used prompting, reinforcement, visual supports, and social narratives when working with their students. All of the participants reported that the preparation in their university program assisted them in sustaining their levels of practice.

Hall (2015) concluded that it is necessary to determine the level of influence that university-driven teacher education programs have on teacher implementation of evidence-based practices in classrooms. She recommended that universities continue to explore the sustained use of EBPs by teachers once they enter the field.

Bethune and Wood (2013) conducted a study to determine the effects of coaching on special education teacher implementation of function-based interventions with students with severe disabilities. This study also examined the extent to which teachers generalized function-based interventions to different situations and its effects on the replacement behavior of students.

Four special education teachers working with students with severe disabilities participated in the study. All were certified special education teachers. Each teacher referred one student who demonstrated challenging behaviors to participate in the study. The study was conducted in several locations on the school campus. The intervention occurred during a teacher-identified activity that was part of each student's day. The procedures of the study included: (a) initial observation, (b) in-service training, (c) student baseline, (d) teacher baseline, (e.g. function-based intervention), (e) functional analysis, (f) coaching, and (g) generalization and maintenance.

This study used a delayed multiple-baseline across-participants design to analyze the effects of coaching on special education teachers' implementation of function-based interventions with their students. The results indicated a functional relationship between

coaching and an increase in the teachers' accurate implementation of function-based interventions. One of the participants had a high and stable baseline and therefore, did not need coaching. Three participants increased their scores from 48% to 100% accuracy. Teacher generalization results were recorded during the teacher baseline and maintenance phases. A functional relationship was found between the accurate implementation of the function-based interventions by the teachers and an increase in student primary replacement behaviors. All student data for replacement behaviors indicated immediate changes in level upon accurate teacher implementation of the function-based intervention.

Bethune and Wood (2013) concluded that coaching increased teacher fidelity when implementing function-based interventions. They recommended adopting an in-service training model utilizing individuals who successfully implement function-based interventions to ensure consistent teacher success.

Although there is limited research in the field regarding long-term support after providing professional development for special educators, researchers have made efforts to improve practices relating to: (a) changing teaching behaviors, (b) providing continuous monitoring, and (c) increasing teacher involvement in using evidence-based practices. Suggestions of monitoring long-term support for special educators include: (a) selecting appropriate teacher professional development, and (b) providing continuous support and feedback during intervention implementation to measure fidelity.

Evidence-based Practices in General Education Classrooms

Although there is an increased focus on implementing evidence-based practices in classroom settings for students with disabilities, recently attention has turned to ensuring all

students receive instruction supported by rigorous research (Cook & Odom, 2013; Darling-Hammond, 2006). This includes increased inquiry into the contribution of professional development for general educators and its relationship to the implementation of evidence-based practices in the general education setting (Stephenson, Carter, & Arthur-Kelly, 2011).

Kretlow, Cook, and Wood (2012) investigated the effects of in-service training and coaching on the correct implementation of evidence-based practices by teachers. The purpose of the study was to determine the: (a) effect of in-service training and coaching on teacher fidelity of implementation of evidence-based practices, (b) level of generalization in later lessons, (c) value teachers place on in-service training and coaching, and (d) effect of evidence-based practices on student outcomes.

Three first grade teachers participated in the study. Teachers were selected to participate if they met the following criteria: (a) nominated by the principal, (b) used differentiated instruction (DI) for at least one academic year, (c) served as the primary instructor for the study, and (d) responded positively to questions related to DI programs.

The teachers were provided professional development and follow-up coaching for three evidence-based practices (e.g., model-lead-test (MLT), systematic error correction, choral responses/response cards) during math instruction to increase active student responding. The researchers provided professional development and support during the following trainings: (a) a three-hour long group in-service, (b) individual pre-conferences (15-20 minutes), (c) in-class coaching sessions (30-45 minutes), and (d) post-conference (15-20 minutes).

The data were collected during the math instruction in the general education classroom. All other activities (e.g., pre-conference, coaching, feedback) occurred in the individual teacher's classroom. Data were collected as each teacher's percentage of correctly implemented instruction

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was recorded. The initial baseline included a minimum of five data points until baseline criteria were achieved without receiving professional development. In each phase that followed, teachers received coaching and feedback along with professional development support. The impact of professional development and coaching on each teacher's correct implementation of math instruction was measured by a multiple-baseline design across teachers. Three phases were evaluated: (a) baseline with no professional development, (b) post-professional development, and (c) post-coaching.

Kretlow, Cooke, and Wood (2012) found that all three teachers increased the number of correct group instructional units following the professional development. A decrease was noted after all three teachers received coaching and individualized support, but improved immediately following coaching. This visual analysis of the data indicated there was a causal relation between training and the increased percentage of correct strategy implementation. Post-training scores for Teacher A improved from 21% to 80% post-coaching, For Teacher B, scores improved from 40% to 75%, and for Teacher C, scores improved from 11% to 86%. Kretlow, et al. (2012) found that in-service coaching did have a significant effect on the accuracy of strategy implementation.

Kretlow, et al, (2012) concluded that the one-day in-service training may impact teaching practice. Kretlow, et al. (2012) recommend that a two-level training model be implemented in which teachers who have experience delivering instruction receive less support after professional development. They also recommended that student data be collected to determine if there is a carryover effect on student achievement based on teacher participation in professional development.

In a follow-up study, Kretlow and Helf (2013) explored the impact of instructional design on teacher usage of evidence-based practices in reading. The purpose of the study was to

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determine the extent to which teachers implemented: (a) evidence-based practices in Tier I instruction, (b) core reading components, (c) the reading components as prescribed by the National Reading Panel (2001), and (d) systematic and explicit reading instruction.

A random stratified sample of 1,500 teachers (e.g., 500 kindergarten; 500 first grade; 500 second grade) were invited to participate in the study. Surveys were sent to the sample and 534 teachers returned completed surveys. The survey was a 15-item, closed-ended questionnaire related to reading (e.g., curricula, components of reading, literature selection, frequency of use of evidence-based practices) based on the NRP (2001).

Descriptive statistics were used to analyze the data collected from the returned surveys. The teachers identified 63 reading programs of which 84% were not listed in the What Works Clearinghouse (WWC) as evidence-based programs. Of the 63 programs, approximately 10% were found in the WWC, but were not supported by studies that met the research standards required. Approximately 5% of the programs reported by the teachers had no documented effects on student outcomes (Kretlow & Helf, 2013). Additional exploration of the Best Evidence Encyclopedia (BEE) and the Promising Practices Network yielded similar results that were found using the What Works Clearinghouse: (a) 80% of the reading programs were not found on either website, (b) approximately 10% of the programs were found on the two websites, but were not supported by studies that met the research standards required, and (c) approximately 7% of the reading programs had no documented effects on student outcomes (Kretlow & Helf, 2013). Because of the limited research in this area, additional content evaluation of the websites was conducted. This evaluation included assessment of the adherence to the five components of reading instruction (e.g., phonological and phonemic awareness, alphabetic principle,

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vocabulary, fluency, comprehension). Of the 28 reading programs, 14 contained all five reading instruction components.

Kretlow and Helf (2013) concluded that less than half of the teachers reported using all of the components of the reading curriculum as recommended by the NRP (2001). They recommended the following: (a) teachers and administrators participate in the curricular adoption process, (b) effective professional development be provided concerning evidence-based practices, and (c) that universities and school districts collaborate to create appropriate professional development.

Gable, Tonelson, Sheth, Wilson, and Park (2012) conducted a survey to examine how effectively general and special educators implement evidence-based practices. The purpose of the study was to identify teacher perspectives in terms of: (a) importance, (b) amount of use, and (c) level of preparation using evidence-based practices. The participants in the study were 1,588 general educators and 1,472 special educators.

A questionnaire focusing on evidence-based practices for teaching students with emotional and behavioral disorders (EBD) was created for the study. This questionnaire was comprised of: (a) demographic information, and (b) questions focusing on 20 evidence-based practices for students with EBD. The teachers were asked to respond to the items using a five-point Likert scale (e.g., 1=least, 5=most) concerning the following topics: (a) importance, (b) amount of use, and (c) level of preparation using evidence-based practices.

Scores for each of the responses rated above the 80% level were used based on research literature for school-based interventions. The practices with the highest scores were determined to be the most important and those with the lower scores were determined to be less important.

For each of the 20 EBPs listed, scores were calculated. Special education teachers selected 75% of the evidence-based practices as important whereas the general educators selected only 11% of the practices. There were two practices that both groups of teachers agreed upon importance (e.g., crisis intervention plans, clear rules and expectations). Gable, et al. (2012) reported that all teachers indicated their lack of preparation to implement practices that they considered important.

Gable, et al. (2012) concluded that: (a) there should be increased efforts to prepare school personnel to address the needs (e.g., behavioral, academic, social) of students with EBD, (b) critical evaluation of pre-service and in-service teacher training to support students with EBD should be conducted, and (c) access and incorporation of EBPs into the classroom better for educators must be done. They recommended that systematic training of specific skills and practices must occur for educators to obtain mastery and competency in evidence-based practices.

Harris, et al., (2012) examined the effects of intensive practice-based professional development and follow-up support on the writing outcomes of students in rural elementary schools after receiving Self-Regulated Strategies Development (SRSD) instruction. Twenty teachers of 262 second and third grade students participated in the study.

The teachers participated in two days of professional development to learn the Self-Regulated Strategies Development (SRSD) instructional model (Harris, Graham, & Mason, 2006). The teachers provided instruction in either story writing or opinion essays. The professional development was delivered to five teams of teachers at their schools. The SRSD instruction provided included: (a) development of background knowledge, (b) discussion, (c) modeling, (d) memorization, (e) support, and (f) independent performance. The intervention was

a collaboration with a university to implement a writing program focused on a three-tiered model of prevention targeting academic, behavioral, and social goals (Harris, et al., 2012).

The data collected were analyzed using descriptive statistics (e.g., means, standard deviations) and the evaluation of the effect sizes. The teachers implemented SRSD with 85% fidelity. Each writing group was compared on the following elements: (a) number and quality of elements, (b) overall quality, (c) length, and (d) transition words. The story writing group scored 1.52 more elements than students in the opinion essay condition for the number and quality of elements in the story prompts. The opinion writing group scored 3.1 additional elements compared with students in the story writing group for the number and quality of elements in the opinion writing prompts. In addition, students in the opinion essay group scored approximately 6 points higher on quality and 3 points higher on transition words than students in the story writing condition. The length of student writing did not differ in either writing group. In terms of social validity, the teachers rated the intervention moderately favorable for both story and opinion essay conditions.

Harris, et al. (2012) concluded that practice-based professional development may be more cost-effective than on-going intensive coaching, in achieving higher levels of intervention implementation fidelity (or proper adaptation). They recommended that professional development include investment in intensive, short-term practice-based instruction in SRSD for writing in the primary grades.

Kamps, et al., (2008) investigated the impact of class-wide-peer tutoring (CWPT) in urban middle schools with diverse student populations. The purpose of the study was to ascertain the effect of CWPT on: (a) teacher implementation fidelity of the intervention after professional development and follow-up support, (b) increased levels of implementation, (c) student academic

content mastery, and (d) the difference in effect sizes when suburban and urban classrooms were compared. Twenty-five middle school (e.g., grades 6 through 8) teachers participated in the study. The study was conducted over a three-year period in different schools.

Baseline data were recorded to determine the level of traditional instruction (e.g., teacher-led instruction) that included: (a) presentation of vocabulary, (b) discussion of story concepts and main ideas, (c) sequencing, and (d) mapping. Large group instruction included: (a) reading and discussion of textbook sections, (b) independent work using worksheets, (c) low levels of student engagement (e.g., oral reading of texts, asking/answering questions). New activities in the class were introduced using CWPT in terms of: (a) self-management, (b) student academic response, and (c) paired student reading. The components used to measure student achievement were error correction and earning points for appropriate responses and good citizenship (Kamps, et al., 2008).This was paired with a lottery system to decrease inappropriate student behaviors while increasing appropriate behaviors. Accommodations and modifications were made to the CWPT intervention to permit accessibility for English Language Learners (ELLs) and student with disabilities.

Data were analyzed using a mixed methods design (e.g., quasi-experimental interrupted time series, single-subject reversal). The data were collected using the following measures: (a) student quizzes, (b) on-task data, (c) classroom observations, and (d) procedural fidelity measurements of CWPT and its components.

Overall fidelity of implementation of CWPT in classrooms ranged from 48% to 100%, with an average implementation of 90%. In each year of the study, peer tutoring, teacher behaviors, and student behaviors improved. In Year 1, instruction increased from 16% to 75% during reading sessions. In the second and third years of the study, instruction increased from

52% to 85%. Students in urban classrooms showed increased improvement over students in sub-urban classrooms.

Kamps, et al., (2008) concluded that the use of CWPT combined with motivational and management procedures resulted in moderate to large effects for middle school students' learning of weekly reading and social studies content. They recommended that more research be conducted to be used to demonstrate the effectiveness of CWPT in combination with other motivational methods.

In a study designed to determine the impact of professional development on teacher support for inquiry science learning, Gerard, Varma, Corliss, and Linn (2011) performed a meta-analysis. The purpose of the study was to determine which professional development programs for teachers had the greatest impact on student science learning outcomes in K-12.

Gerard, et al. (2011) used the Knowledge Integration Framework (Bransford, Brown, & Cocking, 1999) to analyze studies on professional development in technology-enhanced science. Electronic databases were searched for articles published between 1985 and 2011 concerning professional development, science, and technology.

Gerard, et al., (2011) used a two-step process based on the Knowledge Integration Framework (Bransford, et al., 1999) to code and quantitatively analyze the articles. Articles were divided into two groups based on duration: (a) programs implemented for up to one year or less and (b) programs continued for two or more years. Articles were coded in terms of how professional development programs supported participants in developing new teaching practices: (a) eliciting teacher ideas, (b) supporting new teacher ideas, (c) using evidence to differentiate new ideas, or (d) supporting in teacher reflection and integration of new ideas. The professional programs included in the study were coded by levels: (a) low, (b) medium, or (c) high in terms of

supporting teacher engagement in constructivist learning processes. Articles also were also coded for the impact of the professional development in terms of the degree to which the program supported teachers in the integration of technology-enhanced instruction into their teaching practice.

Gerard, et al. (2011) found that professional development that engaged teachers in a comprehensive, constructivist-oriented learning process, and were conducted beyond one year significantly improved student inquiry learning experiences in K–12 science classrooms. Twenty-two percent of the studies documented effects of professional development on students' inquiry science learning experiences. The long-term professional development focused on teacher integration of technology into their practice, while 40% of the studies reported measures of student science learning outcomes. In professional development of one year or less, the findings indicated that teacher success was hindered by common technical and instructional obstacles.

Gerard, et al., (2011) concluded that professional development programs are more likely to succeed if they support teachers in using curricula that have embedded technologies focusing on distinct science concepts. They recommended professional guidance to help teachers generate instructional customizations that enhance student inquiry learning experiences rather than a direct instruction approach.

The research that has been conducted in general education classrooms indicates specific needs in the field. These needs include the collection of student data to determine if changes are based on teacher training (Harris, et al., 2012; Kamps, et al., 2008). It also appears that universities and school districts should collaborate to incorporate models to support teachers in the evaluation of evidence-based practices (Harris, et al., 2013; Kretlow, et al., 2012). Finally,

there is a need for the systematic training of skills and practices for educators to obtain mastery and competency in evidence-based practices (Gerard, et al., 2011; Kamps, et al., 2008).

Summary

To date, little research has been conducted focusing on the incorporation of evidence-based practices in school-based professional development (Cook, et al. 2013; Schmoker, 2012; Burns & Ysseldyke, 2008). Since professional development leadership is currently being held accountable for making sustainable impact for teachers and students at the practice level, focusing on these elements related to school-based professional development is important (Fixsen, et al. 2013; Gherke & Cocchiarella, 2013). Currently, the factors that influence the use of research by professional development leaders in their decision-making concerning school-based professional development are unknown (Hornby, et al. 2013). This includes the specific factors used in promoting the use of research in professional development (Pagoto, et al. 2007). It is unclear if this issue can be attributed to: (a) a lack of knowledge or understanding of evidence-based practices, (b) the lack of research-to-practice translation, and (c) the result of the type of pre-service education or school-based professional development teachers receive (Cook, et al. 2008; Klingner, et al. 2013; Webster-Wright, 2009).

The literature suggests that change is a gradual process and not an isolated event when it comes to supporting teachers in the use of evidence-based practices (Gersten & Edyburn, 2007; Gersten, et al. 2005; Odom, et al. 2005). Although many methods are suggested for gradually implementing evidence-based practices, there is little mention of specific research to identify evidence-based practices (Friedt, 2012; Krengel, 2010).

The professional development literature in general education supports the premise that programs must encourage teachers to change their behaviors and beliefs about implementing evidence-based practices (Stephenson, Carter, & Arthur-Kelly, 2011; Powell, 2015; Swan, 2007). Research in the field of special education is limited regarding ongoing long-term support of teachers in terms of: (a) finding methods to change teaching behaviors, (b) providing continuous monitoring and support, (c) increasing teacher and administrator involvement in the curriculum adoption process, and (d) incorporating evidence-based practices into the classroom (Allinder, 1994; Gable, et al. 2012; Jones, 2009; Kretlow, 2012; Kutash, Duchnowski, & Lynn, 2009; Powell, 2015). Researchers have suggested that these components are essential in supporting the identification and implementation of evidence-based practices with students with disabilities (Burns &Ysseldyke, 2009; Carter, et al. 2012; Kretlow & Helf, 2013; Scruggs, et al. 2010). Overall, the use of evidence-based interventions by all educators is an ethical issue that must be addressed by pre-service teacher education and school-based professional development.

CHAPTER THREE

METHODOLOGY

Overview

The identification and selection of evidence-based practices taught to teachers for use in educational settings has not been well documented in the literature (Avalos, 2011; Cook & Odom, 2013; Hornby, et al. 2013). Recently, the field of special education has begun a discussion concerning the identification and use of evidence-based practices within the educational environment (Cook, et al. 2009; Cook & Cook, 2011; Cook, et al. 2008). This discussion includes the: (a) quality indicators for research, (b) components of evidence-based practices, and (c) translation of research into practice, (Cook, et al. 2009; Cook & Cook, 2011; Cook & Odom, 2013; Gersten et al., 2005). Because the translation of research into practice (classroom application) typically occurs in pre-service teacher education and in-service professional development, it is timely to ascertain if the constructs of evidence-based practices are considered important by professional development personnel when planning professional development for teachers. This study queried school-based professional development coordinators concerning the importance of considering specific characteristics of evidence-based practices when planning professional development for educators. The results of this study provided considerations for future research to assist in closing the research-to-practice gap when identifying and utilizing evidence-based practices.

Fifteen school districts from each state were selected to participate in this study, resulting in a total of 736 school districts. The school districts were ranked small, medium, and large based on the reported student population provided by the United States Census (2010). Professional development coordinators from the school districts were asked to complete an

online questionnaire (see Appendix A). The coordinators from each school district were selected based on their title on the school district website.

Research Questions

This study was exploratory in nature and, therefore, no predictions were made. The following research questions were addressed:

Research Question 1: Do the responses of school-based Professional Development Coordinators differ based on their educational level concerning their consideration of the eight quality indicators of evidence-based practices for general and special educators when planning professional development (e.g., context, participants, intervention agent, description of practice, implementation fidelity, internal validity, outcome measures, data analysis)?

Research Question 2: Do the responses of school-based Professional Development Coordinators differ based on their educational level concerning their consideration of the five evidence-based classifications for general and special educators when planning professional development (e.g., evidence-based practice, potentially evidence-based practice, mixed evidence, insufficient evidence, negative effects)?

Research Question 3: Do the responses of school-based Professional Development Coordinators differ based on their years of experience serving as a coordinator concerning their consideration of the eight quality indicators of evidence-based practices for general and special educators when planning professional development (e.g., context, participants, intervention agent, description of practice, implementation fidelity, internal validity, outcome measures, data analysis)?

Research Question 4: Do the responses of school-based Professional Development Coordinators differ based on their years of experience serving as a coordinator concerning their consideration of the five evidence-based classifications for general and special educators when planning professional development (e.g., evidence-based practice, potentially evidence-based practice, mixed evidence, insufficient evidence, negative effects)?

Research Question 5: Do the responses of school-based Professional Development Coordinators differ based on where professional development decisions are made (e.g., school level, district level, state level) concerning their consideration of the eight quality indicators of evidence-based practices for general and special educators when planning professional development (e.g., context, participants, intervention agent, description of practice, implementation fidelity, internal validity, outcome measures, data analysis)?

Research Question 6: Do the responses of school-based Professional Development Coordinators differ based on where professional development decisions are made (e.g., school level, district level, state level) concerning their consideration of the five evidence-based classifications for general and special educators when planning professional development (e.g., evidence-based practice, potentially evidence-based practice, mixed evidence, insufficient evidence, negative effects)?

Participants

The 736 school districts that participated in this study were selected randomly from the 10,268 districts nationwide (NCES, 2014). After the school districts were identified, information concerning the professional development coordinator from each school district was collected from the district website or by calling the district directly.

School Districts

School districts from each state were selected to participate in this study. The districts varied in size (e.g., small [1-999 students], medium [1,000-9,999 students], large [10,000 or more students]) based on the student enrollment reported by each district to the United States Census (2010). The only state represented by a single district was Hawaii. The participating school districts were randomly selected through the process of: (a) placing all school districts within a state into categories of small, medium, and large, and (b) using a digital randomizing program (e.g., www.randomizer.com) to select five small, five medium, and five large school districts from each state.

The random selection process used to identify the participating school districts and professional development coordinators consisted of the following steps: (a) creating a comprehensive database consisting of a master list of all 50 states, (b) compiling 50 separate detailed listings containing the individual names of each school district with reported student enrollment a spreadsheet, (c) copying each separate list of school districts into a randomizing program (e.g., www.randomizer.com), (d) using the lottery setting within the program, sorting all selected districts, (e) selecting the first five districts for each size category, (e.g., small, medium, large), and (f) copying the selected school districts into a table and new spreadsheet for each state with its respective districts that were randomly selected.

To ensure that each state contained the correct number of school districts for each size category, (e.g., small, medium, large), the final list was reviewed to eliminate duplications. The only state that was exempt from the random selection process was the state of Hawaii as it was represented by a single school district and was manually added. Once all states contained 15

randomly selected school districts, an internet search was conducted using a search engine to locate the website and contact information (e.g., email address) for each prospective participant.

Professional Development Coordinators

The professional development coordinators from each school district were selected based on their title listed on the school district website. Each individual selected as the designated professional development coordinator was identified by a specific title related to teacher training (e.g. professional development director, teacher development director). When individuals could not be located or identified on a website, a phone call was made to the district or state department of education office to request the name and email address for each of individual responsible for professional development of the representative school districts. For this study, the participants were titled the professional development coordinators from the participating school districts. Three panels (e.g., [250 small, 236 medium, 250 large]) containing the email addresses of the selected professional development coordinators were created. Each panel was used to email the coordinators over the course of the study. All responses were confidential and could not be traced once emails had been sent.

Each potential participant was sent an email containing an invitation to participate and a description of the study (see Appendix B and see Appendix C). In the email, the professional development coordinator was directed to provide digital informed consent. Digital consent is considered legal consent. By selecting the statement, "Yes, I have read the above information and agree to participate in this study. I am at least 18 years of age," the participant gained access to the questionnaire (see Appendix C). The first portion of the questionnaire was used to collect demographic information. The participant also had the option to decline participation in the study. By selecting the statement, "No, I do not want to participate at this time," the participant

could exit the questionnaire. The final pool of participants was 81 professional development

coordinators from across the United States. This pool ultimately was invited to complete the

questionnaire (see Table 1).

Setting

The school districts were located in 50 states and represented small, medium, and large

districts in urban, rural, and sub-urban settings (NCES, 2014). For the purpose of this study, the

size of a district was based on the total reported student population (e.g., small [1-999 students],

medium [1,000-9,999 students], large [10,000 or more students]) according to United States

Census (2010). This study was conducted online where each participant completed the

questionnaire using a computer at his or her individual work locations in their respective school

districts.

Materials

The implementation of this study required three materials. These materials were: (a) three

separate panels (e.g., small, medium, large school districts) containing the email addresses of the

professional development coordinators, (b) the *Standards for Evidence-based Practices in*

Special Education monograph (Cook, et al. 2014), and (c) the program *Qualtrics* (Qualtrics

Labs, Inc., 2009).

Professional Development Coordinator Panels

After the 736 participating school districts were selected randomly for participation in

this study, three panels containing the email addresses of the professional development

coordinators from each size category of school districts (e.g., small, medium, large) were

created. One professional development coordinator from each school district was identified

based on their title listed on the school district website. When information was unavailable on the

website, the school district or state department of education was contacted to secure the email

address for the professional development coordinator. The panels were created in the *Qualtrics*

(Qualtrics Labs, Inc., 2009) program and maintained the anonymity of the respondents.

The Qualtrics panels consisting of the email addresses were sent the description of the

study (Appendix B) and the informed consent (Appendix C). Participants were emailed directly

from the panel each time the participation request was sent.

Questionnaire

The questionnaire was developed based on the monograph *Standards for Evidence-based*

Practices in Special Education (Cook, et al. 2014). This monograph outlined the recommended

standards and classifications for evidence-based practices and is based on a review of the

literature that resulted in eight quality indicators for evidence-based practices (e.g., context and

setting, participants, intervention agent, description of the practice, implementation fidelity,

internal validity, outcome measures/dependent variables, data analysis) and the classification of

evidence-based practices (e.g., evidence-based practice, potentially evidence-based practice,

mixed evidence, insufficient evidence, negative effects) (Cook, et. al, 2014). Permission to adapt

the monograph into a questionnaire was granted by the Council for Exceptional Children (see

Appendix D).

The questionnaire was based on the recommended standards and classifications for

evidence-based practices in special education (Cook, et. al, 2014). A task force of experts in the

field of special education completed a review of the literature and developed 33 statements

focused on eight quality indicators for evidence-based practices (e.g., context and setting,

participants, intervention agent, description of the practice, implementation fidelity, internal

validity, outcome measures/dependent variables, data analysis) and five classification of evidence-based practices (e.g., evidence-based practice, potentially evidence-based practice, mixed evidence, insufficient evidence, negative effects) (Cook, et. al, 2014) (see Appendix E). For this study, the 33 statements were paraphrased into 28 questions that were rated using a Likert scale.

Qualtrics

The questionnaire was accessible to participants via *Qualtrics* (Qualtrics Labs Inc., 2009). *Qualtrics* is a web-based survey software tool adopted by approximately 600 government entities, universities, not-for-profit organizations, and 100 private corporations and businesses (Qualtrics, 2009). *Qualtrics* has been used in academic settings for experimental research, application and admission processes, classroom research, data analysis, and course evaluations (Qualtrics, 2009).

Instrumentation

The questionnaire used in this study was based on the Council for Exceptional Children's monograph entitled, *Standards for Evidence-based Practices in Special Education* (Cook, et al. 2014). This monograph was translated into an online questionnaire with the permission of the Council for Exceptional Children (see Appendix E).

Questionnaire Development

Each statement in the monograph was translated into one or more questions corresponding to each standard or classification of evidence-based practice. The items in the questionnaire corresponded to the monograph components in the following manner: (a) context and setting (one question), (b) participants (two questions), (c), intervention agent (two questions), (d) description of practice (two questions), (e) implementation fidelity (two

questions), (f) internal validity (five questions), (g) outcome measures (six questions), (h) data analysis (three questions), (i) evidence-based practice (one question), (j) potentially evidence-based practice (one question), (k), mixed evidence (one question), (l) insufficient evidence (one question), and (m) negative effects (one question) (see Appendix A).

For each item, the professional development coordinator was asked to indicate on a 5-item Likert scale the importance of considering the standards and classifications. The scale rankings are: (a) 5-indicated strongly agree, (b) 4-indicated agree, (c) 3-indicated neither agree nor disagree, (d) 2-indicated disagree, and (e) 1-indicated strongly disagree (see Appendix A).

Formative assessment of the questionnaire was completed by an expert in the field of special education and an expert in professional development. This was done to ensure that the content in each question was correctly aligned to the content in the monograph. The two experts compared the digital questionnaire to the paper format of the questionnaire to ensure that the digital format included all components present in the paper format (see Appendix A).

Table 1

Professional Development Coordinator Demographic Information

Characteristic	Number of Coordinators
Highest Degree	
Bachelor's Degree	2
Master's Degree	42
Doctoral Degree	27
Other	10
Total	81
Total Years of Experience as Professional Development Coordinator	
0-5	19
6-10	19
11-15	20
16 or more	23
Total	81
Professional Development Decisions are made at the	
School Level	21
District Level	60
State Level	0
Total	81

Design and Procedures

This study was conducted over a six-month period and consisted of four phases. These phases included the creation of the prospective participant email panels, development of the online questionnaire, distribution of the questionnaire, and data analysis.

Phase One

Three Qualtrics panels containing 736 prospective professional development coordinators was compiled from the school districts selected to participate in this study. These panels were used as the digital address book for the study. The panels were used to email the invitation to participate in the study (see Appendix B) and contained the informed consent (see Appendix C). After participants provided informed consent, they accessed the complete 28-item questionnaire.

The email addresses in the panels were not linked to the questionnaire responses, thus maintaining the anonymity of the responders.

Phase Two

The questionnaire was developed and transferred to a digital format based on the monograph entitled *Standards of Evidence-based Practices in Special Education* (Cook, et al. 2014) (see Appendix D, see Appendix E). The survey was available via the *Qualtrics* (Qualtrics Labs, Inc., 2009) server provided by the university at which the study was conducted.

Phase Three

Seven hundred and thirty-six professional development coordinators from the randomly selected school districts were emailed from one of three separate email panels. The email contained a description of the study and the informed consent. In the event that a participant decided not to continue or complete the entire questionnaire, they could terminate the questionnaire at any time by closing the browser containing the survey. Once a participant completed the questionnaire, they were not permitted to access the questionnaire again. Surveys not completed were not used in data analysis.

The questionnaire was available for a six-month period. During the first month, an initial email was sent out Tuesday of the first week of data collection. The following Wednesday and Friday of the first week, reminder emails were sent to the participants (see Appendix F). No emails were sent during the second week of the study. During the third week, a reminder was sent on Tuesday. Additional reminder emails were sent on Wednesday and Friday, respectively. No emails were sent during the fourth week of the study. This process was repeated each month for a total of six months to get the highest possible number of participants. The survey was closed at the end of the six-month collection period.

Phase Four

Participant responses were compiled, downloaded, and entered into a database. Data were analyzed using the *Statistical Package for the Social Sciences* (SSPS) software program.

Treatment of the Data

The data collected from the questionnaire were analyzed to answer the questions below:

Research Question 1: Do the responses of school-based Professional Development Coordinators differ based on their educational level concerning their consideration of the eight quality indicators of evidence-based practices for general and special educators when planning professional development (e.g., context, participants, intervention agent, description of practice, implementation fidelity, internal validity, outcome measures, data analysis)?

Analysis: In order to determine if there was a significant difference between Professional Development Coordinators with different educational levels and their consideration of the eight quality indicators of evidence-based practice, a 4 x 2 x 8 (Education Level x Teacher Type x Quality Indicator) mixed model factorial ANOVA was used to analyze the data. The alpha level was set at $p = 0.05$.

Research Question 2: Do the responses of school-based Professional Development Coordinators differ based on their educational level concerning their consideration of the five evidence-based classifications for general and special educators when planning professional development (e.g., evidence-based practice, potentially evidence-based practice, mixed evidence, insufficient evidence, negative effects)?

Analysis: In order to determine if there was a significant difference between Professional Development Coordinators with different educational levels and their consideration of the five

evidence-based classifications of teaching practices, a 4 x 2 x 5 (Education Level x Teacher Type x Classification) mixed model factorial ANOVA was used to analyze the data. The alpha level was set at $p = 0.05$.

Research Question 3: Do the responses of school-based Professional Development Coordinators differ based on their years of experience serving as a coordinator concerning their consideration of the eight quality indicators of evidence-based practices for general and special educators when planning professional development (e.g., context, participants, intervention agent, description of practice, implementation fidelity, internal validity, outcome measures, data analysis)?

Analysis: In order to determine if there was a significant difference between Professional Development Coordinators with different years of experience and their consideration of the eight quality indicators of evidence-based practice, a 4 x 2 x 8 (Years of Experience x Teacher Type x Quality Indicator) mixed model factorial ANOVA was used to analyze the data. The alpha level was set at $p = 0.05$.

Research Question 4: Do the responses of school-based Professional Development Coordinators differ based on their years of experience serving as a coordinator concerning their consideration of the five evidence-based classifications for general and special educators when planning professional development (e.g., evidence-based practice, potentially evidence-based practice, mixed evidence, insufficient evidence, negative effects)?

Analysis: In order to determine if there was a significant difference between Professional Development Coordinators with different years of experience and their consideration of the five evidence-based classifications of teaching practices, a 4 x 2 x 5 (Years of Experience x Teacher

Type x Quality Indicator) mixed model factorial ANOVA was used to analyze the data. The alpha level was set at $p = 0.05$.

Research Question 5: Do the responses of school-based Professional Development Coordinators differ based on where professional development decisions are made (e.g., school level, district level, state level) concerning their consideration of the eight quality indicators of evidence-based practices for general and special educators when planning professional development (e.g., context, participants, intervention agent, description of practice, implementation fidelity, internal validity, outcome measures, data analysis)?

Analysis: In order to determine if there was a significant difference between Professional Development Coordinators who work in states in which professional development decisions are made at different levels and their consideration of the eight quality indicators of evidence-based practice, a 2 x 2 x 8 (Decision Level x Teacher Type x Quality Indicator) mixed model factorial ANOVA was used to analyze the data. The alpha level was set at $p = 0.05$.

Research Question 6: Do the responses of school-based Professional Development Coordinators differ based on where professional development decisions are made (e.g., school level, district level, state level) concerning their consideration of the five evidence-based classifications for general and special educators when planning professional development (e.g., evidence-based practice, potentially evidence-based practice, mixed evidence, insufficient evidence, negative effects)?

Analysis: In order to determine if there was a significant difference between Professional Development Coordinators who work in states in which professional development decisions are made at different levels and their consideration of the five evidence-based classifications of

teaching practices, a 2 x 2 x 5 (Education Level x Teacher Type x Quality Indicator) mixed

model factorial ANOVA was used to analyze the data. The alpha level was set at $p = 0.05$.

CHAPTER FOUR

RESULTS

Educators must be provided support in the incorporation of evidence-based practices in pre-service teacher education and in-service professional development trainings (Hornby, et al. 2013; Odom, 2009; Wallace, 2011). The mandates of NCLB (2001) and IDEA (2004) require teachers to provide educational and behavioral supports for students using interventions supported by empirical research to produce positive student outcomes (Cook, 2013). According to the literature on evidence-based practices and professional development, research is beginning to focus on the selection of evidenced-based strategies in the training of teachers (Cook & Cook, 2011; Klingner, 2009).

The purpose of this study was to determine the characteristics (e.g., level of education, years of experience, level at which decisions are made) of school-based professional development personnel concerning their use of the quality indicators and classifications as identified by Cook, et al., (2014) of evidence-based practices when designing school-based professional development for general and special educators. An online questionnaire was developed for use in the study and individual professional development providers were sent an email providing access to the questionnaire. Seven hundred thirty-six professional development providers across the United States were sent the questionnaire. A total of 81 participants completed the questionnaire (see Appendix A). Data were collected over a six-month period and were analyzed using quantitative analyses.

The *Evidence-based Practice Questionnaire* (see Appendix A) was developed based on the *Standards for Evidence-based Practices for Special Education* created by a task force of experts in the field of special education (Cook, et al. 2014) (see Appendix D and Appendix E).

The 28-item questionnaire focused on the quality indicators and classification levels of evidence-based practices prescribed by the Council for Exceptional Children. The questionnaire focused on the difference of the responses of professional development coordinators based on the following characteristics: (a) educational level, (b) years of experience, and (c) level at which decisions are made. For each item, the professional development coordinators indicated on a 5-item Likert scale if they: (1) strongly agreed, (2) agreed, (3) neither agreed nor disagreed, (4) disagreed, or (5) strongly disagreed if they considered specific quality indicators and classification levels when designing professional development for general and special educators. The data from the questionnaire were analyzed to answer the following research questions:

Research Question 1: Do the responses of school-based Professional Development Coordinators differ based on their educational level concerning their consideration of the eight quality indicators of evidence-based practices for general and special educators when planning professional development (e.g., context, participants, intervention agent, description of practice, implementation fidelity, internal validity, outcome measures, data analysis)?

Participant responses to the questionnaire items were coded by educational level (e.g., Master's degree, Doctoral degree, Other) to determine the group means (see Table 2) and a 4 x 2 x 8 (Education Level x Teacher Type x Quality Indicator) mixed model factorial ANOVA was conducted to test for significant differences in the professional development coordinators' consideration of each quality indicator and if these considerations were different between teacher type. The mixed methods ANOVA also tested for significant differences between groups of teachers based on education level.

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Table 2

Quality Indicators and Educational Level

Variable	Master's (*n* = 42)		Doctorate (*n* = 27)		Other (*n* = 10)	
	M	*SD*	*M*	*SD*	*M*	*SD*
General Education						
Context and Setting	1.37	.46	1.59	.48	1.68	.67
Participants	1.80	.60	1.74	.75	1.73	.53
Intervention Agent	1.55	.57	1.64	.57	1.89	.46
Description of Practice	1.38	.42	1.28	.62	1.28	.42
Implementation Fidelity	1.59	.45	1.42	.55	1.44	.44
Internal Validity	1.92	.48	1.86	.60	1.81	.47
Outcome Measures	1.67	.48	1.63	.44	1.55	.36
Data Analysis	1.51	.39	1.52	.56	1.40	.46
Special Education						
Context and Setting	1.40	.47	1.71	.71	1.69	.67
Participants	1.72	.64	1.64	.74	1.67	.66
Intervention Agent	1.57	.57	1.60	.58	1.89	.46
Description of Practice	1.38	.42	1.34	.70	1.28	.42
Implementation Fidelity	1.57	.46	1.38	.51	1.49	.48
Internal Validity	1.91	.49	1.87	.61	1.81	.47
Outcome Measures	1.67	.49	1.63	.45	1.55	.37
Data Analysis	1.49	.40	1.52	.56	1.39	.46

Note. Bachelor's degree group was omitted because it had only two (2) cases.

The *F*-test of within subjects effects related to quality indicators was not significant [F $(1, 7) = .505$, $p = .82$] (see Table 3). This indicates there was no significant difference between professional development coordinator's considerations of the quality indicators. The *F*-test of between subjects effects related to education level was not significant [F $(1, 21) = .733$, $p = .79$] (see Table 3). This indicates that there was no significant difference in professional development

coordinator's consideration of quality indicators for special education and general education

teachers. This also indicates that there was no significant difference in professional development

coordinators' consideration of quality indicators based on educational levels.

Table 3

Analysis of Variance for Quality Indicators and Educational Level

Variable	*Df*	*MS*	*F*	*P*
Education	21	219.00	.733	.79
Teacher Type	7	71.00	.505	.82
Teacher x Education	21	219.00	.617	.90

Research Question 2: Do the responses of school-based Professional Development

Coordinators differ based on their educational level concerning their consideration of the five

evidence-based classifications for general and special educators when planning professional

development (e.g., evidence-based practice, potentially evidence-based practice, mixed evidence,

insufficient evidence, negative effects)?

Participant responses to the questionnaire items were coded by education level (e.g.,

Master's, Doctoral, Other) to determine the group means (see Table 4) and a 3 x 2 x 5 (Education

x Teacher Type x Evidence-Based Practice Classifications) mixed model factorial ANOVA was

conducted to test for significant difference in the professional development coordinators'

consideration of each classification and if these considerations were different between teacher

type. The mixed methods ANOVA also tested for significant differences between groups of

teachers based on educational levels.

Table 4

Evidence-based Practice Classifications and Educational Level

Variable	Master's (n = 42)		Doctorate (n = 27)		Other (n = 10)	
	M	SD	M	SD	M	SD
Evidence-Based Classifications for General Education Teachers						
Evidence-Based Practice	2.40	.65	2.25	.70	2.44	.96
Potentially Evidence-Based Practice	2.38	.63	2.41	.96	2.46	.96
Mixed Evidence	2.61	.81	2.74	.97	2.36	.67
Insufficient Evidence	2.25	.99	2.32	1.09	2.43	.69
Negative Effects	2.67	1.05	2.69	1.13	2.78	1.03
Evidence-Based Classifications for Special Education Teachers						
Evidence-Based Practice	2.37	.68	2.25	.70	2.44	.96
Potentially Evidence-Based Practice	2.34	.67	2.38	.87	2.45	.96
Mixed Evidence	2.59	.85	2.78	1.11	2.36	.67
Insufficient Evidence	2.25	.99	2.35	1.10	2.43	.68
Negative Effects	2.68	1.05	2.72	1.19	2.78	1.03

Note. Bachelor's degree group was omitted because it had only two (2) cases.

The *F*-test of within subjects effects related to the classifications was not significant [F $(1, 3) = .142, p = .93$] (see Table 5). This indicates there was no significant difference between professional development coordinator's considerations of the classifications. The *F*-test of between subjects effects related to education level was not significant [F $(1, 15) = 1.11, p = .35$] (see Table 5). This indicates that there was no significant difference in professional development coordinator's consideration of the classifications for special education and general education teachers. This also indicates that there was no significant difference in professional development coordinator's consideration of classifications based on educational levels.

Table 5

Analysis of Variance for Classifications and Educational Level

Variable	df	MS	F	p
Education	15	225.00	1.10	.35
Teacher Type	3	75.00	.142	.93
Teacher x Education	9	231.00	.685	.72

Note. *p<.05.

Research Question 3: Do the responses of school-based Professional Development Coordinators differ based on their years of experience serving as a coordinator concerning their consideration of the eight quality indicators of evidence-based practices for general and special educators when planning professional development (e.g., context, participants, intervention agent, description of practice, implementation fidelity, internal validity, outcome measures, data analysis)?

Participant responses to the questionnaire items were coded by years of experience (e.g., 0-5 years, 6-10 years, 1-15 years, 16 or more) to determine the group means (see Table 6) and a 3 x 2 x 8 (Years of Experience x Teacher Type x Quality Indicator) mixed model factorial ANOVA was conducted to test for significant difference in professional development coordinators' consideration of each quality indicator and if these considerations were different between teacher type. The mixed methods ANOVA also tested for significant differences between groups of teachers based on years of experience.

Table 6

Quality Indicators and Years of Experience

Variable	0-5 yrs (*n* = 19)		6-10 yrs (*n* = 19)		11-15 yrs (*n* = 20)		> 16 yrs (*n* = 23)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Quality Indicators for General Education Teachers								
Context and Setting	1.41	.48	1.49	.60	1.52	.48	1.47	.49
Participants	1.80	.67	1.91	.77	1.66	.56	1.69	.57
Intervention Agent	1.40	.42	1.60	.49	1.63	.65	1.83	.60
Description of Practice	1.16	.28	1.51	.72	1.35	.42	1.29	.41
Implementation Fidelity	1.37	.53	1.64	.55	1.55	.43	1.46	.44
Internal Validity	1.74	.45	1.86	.55	1.95	.43	1.93	.62
Outcome Measures	1.56	.45	1.59	.48	1.70	.44	1.68	.45
Data Analysis	1.51	.49	1.56	.51	1.45	.46	1.43	.42
Quality Indicators for Special Education Teachers								
Context and Setting	1.41	.48	1.59	.83	1.58	.58	1.52	.49
Participants	1.74	.69	1.90	.77	1.52	.56	1.57	.57
Intervention Agent	1.40	.42	1.64	.55	1.57	.61	1.78	.62
Description of Practice	1.16	.28	1.51	.73	1.43	.56	1.29	.42
Implementation Fidelity	1.37	.53	1.61	.52	1.47	.44	1.45	.44
Internal Validity	1.72	.44	1.87	.57	1.95	.43	1.93	.62
Outcome Measures	1.56	.45	1.58	.49	1.72	.46	1.68	.44
Data Analysis	1.52	.49	1.56	.51	1.45	.46	1.39	.42

The *F*-test of within subjects effects related to quality indicators was not significant [$F_{(1, 7)}$ = 3.04, p = .07] (see Table 7). This indicates there was no significant difference between the professional development coordinators' considerations of the quality indicators. The *F*-test of between subjects effects related to years of experience also was not significant [$F_{(1, 21)}$ = 1.47, p = .09] (see Table 7). This indicates that there was no significant difference in professional

development coordinator's consideration of quality indicators for special education and general

education teachers. This also indicates that there was no significant difference in professional

development coordinator's consideration of quality indicators based on years of experience.

Table 7

Analysis of Variance for Quality Indicators and Years of Experience

Variable	*df*	*MS*	*F*	*p*
Experience	21	219.00	1.47	.09
Teacher Type	7	71.00	3.04	.82
Teacher x Experience	21	219.00	1.29	.18

Note. *p<.05.

Research Question 4: Do the responses of school-based Professional Development

Coordinators differ based on their years of experience serving as a coordinator concerning their

consideration of the five evidence-based classifications for general and special educators when

planning professional development (e.g., evidence-based practice, potentially evidence-based

practice, mixed evidence, insufficient evidence, negative effects)?

Participant responses to the questionnaire items were coded by years of experience (e.g.,

0-5 years, 6-10 years, 11-15 years, 16 or more) to determine the group means (see Table 8) and a

4 x 2 x 5 (Years of Experience x Teacher Type x Evidence-Based Practice Classifications) mixed

model factorial ANOVA mixed model factorial ANOVA was conducted to test for significant

difference in professional development coordinator's consideration of each classification and if

these considerations were different between teacher type. The mixed model ANOVA also tested

for significant differences between groups of teachers based on years of experience.

Table 8

Evidence-based Practice Classifications and Years of Experience

Variable	0-5 yrs (*n* = 19)		6-10 yrs (*n* = 19)		11-15 yrs (*n* = 20)		> 16 yrs (*n* = 23)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Evidence-Based Classifications for General Education Teachers								
Evidence-Based Practice	2.24	.71	2.54	.68	2.20	.75	2.44	.66
Potentially Evidence-Based Practice	2.25	.63	2.70	.93	2.25	.77	2.36	.76
Mixed Evidence	2.63	.74	2.61	.76	2.54	.98	2.69	.93
Insufficient Evidence	2.45	1.05	2.26	.97	2.30	1.01	2.25	.95
Negative Effects	2.68	1.14	2.78	1.08	2.60	1.03	2.65	1.06
Evidence-Based Classifications for Special Education Teachers								
Evidence-Based Practice	2.24	.71	2.54	.68	2.20	.75	2.38	.71
Potentially Evidence-Based Practice	2.25	.63	2.65	.81	2.25	.77	2.30	.80
Mixed Evidence	2.62	.74	2.50	.90	2.64	1.12	2.71	.93
Insufficient Evidence	2.45	1.05	2.31	.98	2.30	1.02	2.25	.95
Negative Effects	2.68	1.14	2.83	1.17	2.60	1.03	2.65	1.06

The *F*-test of within subjects effects related to the classifications was not significant [F

$(1, 3) = .994, p = .40$] (see Table 9). This indicates there was no significant difference between

professional development coordinators' considerations of the classifications. The *F*-test of

between subjects effects related to years of experience was also not significant [F (1, 15) = .587, p = .88] (see Table 9). This indicates that there was no significant difference in professional development coordinator's consideration of the classifications for special education and general education teachers. This also indicates that there was no significant difference in professional development coordinator's consideration of classifications based on years of experience.

Table 9

Analysis of Variance for Classifications and Years of Experience

Variable	*df*	*MS*	*F*	*p*
Experience	15	225.00	.587	.88
Teacher Type	3	75.00	.994	.40
Teacher x Experience	9	231.00	1.324	.22

Note. *p<.05.

Research Question 5: Do the responses of school-based Professional Development Coordinators differ based on where professional development decisions are made (e.g., school level, district level, state level) concerning their consideration of the eight quality indicators of evidence-based practices for general and special educators when planning professional development (e.g., context, participants, intervention agent, description of practice, implementation fidelity, internal validity, outcome measures, data analysis)?

Participant responses to the questionnaire items were coded by where curricular decisions are made (e.g., district, state) to determine the group means (see Table 10) and a 2 x 2 x 8 (Decision x Teacher Type x Quality Indicator) mixed methods ANOVA was conducted to test

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for significant difference in professional development coordinators' consideration of each quality

indicator and if these considerations were different between teacher type. The mixed methods

ANOVA also test for significant differences between groups of teachers based on where

curricular decisions are made.

Table 10

Quality Indicators and Decision Level

Variable	School Level (n = 21)		District Level (n = 60)	
	M	SD	M	SD
Quality Indicators for General Education Teachers				
Context and Setting	1.34	.44	1.52	.52
Participants	1.71	.55	1.78	.67
Intervention Agent	1.42	.57	1.70	.55
Description of Practice	1.26	.36	1.35	.49
Implementation Fidelity	1.45	.39	1.52	.52
Internal Validity	1.69	.45	1.94	.53
Outcome Measures	1.36	.24	1.73	.47
Data Analysis	1.19	.27	1.59	.47
Quality Indicators for Special Education Teachers				
Context and Setting	1.34	.44	1.59	.63
Participants	1.65	.52	1.69	.70
Intervention Agent	1.45	.58	1.66	.57
Description of Practice	1.26	.36	1.37	.57
Implementation Fidelity	1.39	.41	1.50	.50
Internal Validity	1.68	.45	1.94	.54
Outcome Measures	1.35	.25	1.74	.47
Data Analysis	1.19	.27	1.57	.48

Note. State level was eliminated because all responses were at school or district level.

The *F*-test of within subjects effects related to quality indicators was not significant [$F_{(1, 3)}$ = .397, p = .75] (see Table 11). This indicates there was no significant difference between professional development coordinators' considerations of the quality indicators. The *F*-test of between subjects effects related to where curricular decisions were made was not significant [$F_{(1, 5)}$ = 1.89, p = .10] (see Table 11). This indicates that there was no significant difference in professional development coordinator's consideration of quality indicators for special education and general education teachers. This also indicates that there was no significant difference in professional development coordinator's consideration of quality indicators based on where decisions are made.

Table 11

Analysis of Variance for Quality Indicators and Decision Level

Variable	*Df*	*MS*	*F*	*p*
Decision	5.0	75.00	1.89	.10
Teacher Type	3.0	77.00	.397	.75
Teacher x Decision	3.0	77.00	1.30	.27

Note. *p<.05.

Research Question 6: Do the responses of school-based Professional Development Coordinators differ based on where professional development decisions are made (e.g., school level, district level, state level) concerning their consideration of the five evidence-based classifications for general and special educators when planning professional development (e.g.,

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evidence-based practice, potentially evidence-based practice, mixed evidence, insufficient evidence, negative effects)?

Participant responses to the questionnaire items were coded by where curricular decisions are made (e.g., school, district) to determine the group means (see Table 12) and a 2 x 2 x 5 (Decision x Teacher Type x Evidence-Based Practice Classifications) mixed methods ANOVA was conducted to test for significant difference in professional development coordinators' consideration of each classification and if these considerations were different between teacher type. The mixed methods ANOVA also tested for significant differences between groups of teachers based where curricular decisions are made.

The *F*-test of within subjects effects related to the classifications for evidence-based practices was not significant [F (1, 7) = 2.58, *p* = .20] (see Table 13). This indicated there was no significant difference between the professional development coordinators' considerations of the classifications in terms of teacher types. The *F*-test of between subjects effects related to where decisions are made was significant [F (1, 7) = 2.75, *p* = .01] (see Table 13).

Table 12

Evidence-based Classifications and Decision Level

Variable	School Level (n = 21)		District Level (n = 60)	
	M	*SD*	*M*	*SD*
Evidence-Based Classifications for General Education Teachers				
Evidence-Based Practice	2.01	.63	2.48	.68
Potentially Evidence-Based Practice	2.07	.50	2.50	.83
Mixed Evidence	2.58	.95	2.64	.82
Insufficient Evidence	2.56	1.22	2.22	.88
Negative Effects	2.73	1.12	2.66	1.04
Evidence-Based Classifications for Special Education Teachers				
Evidence-Based Practice	2.01	.63	2.46	.71
Potentially Evidence-Based Practice	2.07	.50	2.46	.81
Mixed Evidence	2.52	1.00	2.66	.90
Insufficient Evidence	2.56	1.22	2.24	.88
Negative Effects	2.73	1.12	2.67	1.08

Note. State level was eliminated because all responses were at school or district level.

Table 13

Analysis of Variance for Classifications by Decision Level

Variable	df	MS	F	p
Decision	1.0	73.00	2.75	.01*
Teacher Type	1.0	73.00	2.58	.20
Teacher x Decision	1.0	73.00	.79	.59

Note. *p<.05.

This indicated that there was a significant difference in professional development coordinators' responses and considerations of the classifications of evidence-based practices based on where curricular decisions were made (e.g., school, district). Professional development coordinators at the district level were more likely to report considering evidence-based and potentially evidence-based practices than the coordinators who reported their considerations at the school level (see Table 14, Table 15). Because there were fewer than three groups compared, no post hoc tests were conducted.

Table 14

Between Subjects Effects for Classifications and Decision Level

Source	Measure	Type III Sum of Squares	df	Mean Square	F	Sig.
	Evidence	6.472	1	6.472	6.984	.01*
	Potentially	5.309	1	5.309	4.708	.03*
Decision	Mixed	.322	1	.322	.209	.64
	Insufficient	3.425	1	3.425	1.799	.18
	Negative	.114	1	.114	.049	.82

Note. *p<.05.

Table 15

Evidence-based Classifications and Decision Level Comparisons

Classification	MD	P
Evidence-based	.456	.01*
Potentially	.413	.03*
Mixed Evidence	.102	.64
Insufficient Evidence	.332	.18
Negative Effects	.061	.82

Note. *p<.05.

Summary

Overall, in this study, the professional development coordinators' levels of education and years of experience had no impact on their consideration of the quality indicators and classifications of evidence-based practices when planning professional development for general and special educators. The data indicated that when decisions were made at the district level, professional development providers had a greater tendency to consider practices classified as evidence-based and potentially evidence-based when planning teacher professional development as prescribed by the Council for Exceptional Children (2014).

CHAPTER FIVE

DISCUSSION

Current discussion in the field of education focuses on the use of evidence-based

practices to teach students with and without disabilities. However, there is limited research

concerning the incorporation of evidence-based practices in pre-service teacher education or in

the professional development of educators currently teaching (Anderson & Herr, 2011;

Schmoker, 2012; Burns & Ysseldkye, 2008; Cook, et al., 2008; Pianta, 2011; Webster-Wright,

2009). Because general and special educators are expected to implement interventions and

strategies that have a strong empirical research base and that produce positive student outcomes,

it was imperative to create a baseline concerning the consideration of the quality indicators and

classifications of evidence-based practices by school district professional development

coordinators.

The purpose of this study was to determine the individual components of evidence-based

practices as prescribed by the Council for Exceptional Children (CEC, 2014) that were

considered by professional development coordinators in the design of professional development

for general and special educators. Comparisons were made among the professional development

coordinators' level of education, years of experience, and levels at which curricular decisions

were made. Data were collected using an online questionnaire created for the study.

The questionnaire was developed based on the CEC monograph *Standards for Evidence-*

based Practices in Special Education (Cook, et al. 2014) and measured the quality indicators of

evidence-based practices: (a) context and setting, (b) participants, (c) intervention agent, (d)

description of the practice, (e) implementation fidelity, (f) internal validity, (g) outcome

measures/dependent variables, and (h) data analysis. The questionnaire also measured the

classifications of evidence-based practices: (a) evidence-based practice, (b) potentially evidence-based practice, (c) mixed evidence, (d) insufficient evidence, and (e) negative effects (Cook, et. al, 2014).

Professional Development Provider Level of Education

Question One analyzed the consideration of the quality indicators by professional development coordinators when planning professional development for educators based on the level of education of the coordinators. The results indicated that professional development coordinators' educational level did not have a significant effect on their consideration of the quality indicators of evidence-based practice for general education and special education teachers. This indicated that, regardless of educational level, the coordinators did not consider the quality indicators of evidence-based practice when planning professional development for general or special educators.

Question Two focused on whether or not the educational level of the professional development coordinators had an impact on the classifications of evidence-based practices considered when planning school-based professional development for educators. The results indicated that regardless of educational level the professional development coordinators did not consider any of the five evidence-based classification categories when planning professional development for general education and special education teachers.

Professional Development Provider Years of Experience

Question Three centered on whether or not the years of experience in education that the professional development providers had impacted their consideration of the quality indicators of evidence-based practices when designing professional development for educators. The data

indicated that years of experience did not have a significant effect on any their consideration of the quality indicators of evidence-based practice for general education and special education teachers. This indicated that, regardless of the number of years spent working in education, the professional development coordinators did not consider the quality indicators when planning professional development.

Question Four examined if the professional development coordinators' years of educational experience had an impact on the classification of evidence-based practices considered when planning school-based professional development for educators. Again, the results indicated that years of educational experience had no significant effect on the inclusion of evidence-based practice classifications in the planning of professional development by school-based professional development coordinators.

Where Professional Development Decisions Are Made

Question Five focused on determining where curricular decisions are made when planning professional development for general and special educators, based on the quality indicators of evidence-based practices. Data analysis showed that there was no significant difference where curricular decisions were made (school vs. district) in regards to the quality indicators of evidence-based practices. This may indicate that the quality indicators were not considered at either the school level or the district level when planning professional development.

Question Six explored if where curricular decisions are made when planning professional development for general and special educators, was based on the classifications of evidence-based practices. The results indicated that statistical significance was present when curricular

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decisions were made at the district level. This finding indicated that although decisions were made at the district level, professional development coordinators were more likely to consider practices classified as evidence-based or potentially evidence-based practices when planning school-based teacher training. This finding indicated that although educational level and years of experience had no influence on professional development coordinators' considerations, the level at which curricular decisions were made did have influence on coordinators' considerations of the evidence-based classifications.

Conclusions

Based on the collected quantitative data, four conclusions may be drawn from this study. These conclusions should be considered in light of the previously noted limitations of the study:

1. When educational level was taken into consideration, no significance was found on the variables (quality indicators, classifications).

2. When years of experience were taken into consideration, no significance was found on the variables (quality indicators, classifications).

3. When focusing on where curricular decisions were made (e.g., school, district), no significance was found on the variable (quality indicators).

4. For professional development coordinators whose curricular decisions were made at the district level, there was a greater tendency of considering practices classified as evidence-based and potentially evidence-based when planning school-based professional development for general and special educators over those coordinators whose curricular decisions were made at the school level.

Recommendations for Future Research

The field of education agrees that general and special educators must receive ongoing professional development in the incorporation of evidence-based practices in their classrooms (Hill, Flores, & Kearley, 2014; Klehm, 2014; Maddox, & Marvin, 2012). The responsibility for this rests with school-based professional development providers to ensure that educators receive continuous support in using evidence-based practices. Based on the results of this study, the following areas are suggested for future research:

1. Further research should be conducted to explore the considerations by professional development coordinators of the eight quality indicators of evidence-based practices.

2. Further research should be conducted to explore the consideration by professional development coordinators of the five evidence-based classifications.

3. Further research should explore the partnering of universities and school districts to ascertain sustained use of EBPs by teachers once they enter the field.

4. Further research should be conducted into the use of the extended school year as a training field for teaching evidence-based practices to educators.

5. Further research should be conducted concerning the appropriate in-service training model(s) to teach evidence-based practices to support consistent teacher success.

6. Further research should be conducted in teaching educators to identify and implement evidence-based practices in their classrooms.

7. Efforts should be directed toward training administrators and professional development coordinators in the identification and use of evidence-based

practices in order to support the appropriate planning of professional development for educators.

8. This study should be replicated to increase the response rate.

Summary

This study contributes to the field of education concerning the quality indicators and classifications of evidence-based practices considered by professional development providers when designing professional development for general and special educators. The six research questions in this study focused on each of the quality indicators and classifications of evidence-based practices as prescribed by the Council for Exceptional Children (Cook, et al. 2014). The results indicate that professional development providers had not considered the specific quality indicators or the classifications of evidence-based practice when planning school-based professional development.

Educators must be provided professional development that involves incorporating evidence-based practices according to the standards prescribed by experts in the field of education (Cook, et al., 2014; Gersten, et al., 2005; Odom, 2013). General and special educators indicate the desire to use evidence-based practices and the need for continuous support after professional development is provided (Cook, et al. 2008; Klingner, 2004; Mathis, 2008; Penuel, Fishman, Yamaguchi, & Gallagher, 2007; Schmoker, 2012). Because of this issue, professional development coordinators need to be trained to identify evidence-based practices to plan effective professional development and provided continuous support for teachers. Without supporting professional development coordinators in the systematic incorporation of evidence-based practices into teaching practice, the research to practice gap will persist.

APPENDIX A

QUESTIONNAIRE

SECTION 1:

Participant Demographic and Background Information

Please answer the following questions:

1. Highest Degree
    - o Bachelor's Degree
    - o Master's Degree
    - o Doctoral Degree
    - o Other

2. Total Years of Experience as Professional Development Coordinator
    - o 0-5
    - o 6-10
    - o 11-15
    - o 16 or more

3. Professional Development Decisions are made at the:
    - o School Level
    - o District Level
    - o State Level

SECTION 2:

Evidence-based Practices in Special Education and General Education

Professional Development

This questionnaire is designed to determine school district consideration of specific indicators of evidence-based practices when planning professional development for general education and special education teachers. This questionnaire will take 15 minutes to complete.

Evidence-based Practices: Interventions and/or programs shown by high-quality research to have meaningful effects on student outcomes (Cook & Odom, 2013).

- Select if you Strongly Agree
- Select if you Agree
- Select if you Neither Agree nor Disagree
- Select if you Disagree
- Select if you Strongly Disagree

Please select your school district's consideration of the following components of evidence-based practices when planning professional development. You are asked to consider the component for general educators and one for special educators.	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1. When selecting a strategy for professional development, a school district should consider research that includes **sufficient information of the context or setting of the study (e.g., the class, the school, the community, the curriculum, geographic location).**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
2. When selecting a strategy for professional development, a school district should consider research that includes **a sufficient description of the participants in the study (e.g., age/grade, ethnicity, gender, economic status, disability, language status).**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
3. When selecting a strategy for professional development, a school district should consider research that includes **sufficient information about the disability, risk status of the participants, and the method for determining the status (e.g., standardized test, rating scale).**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
4. When selecting a strategy for professional development, a school district should consider research that includes **sufficient information about the person (e.g., teacher, parent, paraprofessional) implementing the strategy.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1

Please select your school district's consideration of the following components of evidence-based practices when planning professional development. You are asked to consider the component for general educators and one for special educators.	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
5. When selecting a strategy for professional development, a school district should consider research that includes a **sufficient description of the training or qualification(s) required to implement the strategy.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
6. When selecting a strategy for professional development, a school district should consider research that contains a **clear and detailed description of the procedures to implement the strategy.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
7. When selecting a strategy for professional development, a school district should consider research that contains **clear descriptions of the materials and curricula used (e.g., books, manipulatives, software).**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
8. When selecting a strategy for professional development, a school district should consider research that **describes how long the intervention or strategy should be used.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1

Please select your school district's consideration of the following components of evidence-based practices when planning professional development. You are asked to consider the component for general educators and one for special educators.	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
9. When selecting a strategy for professional development, a school district should consider research that describes **how the strategy is implemented consistently by the instructor.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
10. When selecting a strategy for professional development, a school district should consider research that includes **a clear description of the group that receives the intervention (experimental) and the group that does not receive the intervention (control).**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
11. When selecting a strategy for professional development, a school district should consider research that **includes a description of how the participants were assigned to groups (e.g., randomly, non-randomly).**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
12. When selecting a strategy for professional development, a school district should consider research that **describes the selection criteria of the participants.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1

Please select your school district's consideration of the following components of evidence-based practices when planning professional development. You are asked to consider the component for general educators and one for special educators.	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
13. When selecting a strategy for professional development, a school district should consider research **in which there is sufficient evidence that the intervention caused a change in learning or behavior.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
14. When selecting a strategy for professional development, a school district should consider research in which **70% or more of the students complete the study.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
15. When selecting a strategy for professional development, a school district should consider research that **describes how the effects of the intervention are socially important (e.g., improved quality of life, improved learning and/or behavioral outcome).**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
16. When selecting a strategy for professional development, a school district should consider research that **clearly defines and describes the measurement of the outcome variables.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1

Please select your school district's consideration of the following components of evidence-based practices when planning professional development. You are asked to consider the component for general educators and one for special educators.	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
17. When selecting a strategy for professional development, a school district should consider research that **reports all outcome measures, whether they are positive or negative.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
18. When selecting a strategy for professional development, a school district should consider research that includes **outcome measures that are frequently and appropriately recorded.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
19. When selecting a strategy for professional development, a school district should consider research that includes **evidence of reliability that is at or above 80%.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
20. When selecting a strategy for professional development, a school district should consider research that **includes evidence of validity (e.g. consistent use of content, social validity).**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1

Please select your school district's consideration of the following components of evidence-based practices when planning professional development. You are asked to consider the component for general educators and one for special educators.	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
21. When selecting a strategy for professional development, a school district should consider research that **analyzes the data collected appropriately.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
22. When selecting a strategy for professional development, a school district should consider research **that reports information on effect size.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
23. When selecting a strategy for professional development, a school district should consider research that **contains explanations of how the effectiveness of an intervention or practice is determined based on the data provided.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
24. When considering a strategy for professional development, a school district should consider a strategy to be an **evidence-based practice** if it **produces positive effects based on two to four methodologically-sound group comparison studies in which 60-120 participants were randomly assigned.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1

Please select your school district's consideration of the following components of evidence-based practices when planning professional development. You are asked to consider the component for general educators and one for special educators.	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
25. When considering a strategy for professional development, a school district should consider a strategy to be a **potentially evidence-based practice** if it **produces positive effects based on one to three methodologically sound group comparison studies in which participants were randomly assigned.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
26. When considering a strategy for professional development, a school district should consider a strategy to be based on **mixed evidence** if **one or more of the methodologically sound studies on which it is based results in negative outcomes (e.g., does not produce learning or behavior changes).**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
27. When considering a strategy for professional development, a school district should consider a strategy to have **insufficient evidence of positive outcomes when there is insufficient evidence to support its use.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1
28. When considering a strategy for professional development, a school district should consider a strategy to have **negative effects on student learning or behavior when there is more than one methodologically sound study in which negative effects occurred.**					
Important for General Education Teachers	5	4	3	2	1
Important for Special Education Teachers	5	4	3	2	1

APPENDIX B

PARTICIPANT INVITATION

Dear Professional Development Coordinator:

You are being invited to participate in a research study. The purpose of this study is to determine your consideration of specific indicators of evidence-based practices when planning professional development for general education and special education teachers.

Participation involves the completion of an online questionnaire; containing 28 items. It will take approximately 15 minutes to complete. No identifying information will be collected.

If you wish to participate, please **click here**.

If you have any questions concerning the research study, please contact Dr. Kyle Higgins at 702-895-3205. If you have any questions about your rights as a participant in this research, or if you feel you have been placed at risk, you can contact the Office of Research Integrity – Human Subjects Research, at (702) 895-0964.

Sincerely,

Kyle Higgins, Ph.D.
Principal Investigator

Pamela M. Juniel, M.Ed.
Student Investigator

APPENDIX C

INFORMED CONSENT

TITLE OF STUDY: <u>Evidence-based Practices: School District Considerations for the Professional</u>

<u>Development of Special and General Educators</u>

INVESTIGATOR(S) AND CONTACT PHONE NUMBER: <u>Kyle Higgins, Ph.D.and</u>

<u>Pamela M. Juniel, M.Ed. 702-895-3205.</u>

The purpose of this research study is to determine the consideration given to specific indicators of evidence-based practices during the planning of professional development for general education and special education teachers.

You are being asked to participate in the study because you meet the following criteria: you are a professional development coordinator for your school district.

This study includes only minimal risks. The questionnaire you will complete contains 28 items and will take approximately 15 minutes of your time to complete. You will not be compensated for your time. Giving consent below will allow you access to the questionnaire. Once started, the questionnaire must be completed in one session. Incomplete questionnaires will not be included in the research. You may access the questionnaire only one time. All responses are confidential and cannot be traced to the individual respondents.

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

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

<u>Participant Consent:</u>

☐ Yes, I have read the above information and agree to participate in this study. I am at least 18 years of age. (By clicking here, you will be directed to the questionnaire.)

☐ No, I do not want to participate at this time. (By clicking here, you will exit the questionnaire.)

APPENDIX D

LETTER OF PERMISSION TO ADAPT

CEC MONOGRAPH

UNLV

UNIVERSITY OF NEVADA LAS VEGAS

Pamela M. Juniel, M. Ed.
2301 Redwood Street #4204
Las Vegas, NV 89146

March 3, 2014

Council for Exceptional Children
c/o Dr. Deborah Ziegler
2900 Crystal Drive Suite 1000
Arlington, VA 22202

Dear Dr. Ziegler:

I am completing my doctoral dissertation at the University of Nevada Las Vegas entitled "*Evidence-Based-Practices: Do School Districts Consider Them When Designing Professional Development for Special and General Educators?*" I would like your permission to reprint in my dissertation excerpts from the following:

CEC Standards for Evidence-Based-Practices in Special Education, (2014).

The excerpts to be adapted into a digital format are the quality indicators and the evidence-based practices classifications, respectively.

The requested permission extends to any future revisions and editions of my dissertation, including non-exclusive world rights in all languages, and to the prospective publication of my dissertation by ProQuest Information and Learning (ProQuest) through its UMI® Dissertation Publishing business. ProQuest may produce and sell copies of my dissertation on demand and may make my dissertation available for free internet download at my request. These rights will in no way restrict republication of the material in any other form by you or by others authorized by you. Your signing of this letter will also confirm that you own [or your company owns] the copyright to the above-described material.

If these arrangements meet with your approval, please sign this letter where indicated below and return it to me in the enclosed return envelope. Thank you very much.

Sincerely,

Pamela M. Juniel, M. Ed.

PERMISSION GRANTED FOR THE
USE REQUESTED ABOVE:

Dr. Deborah Ziegler
Associate Executive Director of Policy and Advocacy Services
Date: 3-6-14

College of Education • Department of Special Education
Box 453014 • 4505 S. Maryland Parkway
Las Vegas, NV 89154-3014
(702) 895-3205 • Fax (702) 895-0984

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APPENDIX E

CEC MONOGRAPH ADAPTATION TABLE

Quality Indicator of Evidence-based Practices	Questions
I. Context and Setting	1. When selecting a strategy for professional development, a school district should consider research that includes **sufficient information of the context or setting of the study (e.g., the class, the school, the community, the curriculum, geographic location).**
II. Participants	2. When selecting a strategy for professional development, a school district should consider research that includes **a sufficient description of the participants in the study (e.g., age/grade, ethnicity, gender, economic status, disability, language status).** 3. When selecting a strategy for professional development, a school district should consider research that includes **sufficient information about the disability, risk status of the participants, and the method for determining the status (e.g., standardized test, rating scale).**
III. Intervention Agent	4. When selecting a strategy for professional development, a school district should consider research that includes **sufficient information about the person (e.g., teacher, parent, paraprofessional) implementing the strategy.** 5. When selecting a strategy for professional development, a school district should consider research that includes a **sufficient description of the training or qualification(s) required to implement the strategy.**
IV. Description of Practice	6. When selecting a strategy for professional development, a school district should consider research that contains a **clear and detailed description of the procedures to implement the strategy.** 7. When selecting a strategy for professional development, a school district should consider research that contains **clear descriptions of the materials and curricula used (e.g., books, manipulatives, software).**

Quality Indicator of Evidence-based Practices	Questions
V. **Implementation Fidelity**	8. When selecting a strategy for professional development, a school district should consider research that **describes how long the intervention or strategy should be used.** 9. When selecting a strategy for professional development, a school district should consider research that describes **how the strategy is implemented consistently by the instructor.**
VI. **Internal Validity**	10. When selecting a strategy for professional development, a school district should consider research that includes **a clear description of the group that receives the intervention (experimental) and the group that does not receive the intervention (control).** 11. When selecting a strategy for professional development, a school district should consider research that **includes a description of how the participants were assigned to groups (e.g., randomly, non-randomly).** 12. When selecting a strategy for professional development, a school district should consider research that **describes the selection criteria of the participants.** 13. When selecting a strategy for professional development, a school district should consider research **in which there is sufficient evidence that the intervention caused a change in learning or behavior.** 14. When selecting a strategy for professional development, a school district should consider research in which **70% or more of the students complete the study.**

Quality Indicator of Evidence-based Practices	Questions
VII. Outcome Measures	15. When selecting a strategy for professional development, a school district should consider research that **describes how the effects of the intervention are socially important (e.g., improved quality of life, improved learning and/or behavioral outcome).** 16. When selecting a strategy for professional development, a school district should consider research that **clearly defines and describes the measurement of the outcome variables.** 17. When selecting a strategy for professional development, a school district should consider research that **reports all outcome measures, whether they are positive or negative.** 18. When selecting a strategy for professional development, a school district should consider research that includes **outcome measures that are frequently and appropriately recorded.** 19. When selecting a strategy for professional development, a school district should consider research that includes **evidence of reliability that is at or above 80%.** 20. When selecting a strategy for professional development, a school district should consider research that includes **evidence of validity (e.g. consistent use of content, social validity).**
VIII. Data Analysis	21. When selecting a strategy for professional development, a school district should consider research that **analyzes the data collected appropriately.** 22. When selecting a strategy for professional development, a school district should consider research **that reports information on effect size.** 23. When selecting a strategy for professional development, a school district should consider research that **contains explanations of how the effectiveness of an intervention or practice is determined based on the data provided.**

Classification of Evidence-based Practice	Questions
IX. Evidence-based Practice	24. When considering a strategy for professional development, a school district should consider a strategy to be an **evidence-based practice** if it **produces positive effects based on two to four methodologically-sound group comparison studies in which 60-120 participants were randomly assigned.**
X. Potentially evidence-based Practice	25. When considering a strategy for professional development, a school district should consider a strategy to be a **potentially evidence-based practice** if it **produces positive effects based on one to three methodologically sound group comparison studies in which participants were randomly assigned.**
XI. Mixed evidence	26. When considering a strategy for professional development, a school district should consider a strategy to be based on **mixed evidence** if **one or more of the methodologically sound studies on which it is based results in negative outcomes (e.g., does not produce learning or behavior changes).**
XII. Insufficient evidence	27. When considering a strategy for professional development, a school district should consider a strategy to have **insufficient evidence of positive outcomes when there is insufficient evidence to support its use.**
XIII. Negative Effects	28. When considering a strategy for professional development, a school district should consider a strategy to have **negative effects on student learning or behavior when there is more than one methodologically sound study in which negative effects occurred.**

APPENDIX F

REMINDER EMAIL TO PARTICIPANTS

Dear Professional Development Coordinator:

You are being invited to participate in a research study. If you have already completed this questionnaire, thank you.

If not, the purpose of this study is to determine the importance of specific indicators of evidence-based practices to the planning of professional development for general education and special education teachers.

Participation involves the completion of an online questionnaire; containing 28 items. It will take approximately 15 minutes to complete. No identifying information will be collected.

If you wish to participate, please **click here**.

If you have any questions concerning the research study, please contact Dr. Kyle Higgins at 702-895-3205. If you have any questions about your rights as a participant in this research, or if you feel you have been placed at risk, you can contact the Office of Research Integrity – Human Subjects Research, at (702) 895-0964.

Sincerely,

Kyle Higgins, Ph.D.
Principal Investigator

Pamela M. Juniel, M.Ed.
Student Investigator

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Suhrheinrich, J. (2011). Training teachers to use pivotal response training with children with autism coaching as a critical component. *Teacher Education and Special Education*, *34*, 339-349.

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    special and general education research journals. *The Journal of Special Education*. *47,* 3-

    13.

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    Instruction Toward a Theory of Teaching. *Educational Researcher*, *41*, 147-156.

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    continuing professional development programme: A case study. *Teaching and Teacher*

    Education, *47*, 142-150.

Vavasseur, C. B., & Kim MacGregor, S. (2008). Extending content-focused professional

    development through online communities of practice .*Journal of Research on Technology*

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Vescio, V., Ross, D., & Adams, A. (2008). A review of research on the impact of professional

    learning communities on teaching practice and student learning. *Teaching and Teacher*

    Education, *24*, 80-91.

Walker, H. M. (2004). Use of evidence-based interventions in schools: Where we've been, where

    we are, and where we need to go. *School Psychology Review*, *33*, 398-407.

Wallace, M. R., (2009). Making sense of the links: Professional development, teacher practices,

    and student achievement. *Teachers College Record, 111,* 1-13.

Warby, D. B., Greene, M. T., Higgins, K., & Lovitt, T. C. (1999). Suggestions for translating research into classroom practices. *Intervention in School and Clinic*, *34*, 205-223.

Webster-Wright, A. (2009). Reframing professional development through understanding authentic professional learning. *Review of Educational Research*, *79*, 702-739.

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Williams, J. M., Martin, S. M., & Hess, R. K. (2002). Personnel preparation and service delivery issues in rural areas: The state of the art. *Rural Special Education Quarterly*, *21*, 3-11.

Wilson, P. H., Sztajn, P., Edgington, C., & Myers, M. (2015). Teachers' uses of a learning trajectory in student-centered instructional practices. *Journal of Teacher Education*, *66,* 227-244.

Yell, M. L., Shriner, J. G., & Katsiyannis, A. (2006). Individuals with disabilities education improvement act of 2004 and IDEA regulations of 2006: Implications for educators, administrators, and teacher trainers. *Focus on Exceptional Children*, *39*, 1-24.

CURRICULUM VITAE

Curriculum Vitae

PAMELA MARIE JUNIEL
(702) 372-9356
pjuniel@yahoo.com

EDUCATION

Ph.D., Special Education
Department of Educational and Clinical Studies
University of Nevada, Las Vegas
Graduation Date: Fall 2015

Dissertation Title: *Evidence-based Practices: An Exploratory Study Concerning School District Professional Development Considerations*

Areas of Specialized Expertise: Autism, Learning Disabilities, Teacher Professional Development, and Teaching English to Speakers of Other Languages (TESOL)

M. Ed., Special Education
University of Nevada, Las Vegas
August 2007

B.A., Health Science Education
University of Nevada, Reno
May 1999

EDUCATIONAL CERTIFICATIONS

Special Education Teacher Certification
2007-Present

Special Education Teacher Generalist, K-12
2007 to the Present

TESOL Endorsement
2008 to the Present

Certificated Pharmacy Technician (CPhT)
License # PT0576
2002-PresentStandard certification
2003-2005 National Certification

HONORS AND AWARDS

UNLV Commencement Speaker Nomination
University of Nevada, Las Vegas
October, 2015

UNLV Veteran Student of the Month
Veteran Services Office (SVA-VSO)
University of Nevada, Las Vegas
May 2015

Graduate and Professional Student Association Service Award
Graduate and Professional Student Association (GPSA)
University of Nevada, Las Vegas
March 2015

Academic Achievement Award
Nevada Business and Professional Women's Federation
Certificate of Commendation
Harry Reid, United States Senate (D-NV)
March 2015

Outstanding Research Presentation Award
Analyzing the Selection of Evidence-based Practices used in School-based Teacher Professional Development: A Research Proposal
Graduate and Professional Student Association (GPSA) Research Forum
University of Nevada, Las Vegas
March 2014

Patricia Sastaunik Scholarship
Graduate College
University of Nevada, Las Vegas
May 2013

Council for Exceptional Children Scholarship
Student Chapter of the Council for Exceptional Children (CEC)
University of Nevada, Las Vegas
April 2013

Graduate Student Access Grant Award
Graduate College
University of Nevada, Las Vegas
August 2008-2015

Graduate Childcare Scholarship
Graduate College
University of Nevada, Las Vegas
August 2008-2013

Roosevelt Fitzgerald Outstanding Academic Performance and Leadership Award
African American Alliance
University of Nevada, Las Vegas
May 2012

EMPLOYMENT HISTORY

2015 to the Present
Special Education Teacher, Primary Autism (ASD)
Kermit E. Booker Sr. Innovative Elementary School

2011-2015
Graduate Teaching Assistant
Educational & Clinical Studies Department
University of Nevada Las Vegas

2005-2011
Special Education Teacher, English Language Arts (ELA)
2007-2011 Carroll Johnston Middle School
2005-2007 Lois Craig Elementary School
Clark County School District, Las Vegas, NV

2005 to the Present
Substitute Teacher
Clark County School District, Las Vegas, NV

2002-2007
United States Naval Reserve
Petty Officer 3rd Class, E-4, Information Technology Specialist

1998-1999
Executive Administrative Assistant
Graduate College
University of Nevada, Reno
Assisted Associate Dean and Dean in processing student graduation documents and materials for student degree file completion, degree conferral, and commencement ceremonies.

1998
Executive Administrative Assistant
Office of Student Diversity Services
University of Nevada Reno
Assisted Director of Student Diversity Services in developing and distributing recruitment and programming materials, both on and off of campus.

1995-1997
Tutor and Note Taker
Student Support Services Division
University of Nevada, Reno
Attended all classes in order to take precise notes for students with specific kinds of disabilities to use to complete required coursework.

1994-1997
Administrative Assistant
Student Support Services Division
University of Nevada, Reno
Assisted Counselor in maintaining confidential academic progress reports and files and in referring students to needed support services to support their degree completion.

1993
Tutor and Administrative Assistant
New Horizons Academy
Clark County School District
Assisted Special Education Teachers and Staff with administrative tasks related to educational service provision for students with special needs in grades 1-12.
Tutored high school students in attaining academic proficiency in order to complete coursework requirements for graduation.

PROFESSIONAL AFFILIATIONS

National Society of Leadership and Success
January 2014 to the Present

American Educational Research Association
October 2012 to the Present

Council on Learning Disabilities
Division on Learning Disabilities
July 2012 to the Present

Council for Exceptional Children
Division on Autism and Developmental Disabilities
Division on Technology and Media
Division on Learning Disabilities
Division on Teacher Education
October 2008 to the Present

International Reading Association
2007

National Association of Special Education Teachers
2006-2010

TEACHING

2011-2015
Graduate Teaching Assistant
Educational & Clinical Studies Department
University of Nevada Las Vegas

As a Graduate Teaching Assistant, responsibilities include:

1) Developing curriculum and serving as a Teaching Assistant /Co-Instructor for:

      ESP 701: Introduction to Special Education and Legal Issues
      ESP 733: Behavior Management and Modification for Students with Special Needs
      ESP 737i: Resource Room Practicum

2) Developing curriculum for and independently teaching:
      ESP 411: Special Education Techniques in Inclusive Settings
      ESP 432: Serving Individuals with Disabilities and their Families
      ESP 466: Group Methods
      ESP 481: Resource Room Practicum

3) Building an individual and collaborative professional research agenda (inclusive of grant-writing and supervision) in areas of scholarship expertise in a manner consistent with the expectations of the University of Nevada, Las Vegas as an aspirational Carnegie I Research Institution (see RESEARCH, below).

4) Participating in professional service activities (committees, meetings, conferences, presentations, consultancies) at the program, division, college, university, local, state, national, and international level (see SERVICE, below).

5) Engaging in departmental governance (see SERVICE, below).

RESEARCH

Refereed Publications

Juniel, P.M., Goodman, X., Perna, C., (2016). An evidence-based approach to assessing writing of undergraduate nursing students' leadership capstone papers. *Journal of the American Library Association.* (Target Journal).

Morgan, J. J., Brown, N., Hsiao, Y. J., Castillo, W., Howerter, C., **Juniel, P.**, & Sedano, L. (2014). Providing access to the general education curriculum through data-based decision making. *Intervention in School and Clinic*.

Morgan, J. J., **Juniel, P.**, & Sedano, L. (2012). Using the novel analysis form to differentiate English instruction for students with disabilities. *Intervention in School and Clinic*, not submitted.

Invited Publications

Juniel, P., (2008).Cross-cultural excursion: A culminating experience. *Equity and Diversity Education Report*. Clark County School District.

Juniel, P. (2015). Parking tips for graduate students. *The Luminary: Graduate and Professional Student Association Newsletter.* University of Nevada, Las Vegas.

Juniel, P. (2014). Google tools tips for graduate students. *The Luminary: Graduate and Professional Student Association Newsletter.* University of Nevada, Las Vegas.

Grants

2013
Parent and Child Generalization Training (PACCT): Using PECS and ASL Communication Methods for Children with Disabilities. Single Subject Research/Research Design. University of Nevada, Las Vegas. Principal Investigator, *Unfunded.*

2012
Project V.E.N.T.: Behavioral Intervention Using Self-Esteem Training for Students with Disabilities in the Middle School Setting. Classroom-Based Research/Research Design. University of Nevada, Las Vegas. Principal Investigator, *Unfunded.*

Research Assistantships

Summer 2015-Fall 2015
Information Literacy Fellowship – Assessing Capstone Papers of Nursing Students
    Activities Matrix/Project Timeline
    Rubric Instrument Development
    Credible Sources for Nursing Education Program Guiding Document
    Literature Review
    Data Collection (Quantitative, Qualitative)
    Data Scoring, Coding, and Analysis
    Principle Investigators: Goodman, Perna, University of Nevada, Las Vegas

Summer 2015-Summer 2016
Teaching Walton's Argumentation Schemes to Middle and High School Students in Science and Language Arts (Argumentation in Secondary English & Science)
    Research Project Consultation
    Instrumentation Development
    Professional Development Materials
    Principle Investigators: Nussbaum, Kardash, University of Nevada, Las Vegas

Spring 2012-Fall 2012, Summer 2013
Project 325-T
    Drafted Activities Matrix and Project Timeline
    Principal Investigators: Higgins, Morgan, Brown, University of Nevada, Las Vegas,Nevada System of Higher Education

Spring 2013
First Grade Teachers' Perceptions of the Five Strands of Effective Reading Instruction and Possible Influences on Daily Instructional Practices
    Data Collection (Qualitative)
    Principle Investigators: Gelfer, Nguyen, University of Nevada, Las Vegas

Spring 2013
Evaluating Reading/Writing Instruction for Middle School Students with Mild to Moderate Disabilities
    Reliability Assessment, Data Collection (Qualitative)
    Principle Investigators: Miller, Rago, University of Nevada, Las Vegas

Spring 2013
Teaching Students with Intellectual Disabilities Choice Making Skills Using Assistive Technology
    Reliability Assessment, Data Collection (Quantitative)
    Principle Investigators: Pierce, Sparks, University of Nevada, Las Vegas

Spring 2013
An Analysis of English Language Learning Instruction Provided In Teacher Education and In-Service Training Programs for General and Special Educators
> *Reliability Assessment, Data Collection (Quantitative)*
> Principle Investigators: Higgins, Sedano, University of Nevada, Las Vegas

Summer 2013
Literacy Instruction: A Summative Analysis of Special Education Textbooks
> *Reliability Assessment, Data Collection (Quantitative)*
> Principle Investigators: Leytham, Weber State University

Research Assessment

Summer-Fall 2013
Auditor
> Course Syllabi Alignment with CEC, INTASH, and TESOL Standards for accredited program courses:
> > *Generalist (Undergraduate)*
> > *Generalist (Graduate)*
> > *Autism (Graduate)*
> > *Intellectual Disabilities (Graduate)*
> Educational & Clinical Studies Department
> University of Nevada, Las Vegas

Spring 2012-Fall 2012
Formative Evaluator
> Critical Concept Protocols for Student Teachers and Personnel Preparation Project
> Nevada System of Higher Education

Spring 2012-Summer 2013
Formative Evaluator
> NeCoTIP Project Grow: Making Data-Based Decisions in the Science Content Area
> Nevada System of Higher Education

Refereed Academic Conference Presentations

Co-Presenter with (Goodman, X., Perna, C., and Weigel, R.), "An Evidence-based Approach to Assessing Writing of Undergraduate Nursing Students' Leadership Capstone Papers. Medical Library Association. Toronto, Canada. May 13-18, 2016.

Co-Presenter with (Goodman, X., Perna, C., and Weigel, R.), "Using An Intervention to Measure Student Writing Performance on Capstone Course Projects in a Baccalaureate Nursing Program. Joint Meeting. Stanford University, Palo Alto, CA. January 20-23, 2016. (under review).

Co-Presenter with (Goodman, X., Perna, C., and Weigel, R.), "How Well Do Students Use APA Format in Capstone Papers After Intervention? A Research Study." Hawaiian International Conference on Education. Honolulu, HI. January 3-6, 2016.

Co-Presenter with (Goodman, X., Perna, C., and Weigel, R.), "Using An Intervention to Measure Student Writing Performance on Capstone Course Projects in a Baccalaureate Nursing Program. Baccalaureate Education Conference. Orlando, FL. November 19-21, 2015.

Co-Presenter (with Zionch, A., and Ringer, J.), "Research-based Technological Applications to Engage Students with Intellectual Disabilities and Autism."Council for Exceptional Children, Division for Developmental Disabilities and Autism (DADD). Honolulu, HI. January 20-22, 2016.

Presenter: "Evidence-based Practices: An Exploratory Study Concerning School District Professional Development Considerations." Council for Exceptional Children, Teacher Education Division (TED). Phoenix, AZ. November 4-7, 2015. (accepted-not presented).

Co-Presenter (with Harvey, K., Poch, A., and Stockbridge, K.), "Addressing the Needs of Children with Disabilities in Foster Care. "Council for Learning Disabilities. Las Vegas, NV, October 1-2, 2015.

Co-Presenter (with members of the Council for Learning Disabilities Diversity Committee), "Preparing Culturally Responsive Teachers." Council for Learning Disabilities. Las Vegas, NV. October 1-2, 2015.

Co-Presenter, (with Ringer, J., and Zionch, A.), "Using Technology to Improve Engagement of Students with LD, EBD, and ID. "Council for Learning Disabilities. Las Vegas, NV October 1-2, 2015.

Presenter, "Evidence-based Practices: An Exploratory Study Concerning School District Professional Development Considerations." Council for Learning Disabilities. Las Vegas, NV October 1-2, 2015.

Co-Presenter, (with members of the Council for Learning Disabilities Membership Committee) "Membership Committee Activities and Accomplishments-2014-2015."Council for Learning Disabilities. Las Vegas, NV. October 1-2, 2015.

Presenter, "Evidence-based Practices: School District Considerations in the Design of Professional Development for General and Special Educators." Council for Exceptional Children, Division of Learning Disabilities (DLD). San Diego, CA. April 9, 2015.

Presenter, "Evidence-based Practices: School District Considerations in the Design of Professional Development for General and Special Educators." Council for Exceptional Children Teacher Education Division (TED) Kaliedoscope. San Diego, CA. April 10, 2015.

Presenter, "Evidence-based Practices: School District Considerations in the Professional Development of General and Special Educators." Graduate College and Graduate and Professional Student Association Research Symposium, Las Vegas, NV. March 21, 2015.

Presenter, "Evidence-based Practices: School District Considerations in the Design of Professional Development for General and Special Educators." Hawaiian International Conference on Education. Honolulu, HI. January 7, 2015.

Presenter, "Addressing Educational and Transition Issues for Students with Disabilities in Foster Care." International Hawaiian Educational Conference. Hawaii, HI. January 5, 2014. Presenter, "Evaluating the Selection of Using Evidence-Based Practices for School-Based Professional Development for General and Special Educators: A Research Proposal." International Hawaiian Educational Conference. Honolulu, HI. January 7, 2015.

Presenter, "Analyzing the Selection of Evidence-Based Practices Used in School-based Professional Development: A Research Proposal." Graduate College and Graduate and Professional Student Association Research Symposium, Las Vegas, NV. March 29, 2014.

Presenter, "Addressing Challenges of Students with Disabilities in Foster Care." Graduate College and Graduate and Professional Student Association Research Symposium, Las Vegas, NV. March 29, 2014.

Presenter, "Providing Functional Communication Skills Training for Parents Using PECS and Sign Language." Council for Exceptional Children Expo, San Antonio, TX. April 4, 2013.

Co-Presenter (with J. Morgan), "Collecting and triangulating performance data in clinical field experiences." Presentation for Teacher Education Division (TED), Grand Rapids, MI. November4-5, 2012.

Co-Presenter (with J. Morgan), "Providing access to common core standards for students with disabilities." Paper (panel presentation) at the 35th Annual Conference of Teacher Education Division (TED) of the Council for Exceptional Children, Grand Rapids, MI. November4-5, 2012.

Co-Presenter (with J. Morgan), "Making data-based decisions in content areas to support achievement." Paper (panel session) presented at the 34th International Council on Learning Disabilities, Austin, TX. October 8, 2012.

Presenter, "Addressing Challenges and Strategies for Students with Disabilities in Foster Care." Council for Exceptional Children Expo, Denver, CO. April 13, 2012.

Co-Presenter (with A. Zionch), "Providing Reading Accommodations for Tests Using Assistive Technology." Council for Exceptional Children Expo, Denver, CO. April 13, 2012.

Presenter, "Providing Reading Accommodations for Tests Using Assistive Technology. Graduate Research in Preparation Symposium, Las Vegas, NV. March 2, 2012.

Co-Presenter (with K. Smith), "Differentiated Instruction for the Classroom." Differentiated Instruction Conference, Las Vegas, NV. July 15, 2010.

Invited Presentations

Screening, "Nevada, Where Would We Be Without UNLV?" Veterans Service Office and Office of the Provost. Academic Achievements Award Gala, University of Nevada, Las Vegas. April 28, 2015.

Panelist, "Nevada, Where Would We Be Without UNLV?" Veterans Service Office and Office of the Provost. University of Nevada, Las Vegas. February 4, 2015.

Guest Speaker, "Advice for New Doctoral Students" ESP 782R: Doctoral Professional Seminar. University of Nevada, Las Vegas. September, 23, 2014.

Guest Speaker, "Addressing the Challenges of Students with Disabilities in Foster Care." Parent and Family Involvement Course. University of Nevada, Las Vegas. March 18, 2013.

Guest Speaker, "Differentiated Instruction for Content Area Teachers." Teacher Professional Development Session, Johnston Middle School, Clark County School District, Las Vegas, NV. March 15, 2011.
Co-Guest Speaker (with Dr. J. Abeyta). "Differentiated Instruction for the Classroom." Staff Professional Development Day, Johnston Middle School, Clark County School District, Las Vegas, NV. November 2, 2010.

Guest Speaker, "Accommodations: An Introduction." Staff Professional Development Session, Johnston Middle School, Clark County School District, Las Vegas, NV. November 1, 2010.

Guest Speaker, "Overview of Inclusion." Staff Professional Development Summer Institute, Johnston Middle School, Clark County School District, Las Vegas, NV. August 11, 2008.

Guest Speaker, "Barrier Busters: A Workshop on Disability Awareness." Teacher Professional Development Session. Equity and Diversity Department, Clark County School District, Las Vegas, NV. May 15, 2008.

Guest Speaker, "Barrier Busters: A Workshop on Disability Awareness." Teacher and Student Professional Development Session. Johnston Middle School, Clark County School District, Las Vegas, NV. December 5, 2007.

SERVICE

Professional

2014-2016. **Council on Learning Disabilities** Membership Committee Member.

2014-2015. **Council on Learning Disabilities** Conference Proposal Reviewer.

2014-2015. **Council on Learning Disabilities** Sub-Committee Liaison to the Diversity, Professional Development, and Technology Committees.

2013-2015. **Council on Learning Disabilities** Membership Committee Member.

Academic

Single Session Moderator. Graduate College and Graduate and Professional Student Association Research Symposium. Graduate College and Graduate and Professional Student Association. University of Nevada, Las Vegas. March 21, 2015.

Multiple Session Moderator, Hawaiian International Conference on Education. Honolulu, HI. January 5-8, 2015.

Multiple Session Moderator, Inaugural Graduate College and Graduate and Professional Student Association Research Symposium. University of Nevada Las Vegas Graduate College and Graduate and Professional Student Association. March 28-29, 2014.

Textbook Reviewer, Gargiulo, R. M., & Metcalf, D. (2013).*Teaching in today's inclusive classrooms: A universal design for learning approach (second edition)*. Belmont, CA: Wadsworth Cengage Learning. March 2014.

Campus

2014 to the Present. UNLV **Women's Council** Student Member.

2014 to the Present. UNLV **Women Veterans Organization (RebelVets)** Member.

2014-2015. UNLV **Graduate and Professional Student Association**, Member-At-Large.

2014 to the Present. UNLV **Graduate and Professional Student Association**, R2PC Focus Group Member.

2014-2015. UNLV **Graduate and Professional Student Association**, Representative to the Parking Advisory Committee.

2014-2015. UNLV **Graduate and Professional Student Association**, Graduate College Curriculum Council Proxy for the GPSA President.

2007 to the Present. UNLV **Black Graduate Student Association**, Member.

2007 to the Present. UNLV **Student Veterans Association (SVA)** Member.

2013-2014. UNLV **Graduate and Professional Student Association** Educational & Clinical Studies Departmental Representative

2013-2014. UNLV **Graduate and Professional Student Association**, Sponsorship Committee Member

Community

Johnston Middle School Site Representative, **Clark County Education Association Union.** 2008-2011.

Johnston Middle School Site and District Department Area 1 Liaison Member, **Equity and Diversity Education Department**, Clark County School District.2008-2011.

Train-the-Trainer Cadre Member, **Equity and Diversity Education Department**, Clark County School District. 2008.

Cultural Connections Task Force Member, **Curriculum and Professional Development Department**, Clark County School District. 2008.

English Language Acquisition Interim Assessment Drafting Committee Member, **Testing Department,** Clark County School District. 2008.

Volunteer Tutor and Mentor, **Child Haven.** August 1999-May 2006.