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# Teaching Evidence-Based Practices to Teachers

Jennifer M. Pena

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**TEACHING EVIDENCE-BASED PRACTICES TO TEACHERS**

By

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B.S., Biology, Dickinson College, Carlisle, PA, 2003  
M.A., Special Education, University of New Mexico, 2005

DISSERTATION

Submitted in Partial Fulfillment of the  
Requirements for the Degree of

**Doctor of Philosophy  
Special Education**

The University of New Mexico  
Albuquerque, New Mexico

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## **Dedication**

For Carlo, who never left my side and never wavered in his faith in me, regardless of what adventure life had in store for us. This was a pretty big adventure, and here we are at the finish line, you and me. LUCMT.

For Hugh, wise beyond his years, who reminds me, “You don’t have to be perfect to be elite.” You inspire me every single day and I uh you way mo’.

For my dad: You were right, of course. Life sure is grand. I miss you. Love you, bye.

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As I close this (very long) chapter of my life, it is overwhelmingly humbling to think of everyone who has helped me, encouraged me, and supported me throughout this journey. I know I have forgotten to name some people, but please know that I thank you.

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And finally to my husband and son, who may be more excited than I am to have their wife and mom back, words cannot express my infinite gratitude for all you have done, sacrificed, and dealt with over these many years. Thank you and I love you.

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## **ABSTRACT**

A convenience sample of 32 teachers (general and special education) and instructional coaches participated in professional development (PD) focused on finding, researching, and implementing evidence-based practices (EBPs) in a charter elementary/middle/high school that uses an inclusive model of special education services. Research questions addressed participants' understandings and implementation of EBPs prior to and following the PD, as well as their reports about the PD model itself. Results indicated teachers had limited understanding of EBPs and knowledge of resources (i.e., where to find EBPs), and mixed reports of implementation prior to the PD. Throughout the study, participants reported a desire to learn about EBPs and resources available, as well as increased understanding, knowledge, and implementation of EBPs. Additionally, participants reported classroom improvements attributable to EBP implementation. A significant majority of participants expressed support for the model of PD, specifically the benefits of collaboration through Professional Learning Communities (PLCs) and dedicated time to research and practice implementation of EBPs. In follow up surveys, participants identified perceived barriers to continued implementation, including ongoing, dedicated time to research and practice EBPs,



as well as classroom obstacles that limited consistent implementation of EBPs after the PD ended. Implications for practice and future research are included.

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## Chapter 1

### Introduction

Education has changed significantly in the last decade. Increased accountability and federal mandates have inundated the minds of school administrators and teachers, often overwhelmingly. Scholarly research abounds, claims of new, fail-proof instruction flood teacher mailboxes, email accounts, websites, and social media, yet it seems that student achievement never reaches the desired goals. How can this be the case, when professional literature is bursting with empirical evidence of effective strategies?

The true answer is complex, with multiple factors contributing and interacting with one another. The deceptively simple answer is a “research-to-practice gap”, a serious discrepancy between the information that researchers uncover and the information that teachers receive (Kretlow & Blatz, 2011; Slocum, Spencer, & Detrich, 2012; Spencer, Detrich, & Slocum, 2012). Many costly curricula are advertised as a silver bullet for this gap—the *only* way to eliminate illiteracy, mathematical illiteracy, and lack of motivation—yet little or no empirical data are presented to support these claims. Meanwhile, researchers are publishing and building empirical evidence to support or refute various instructional strategies and programs. At the same time, teachers and principals are held accountable for improving student achievement, measured by test scores, but without the toolbox of empirical data that researchers have worked so hard to create. Some attempts to create user-friendly resources, such as What Works Clearinghouse and Best Evidence Encyclopedia, have had limited practical success and include an additional set of obstacles, centered around the question “What constitutes evidence?”.

A similar situation was observed in both psychology and medicine in the 1940s (Spencer et al., 2012). In psychology, studies indicated that practicing psychologists felt their clinical experiences were not fully considered or appreciated in research publications (Stewart, Stirman, & Chambless, 2012). Similarly, teachers today are faced with piles of “research-based” interventions and curricula, but a “research-based” label on the teacher’s manual fails to tell the whole story. Teachers, like practicing psychologists in the 1940s, often feel their professional judgment, experiences, and past successes are relevant and important to consider, but they are unsure of how these experiences fit in the great black hole of “research-based teaching” (Kretlow & Blatz, 2011; Spencer et al., 2012). Other stakeholders, including parents and students, also have opinions and priorities that need to be considered if education is expected to be effective (Cook, Shepherd, Cook, & Cook, 2012; Spencer et al., 2012; Strain, Barton, & Dunlap, 2012). Considering the unique learning needs of exceptional learners (students receiving special education services), the additional legislation, and greater complexity in generalizing empirical conclusions to individual students and classrooms, contributes further to the sophistication with which evidence-based practice must be handled.

### **Evidence-Based Practice**

The concept of evidence-based practice (EBP) was born in the 1990s in the medical field (Wilczynski, 2012). Other fields have adopted the idea, including psychology and education. Unfortunately, *evidence-based* has also become a buzzword, a popular adjective to describe the latest and greatest in educational services. With this increased usage, many have come to use the term as a catch phrase and the strength of the meaning has become diluted (Wilczynski, 2012). Cook et al. (2012) explained, “those promoting practices and products

often use the term indiscriminately and inappropriately (e.g., as if the term provided an iron clad assurance of effectiveness)...” (p.22).

Only recently, with the passage of Every Student Succeeds Act (ESSA, 2015), has legislation also used and defined the term “evidence-based”. This is a crucial step forward, as will be explained later. For purposes of this manuscript, the term *evidence-based practice* will describe interventions that, according to empirical, peer-reviewed research studies, are effective for students, a definition used by Cook, Tankersley, and Landrum (2009). I have chosen to use this definition as it embodies the spirit of what I believe the laws have struggled to communicate; that is, EBPs are interventions backed by findings from high quality research studies, but not restricted by specific methodologies.

### **Evidence-Based Practice Terminology**

In order to understand EBPs, it is imperative to understand the associated terminology used by various professional educational organizations and within relevant federal legislation. As discussed earlier, the increased use of *evidence-based practices* as a buzzword has led to some confusion about the actual meaning and the relationship between “evidence-based” and other similarly named terms. Examining the various terms and definitions used across the years is helpful in understanding the current context for using EBPs within schools and classrooms.

**Evidence-Based.** Researchers define *evidence-based practices* in slightly different ways, but all of the definitions emphasize that an intervention or strategy has demonstrated success in research settings. Kretlow and Blatz (2011) described EBPs as practices supported by several high quality, quantitative studies indicating a measured positive causal relationship to student achievement. Cook et al. (2012) explained that EBP can refer to both

using research findings to make decisions and using certain instructional strategies backed by research. Slocum et al. (2012) used a medical definition provided by Sackett, Staus, Richardson, Rosenberg, and Haynes (2000, as cited by Slocum et al.), expressing that EBP combines available empirical evidence with professional judgment, context, and other stakeholders' values. This definition is also used by Spencer et al. (2012) and is the foundation upon which they base their framework for making evidence-based decisions. Similarly, Whitehurst (2002) defined *evidence-based education* as “the integration of professional wisdom with the best available empirical evidence in making decisions about how to deliver instruction” (slide 3).

As recently as 2012, The Council for Exceptional Children (CEC) did not have a formal definition for the term evidence-based. Instead, in a 2012 letter to the Department of Education, the CEC recommended that “evidence-based” be defined as “... practices that are supported by a sufficient number of high quality studies that use research designs from which causality can be inferred and that demonstrate meaningful effects on student outcomes”. More recently, in 2014, CEC released an updated definition as “an intervention that is based in science” or “the disposition of a practitioner to base the selection of their interventions in science” (CEC, 2014). Additionally, the CEC has released standards for determining if an intervention can be classified as “evidence-based”. In only the last six years, the CEC has updated its position and provided extensive updates to definitions and standards, indicating the current significance of EBPs in the special education field.

With the most recent reauthorization of the Every Student Succeeds Act (ESSA, 2015), legislators introduced the term “evidence-based”, a significant shift from the term

“scientifically-based” used in No Child Left Behind (NCLB, 2001) as described in the next section. The ESSA definition states that:

the term “evidence-based”, when used with respect to a State, local educational agency, or school activity, means an activity, strategy, or intervention that—

(i) demonstrates a statistically significant effect on improving student outcomes or other relevant outcomes based on—

(I) strong evidence from at least 1 well-designed and well-implemented experimental study;

(II) moderate evidence from at least 1 well-designed and well-implemented quasi-experimental study; or

(III) promising evidence from at least 1 well-designed and well-implemented correlational study with statistical controls for selection bias; or

(ii)(I) demonstrates a rationale based on high quality research findings or positive evaluation that such activity, strategy, or intervention is likely to improve student outcomes or other relevant outcomes; and

(II) includes ongoing efforts to examine the effects of such activity, strategy, or intervention.

(20 U.S.C. §8101(21)(A))

It should also be noted that although ESSA’s definition of “evidence-based” is more broadly defined and shows promise of incorporating other methodologies, the requirement for only one study demonstrating support for the intervention might be considered too lenient. Additionally, the highest levels of evidence are still linked

solely to experimental studies, although there does not, at this time, appear to be any practical consequences to having “promising” evidence versus “strong” evidence.

**Scientifically-Based practice.** Besides *evidence-based practice*, school-based educators, legislators, and others with a vested interest in children’s education, use several other terms to describe effective instructional strategies, although the terms vary in meaning. It is crucial to distinguish among these terms in order to avoid confusion and to differentiate which terms are supported by (strong or weak) research support, and those that are not supported by research.

Kretlow and Blatz (2011) described *scientifically-based practices* as those that have been established as effective through rigorous, quantitative (with measurable results) research studies, and Cook et al. (2012) described EBP as an example of scientifically-based practice. Both examples imply that evidence-based practices are closely tied to scientifically-based practice, where scientifically-based is more specific and holds specific methodological requirements. Interestingly, the Coalition for Evidence-Based Policy (2002) defined *scientifically-based research* in its report and seemed to imply that *evidence-based* and *scientifically-based* are interchangeable terms. Both No Child Left Behind (NCLB, 2001) and the Individuals with Disabilities Education Act (IDEA, 2004) used the term “scientifically-based instructional strategies/practices” to describe the methods by which teachers should educate children. The NCLB, as well as the IDEA, outlined that in order to be considered scientifically-based, research must “apply rigorous, systematic, and objective methodology to obtain reliable and valid knowledge relevant to education activities and programs” (20 U.S.C. §7801 (37)(A)) and required that research:

is evaluated using experimental or quasi-experimental designs in which individuals, entities, programs, or activities are assigned to different conditions and with appropriate controls to evaluate the effects of the condition of interest, with a preference for random-assignment experiments, or other designs to the extent that those designs contain within-condition or across-condition controls

(20 U.S.C. §7801 (37)(B)(iv))

Simplified, this definition describes experimental or quasi-experimental methodology with a control comparison, and a preference for random assignment. Presently, although ESSA (2015) has updated its terminology to “evidence-based”, the IDEA (2004) continues to use the term “scientifically-based”. This legal definition of *scientifically-based*, regardless of other definitions or opinions, is the standard to which special educators must abide.

**Research-Based.** *Research-based* is a common term used to describe curricula and interventions, especially in advertisements. Kretlow and Blatz (2011) distinguished research-based practice as being any intervention that has been studied. This validates many claims of “research-based interventions”, since many curricula publishing companies conduct pre-post test studies and use the results to claim they are *research-based*. This term can also refer to studies that have been conducted independently, but fail to adhere to quality indicators, use various methodologies, and may or may not have been published in peer reviewed journals. Combined with Cook et al.’s (2012) reference to a label providing “iron clad assurance of effectiveness” (p.22) and the continued misuse and interchanging of terms (Kretlow and Blatz), the term *research-based* carries serious risk to be misconstrued, misused, and

misunderstood. In fact, *research-based* is a weak term, as it is vague in defining research, but holds potentially great power with uninformed consumers.

**Empirically-Based.** The term *empirically-based* is not found in academic literature nearly as prevalently as *evidence-based*, *scientifically-based*, and *research-based*. More common are the terms *empirically-supported* or *empirically-validated*, both of which imply that observable research supports or validates data, a strategy, or an instructional technique. In the few articles where the term *empirically-based* is used, authors repeatedly failed to define this term (e.g., Nora & Snyder, 2009).

Whitehurst (2002) defined empirical evidence as “scientifically-based research... especially from research in education” (Slide 5) and included empirical data as a way to measure progress. *Empirical* (2018), defined by *Merriam-Webster’s Dictionary* as “originating in or based on observation or experience” or “capable of being verified or disproved by observation or experiment”, is a term used to denote research, generally research published in a peer-reviewed journal, therefore typically meeting rigorous methodological standards. *Empirically-based*, then, would appear to refer to strategies found to be successful through highly regarded research practices. Whitehurst’s (2002) inclusion of “scientifically-based” is note-worthy, as *scientifically-based* has specific methodological requirements typically not assigned to all empirical evidence. Authors using this term should take care to operationally define the term in order to avoid confusion.

**Folk-Knowledge and Practice-Based.** While the actual term *folk-knowledge* is rarely used in academic literature, the concept is seen daily in classrooms. Kretlow and Blatz (2011) used a vignette to open their article that includes a new teacher who finds an abundance of *research-based* resources in her new classroom and also a veteran teacher who



has used the same methods for years. Both of these teachers are struggling to implement evidence-based practices in their classrooms in a culture where “this is what I’ve always done” is often a valid argument for continuing a practice. This concept also ties back to the previously referenced idea of why many teachers fail to use evidence-based strategies in their classrooms: because they feel their own methods should be recognized as effective as they have experienced some level of success (Spencer et al., 2012). Considering what has worked or not worked in the past is important in any successful endeavor (Cook et al. 2012). At the same time, as Wilczynski (2012) pointed out, “without an evidence-based approach, educators will expend the resources (e.g., money, time, etc.) available to them on treatments that not only squander these valuable resources but could actually cause harm” (p. 295).

The truth is, however, that high-quality research that supports many methods of instruction is available. Instructional strategies to support curricula, curricula themselves, and how to best assess student achievement are topics that have been studied extensively and the results of studies can be used to drive classroom instruction. School administrators can seek professional development from scholars who conduct or review peer-reviewed educational research to develop effective ways of working with students, even within the parameters of district-mandated curricula. Some of the research supports the folk-knowledge or traditional ways of teaching, such as phonics-based literacy instruction (National Reading Panel, 2000). Other times, the research may provide new ideas of how to instruct students more effectively (e.g., a combination of teaching mathematics conceptually while also building fluency).

Spencer et al. (2012) presented an analogy of evidence-based practice as whether practices are a new bottle or new wine. A new bottle would represent a new packaging or way of looking what has already been done. In contrast, a new wine would be a completely

new way of doing things. Spencer et al. concluded that evidence-based practice is, in fact, often a “new wine”. This is not necessarily the case in *how* teachers present instruction, but rather in how teachers *decide* how to teach (i.e., the instructional strategies they choose to utilize); using empirical evidence as a decision-making tool is often a novel idea.

### **Foundations of Evidence-Based Practice**

As mentioned earlier, evidence-based practice was conceived in the medical field in the 1990s in order to address the research-to-practice gap (Spencer et al., 2012; Wilczynski, 2012). As EBP concepts have spread to other fields, the medical model of implementation continues to drive developments in EBP. Currently, the medical field considers EBP a decision-making model consisting of three components: current empirical evidence, professional judgment, and patient priorities (Spencer et al., 2012). In this regard, education would likely benefit from adopting this model of decision-making. Current empirical evidence is clearly important, but also considering the individual needs and values of the student and the student’s family, in addition to the professional experiences of the teacher, provides a balanced approach to educational decision-making. All three components are important to consider when determining the best course of action for a particular student. For students with disabilities, families are often more involved with educational decisions that affect students through the Individualized Education Plan (IEP) process, meaning that this model of decision-making, that includes all stakeholders, is especially important and powerful. An otherwise successful, effective intervention may fail if the intervention does not align with the family’s values or other factors of which the teacher may be aware.

To illustrate the importance of this, consider Strain et al.’s (2012) examination of the role of social validity assessment in research. They presented five examples of research

studies in which quantitative data alone failed to explain the studies' final outcomes. Instead, in the presented studies, social validity data from research participants influenced the researchers' final conclusions significantly, to the extent that intervention practices were changed based solely on the qualitative information participants provided. For example, Strain et al. described one longitudinal study in which students who were considered "at risk" were assessed frequently over a period of several years. During the study, as a measure of social validity, teachers were interviewed about what "successful" children do in school. Many teachers' responses described "successful" behaviors that were developmentally more advanced than the children's current ages. These data led the researchers to further study student and teacher behavior in the classroom, specifically measuring time on task and frequency of positive feedback. Researchers eventually devised an intervention, not focused on adjusting *student* behavior, but rather adjusting *teacher* behavior. Without the social validity data, researchers likely would have continued to focus on how to adjust student behaviors, possibly with little success.

The studies Strain et al. (2012) described are a remarkable contrast to the current "gold standard" of scientifically-based research previously required by NCLB (2001) and currently required by IDEA (2004). In fact, the studies and discussion in Strain et al. imply that the "gold standard" of research may be, instead, subpar and an insufficient basis upon which to solely base instructional decisions. ESSA (2015) has updated language that requires "evidence-based" interventions and even professional development for teachers. This indicates a significant and promising shift in how lawmakers are defining effective instructional practices.

As evidenced by their decision-making model, the medical field has obviously recognized the critical importance of both clinical experience and patient preferences in the success of treatments. These two elements, combined with scientifically-based evidence, allow decision-making to be individualized and maximally effective. For example, when determining an effective way to address a student's inappropriate behavior in a classroom, the educational team must consider several factors. Token economy systems use positive reinforcement to increase desired behaviors and are known to be highly effective. In this example, a teacher implements a classroom token system for classroom management in which students earn "money" for appropriate behaviors and are able to "purchase" items in the class "store" on Fridays. In this example, the parents of one student are insistent that their child only plays with educational toys and they do not approve of the token system or prizes available in the teacher's "store" in the classroom. The student has demonstrated some significant inappropriate behaviors, especially when other students are earning "money" and purchasing rewards and he is only receiving verbal praise, as requested by the parents. The educational team must determine how to effectively reinforce positive behaviors with the student. The teacher has noticed the student enjoys computers and in the past, she has used a specific computer program that focuses on math fluency, an area of need for this student. Instead of earning "money" to purchase items from the class "store", the team decides to reinforce the student by allowing him to earn "money" to purchase computer time to work on the math fluency program. The parents agree to allow the student to earn "money", given the academic purpose addressed by using money math. They are pleased that the earned money will be used to provide additional educational time to their son. A few weeks later, the behaviors stopped and the student's math fluency improved significantly. The intervention

was simply a slight modification to the classroom's management system, but additional information and a slightly different reward provided a supportive environment that addressed parents' values, student needs, and maintained classroom management.

Another medical model, however, has been a thorn in education's side. Instead of adopting the medical model of *decision-making*, education has often followed medicine's *research* model. Similar to new drug trials, for many years, NCLB (2001) and IDEA (2004) required that studies of instructional strategies include randomized group comparisons and statistically meet certain conditions. Without the benefit of considering professional judgment and student, teacher, and parent preferences, education has been reduced to primarily considering statistics upon which to base the efficacy of treatments. Additionally, only certain statistics (those derived from quantitative, randomized, group comparison studies) are acceptable. This is costly to education in many ways, especially given how many practices are not considered, due simply to the research methodologies used to study them, and considering the broad scope of learning types and needs that may not be addressed by currently "acceptable" research (Cook et al., 2009). Again, ESSA's (2015) updated terminology and language are promising beginnings to a new era of educational reform.

**Conceptual assumptions.** Described earlier in more detail, *evidence-based practice* is a constructed concept, not merely a singular noun. As such, there exist general understandings around the concept that are important to recognize in order to fully comprehend *evidence-based practice*. This is especially true when considering evidence-based practice for the education of students with disabilities.

Cook et al. (2009) pointed out that current resources (such as What Works Clearinghouse and Best Evidence Encyclopedia, described in detail in a later section) do not

include many studies that involve or focus on students receiving special education services. This is largely because fewer studies focused on the achievement of students with disabilities have been conducted using the “preferred” experimental and quasi-experimental methodologies. This is significant, as the few resources on evidence-based practices that are available to educators are of limited (if any) value to teachers of students with disabilities. The extent of these limitations will be discussed later.

Kretlow and Blatz (2011) described the need for teachers, specifically special education teachers, to review practices that have been studied in the academic literature, to determine which practices are appropriate for their students, then to execute the practices in a way that most efficiently and effectively improves student achievement. Cook, Tankersley, Cook, and Landrum (2008) echoed these steps in individualizing instruction, then monitoring student progress. One of the challenges in determining evidence-based practices in special education is that rarely are research samples representative of all disabilities or all classrooms (Cook et al., 2009; Cook et al., 2012; Kretlow & Blatz, 2011; Strain et al., 2012). Therefore, special education teachers, who are typically trained and expected to teach students with a range of disabilities and skills levels, must be prepared to adjust instruction appropriately, yet maintain sufficient fidelity in implementing the program to have the highest chance of success (Kretlow & Blatz, 2011). Continued monitoring of student achievement, known as *progress monitoring*, is imperative; teachers must be aware of student progress in order to adjust instruction appropriately or, if needed, reevaluate if the program or strategy is, in fact, a good fit for their students (Cook et al. 2012; Kretlow & Blatz, 2011). The key is to recognize that evidence-based practices are more likely to work than non-evidence-based

practices, but they may require adjustment to best fit a particular student or group of students (Cook et al., 2012).

Finally, it is of paramount importance to recognize that all people learn. People with disabilities may learn differently, and, as Cook et al. (2012) and Kretlow and Blatz (2011) pointed out, students with disabilities require especially effective instruction, as learning is already often challenging. In order to implement EBPs, teachers must recognize and accept that students are capable of learning the material. These EBPs can be implemented in academic learning, employment education, and functional-life academics. Therefore, success depends on both the effectiveness of the EBP for a particular student, and also on the relevance of the lesson content for the individual student.

**Theoretical framework.** Enacting use of EBPs by school personnel, including classroom special education teachers, requires a change in how classroom instruction is designed and implemented. Gaining the support and active participation of administrators and educators in changing the status quo—their tried and true instructional and assessment practices—represents educational reform. Webster-Wright (2009) indicated that a shift is needed in educational culture from how educational reform has been approached in the past, but acknowledged that this shift is difficult and that change is not easily accepted. Fullan (2001) developed a framework for leadership that provides a pathway for leaders to understand and successfully implement change, specifically changes in education, although the framework fits for other fields, such as business, as well. Fullan explained “Reculturing is a contact sport that involves hard, labor-intensive work. It takes time and indeed never ends” (2001, p. 44). Unfortunately, calls for this shift in education have been ongoing for the last 25

years, yet little progress has been made (Little, 1993; Sparks & Loucks-Horsley, 1989; Webster-Wright, 2009).

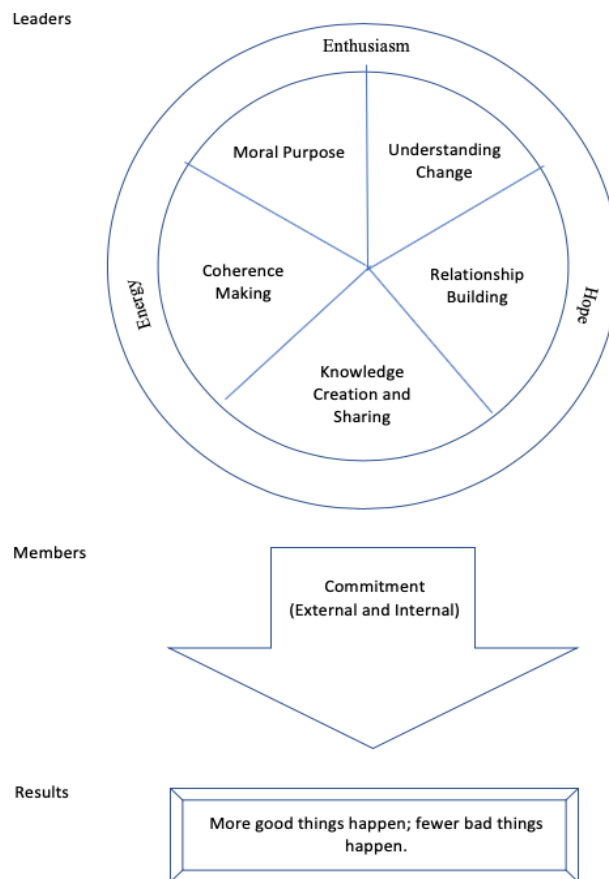
***Fullan's model.*** Fullan challenged school leaders to think differently about changing culture.

Improving culture is complex, but necessary if education is going to move forward.

Leading in a culture of change means creating a culture (not just a structure) of change. It does not mean adopting innovations, one after another; it does mean producing the capacity to seek, critically assess, and selectively incorporate new ideas and practices... (Fullan, 2001, p. 44).

Fullan's framework illustrates the complex components of change and describes how leaders must be prepared to respond to each component in order to successfully implement lasting change. He includes, in his model, a pie chart with five pieces labeled: Moral Purpose (i.e., making a positive difference to others), Understanding Change (i.e., respecting and working within the complexities and normal challenges inherent in change), Relationship Building (i.e., working with others to create the change), Knowledge Creation and Sharing (i.e., increasing stakeholders' knowledge to support the change and further the moral purpose), and Coherence Making (i.e., maintaining focus on the moral purpose while making forward progress, pulling everything together successfully) (Fullan, 2001, see Figure 1). Surrounding this graph are three constants that must be applied at all times and in all settings: enthusiasm, hope, and energy. Fullan's theory indicates that with all of these components, plus external and (eventually) internal commitment from followers, "More good things happen; fewer bad things happen" (Fullan, 2001, p.4).





*Figure 1: Fullan's Framework (Fullan, 2001).*

Part of educating in-service teachers about EBPs requires thoughtfully designed and implemented professional development. Using Fullan's framework, I am able to draw significant parallels between components of effective professional development (described in more detail in Chapter 2) and characteristics of effective change-makers. Professional development needs to align with the leader qualities described by Fullan as required to create lasting change in educational settings. Using this model, effective PD must first be concerned with moral purpose. I argue that, in fact, moral purpose should encompass everything we do as educators, including ensuring we provide the best learning opportunities for our students.

Understanding change, as Fullan (2001) explained, is concerned with embracing the chaos and unsettled nature of creativity because that is where breakthroughs and progress happen. Likewise, solutions in education are rarely round pegs that fit neatly in round holes. Instead, it is out-of-the-box thinking that helps find solutions. It is using available research and making it your own, it is taking responsibility for the messy to find the gold hidden within. Leaders must be able to do this in order to effectively navigate through the muddy waters of change. They accomplish this clarity through coherence making. Coherence making ensures that needed changes align with stakeholders' values, fit within other concurrent reforms, and are understandable and therefore, practical and doable.

Relationships with others who can support the leader in creating change are paramount to future success and lasting changes that support students. Information alone is important, but “turning information into knowledge is a *social* process, and for that you need relationships” (Fullan, 2001, p.6). As explained later in Chapter 4, collaboration among teachers when learning new practices was one of the greatest benefits identified by participants in this study of a professional development model. Additionally, Fullan noted that leaders *cannot* be the sole problem solvers. “Leaders with deep moral purpose provide guidance, but they can also have blinders if ideas are not challenged through the dynamics of change, the give and take of relationships, and the ideas generated by new knowledge” (Fullan, pp.6-7). Relationships and the knowledge that comes from relationships are not to be underestimated or underemphasized.

Fullan (2001) also emphasized that if change is in order, new learning must also be in order. Through relationships, information becomes knowledge and change-agents must share that knowledge with other stakeholders to increase the capacity of the organization as a

whole. Discussed further in Chapters 2 and 4, learning new information that can readily be applied in the classroom is not only necessary for change, but is exactly what teachers desire.

Finally, coherence making, Fullan's (2001) fifth component of change, is continual and indeed, never ends. Coherence making links the creative ideas developed from chaos to current trends and research by providing teachers and school leaders with practical connections to existing reforms and moral purpose. This ensures changes are addressed within present contexts, increasing acceptance and effectiveness of the changes.

Through Fullan's model, we can identify leader characteristics that support change. Looking through this lens, professional development used to educate teachers about the use of EBPs must also exemplify these traits. While professional development focused on aligning classroom instruction to standards is a starting point for cultural shift in schools, it needs to move beyond simple knowledge acquisition. It must include means of supporting teachers to make changes in their beliefs, pedagogy, and problem-solving about why students are struggling and how EBPs may be effective in improving student outcomes (Hochberg & Desimone, 2010). The model, length, and content of the PD, in addition to the way in which it is presented and enacted, will also influence how successful reform efforts are.

**A need for effective professional development.** Most educators want to abide by the laws guiding education, want to use effective practices, and are deeply committed to their students' learning. There is, however, a significant research-to-practice gap. Previous legislative definitions and existing misunderstandings of current definitions of EBPs, as well as a general bias toward specific research methodologies highly regarded in medical research, are preventing many educators from learning about and adhering to evidence-based practice. Additionally, the limited research findings that are available to the public, without

subscriptions to professional journals, affect teachers' knowledge of evidence-based practices, especially for students with disabilities. These concerns are explained in detail in later sections.

Bridging the research-to-practice gap is a daunting task, yet is necessary to provide students with the instruction they need to be successful. This is especially critical for students with disabilities who have unique learning needs and require the *most* effective instructional practices. Effective practices do not need to be expensive, fancy, or require days of off-site training. Professional development by consumers of research (e.g., people who read primary sources and/or conduct research), rather than representatives of publishing companies, is one way to provide individualized, meaningful training to educators. Consumers of research are especially useful as professional development consultants, as they are not limited by current public resources' review systems, but instead are able to read and critique professional literature themselves, consolidate the information efficiently, and provide practical support to practicing teachers. This would, in essence, begin to close the research-to-practice gap. Additional research on effective professional development for educators is another step to bridging the gap and supporting students with and without disabilities to higher levels of achievement.

**Providing professional development in schools.** In order to address the issue of a lack of EBP use in schools, it is obvious that both in-service and pre-service teachers must be trained properly. Teacher preparation programs must explicitly and repeatedly address the use of EBPs in coursework, lesson plans, and fieldwork experiences, a relatively easy adjustment to make in current programs. In-service teachers, however, present a more complex situation. Unfortunately the terms professional development, in-service days,

training, and workshops translate loosely to “day off” for many teachers. When teachers are unsure of how to do something, principals’ responses typically include a training or workshop of some type. If student scores are not meeting expected achievement levels, an in-service must be the answer. Yet while the intent of professional development is far from this bleak description, the reality is often closer than anyone would care to admit.

Studies of professional development (PD) for teachers are among a wide variety of research focused on why educational reform has resulted in limited change in the last 25 years. The available research on PD documents several components of professional development in education that remain consistent across successful PD practices, although the measure of success varies. These components can be effectively woven into one of several models for delivering PD, each with strengths and areas of need. Combining several models of PD is often most effective for teachers, although little evidence of the impact of PD on student achievement has been gathered (Hochberg & Desimone, 2010; Little, 1993; McLeskey, 2011).

Further adding to the difficulty of implementing EBPs in classrooms is the simplest of facts: teachers are busy people. They supervise children all day and they are also tasked with ensuring students have the knowledge needed to succeed in life, instilling a love of learning in young people, and supporting students to achieve state-determined levels of academic proficiency. Evidence-based practices, instructional strategies and programs known through empirical research and classroom experience to improve students’ learning, are necessary to ensure classroom instruction is both effective and efficient (Webster-Wright, 2009). Educational research is not in short supply, but teachers often continue to use outdated strategies and fail to understand why students are not learning as they should be. The realistic

truth is that with teaching, grading, recess duty, and lesson planning, few teachers have the resources, time and means, to find and review current research findings and apply them to the classroom (Kretlow & Blatz, 2011). Many professional journals are only accessible from universities or require substantial subscription costs, not to mention the difficulty teachers may have deciphering the complex and jargon-ridden language often used in research articles (Little, 1993). This reality must be properly addressed so that teachers have the opportunity to provide the best education possible to their students.

### **Positionality**

**A personal mission.** I first became interested in the topic of EBPs specifically because of my personal experiences working in two different school districts. I watched, year after year, as millions of dollars were wasted on curricula that were not only moderately effective at best, but were also replaced every couple of years. The result was a constant revolving door of curriculum, including some potentially harmful curriculum, which provided mediocre instruction to students on a good day and downright incorrect information on a bad day. It was frustrating to adopt a new curriculum every couple of years, when we were told each time how this one was so much better. I never saw professional literature consulted in making these decisions to adopt or change curricula, and rarely did I witness collaboration between the districts and our state's flagship university, located just a few miles from one another. Throughout my graduate programs, I battled between what I learned in classes and what I was told to do in my classroom by school personnel. If the end goal for both parties is to educate children in the best way possible, why is there not a systemic relationship for these entities to work collaboratively regardless of specific individuals' particular interests or opinions? In the instances in which these entities did work

collaboratively, the collaboration ended when individuals within the school organization changed jobs. It simply did not make sense.

Meanwhile, in my own classroom, I implemented an EBP I had researched for a literature review assignment in a graduate course; the strategy cost twelve dollars to implement and the data collected on the implementation were remarkable. As I looked more into the literature on evidence-based strategies and instruction, I became more and more alarmed at the lack of teacher knowledge of evidence-based instruction and therefore the lack of EBPs actually implemented in schools. I also knew that the quality of professional development provided within schools in general left something to be desired, but I also knew it was desperately needed to advance instructional practices and support positive student outcomes. This led to development of the PD model I researched to examine its effect on teachers' knowledge of EBPs. I believe the PD curriculum designed for this study can be used in all schools, with all teachers, for general and special educators, in order to educate teachers about EBPs and provide access to the resources (e.g., research, time) teachers need to successfully implement EBPs.

**Bias.** As with most qualitative studies, some researcher bias is inherent in this study. Most notably, I am the special education director at the school in which the study took place. While this provided some advantage to conducting the study (e.g., I knew the culture, the teachers, and understood the challenges and strengths our students bring to school), it left me in a position of authority at the school that could have influenced participants in the study. In order to minimize any negative impact, Dr. Susan Copeland, my faculty advisor, initially presented information about the study to staff members and solicited for consent forms while

I remained outside of the room. Additionally, while all school staff participated in the PD, I only collected data from those who completed consent forms.

Additionally, my experiences as described above undoubtedly affect not just what I chose to study, but how I interpreted the findings. To minimize bias I might bring to the data collection and analysis of the study, I worked closely with my committee member, Dr. Elizabeth Keefe, to reduce potential bias in my analysis of the data. I spent many hours with her assistance examining the emerging themes and considering how my potential bias might influence my interpretation of the data. I used these safeguards to minimize as much potential bias as possible in interpreting the data and making conclusions from the study findings.

### **Purpose**

The purpose of this research study was to develop and implement a curriculum-style professional development for practicing teachers that guided them through the process of identifying appropriate evidence-based practices and implementing them in the classroom. A curriculum-style professional development, as defined for this study, is a structured program that includes learning goals and objectives for participants, as well as whole group presentations, assignments, and participation in professional learning communities for participants. Participants in this study were practicing teachers interested in maximizing instruction through the use of strategies and interventions that have been shown to be effective in peer-reviewed literature. The professional development proposed in this study has been developed using current models of professional development and was designed as a comprehensive model of PD for teachers that focused on the previous requirements of No Child Left Behind (2001), current requirements of Every Child Succeeds Act (ESSA, 2015), as well as requirements of the Individuals with Disabilities Education Act (IDEA, 2004). The



PD provided a supportive system for teachers to implement evidence-based practices for all students, including students with disabilities.

This study developed, implemented, and evaluated how a curriculum-style professional development model affected teachers' use of evidence-based practice in a charter elementary/ middle/ high school setting. The specific questions addressed in this study were: (a) What are teachers' understandings of evidence-based practices? (b) How do teachers report how they implement EBPs in their own classrooms, given EBP professional development over an extended period of time and with follow up coaching and support? (c) Given EBP professional development over an extended period of time and with follow up coaching and support, what do teachers report about choosing to use or discontinue use of EBPs in lesson planning and everyday instruction? and (d) What do teachers report about participating in this type of PD?

## Chapter 2

### Literature Review

The literature review for this study looks at several key areas of research that intersect to build the foundation for this study. First, I provided a summary of the legislative history of evidence-based practice (EBP) and current definitions of EBP used by professional organizations. Next, I reviewed current resources that are available for the public to access EBPs. Finally, I reviewed scholarly literature on models and components of effective professional development in education, which I used to develop the PD curriculum I evaluated in my research study.

#### Legislative History of Evidence-Based Practice

The concept of evidence-based practice has a long history, both in education and the medical field. When considering current legislative mandates regarding evidence-based practice, educators often fail to recognize this history and instead see current issues as novel to the last few decades. In fact, the “old school” had its own share of difficulties surrounding student achievement that we continue to struggle with today.

**ESEA, NCLB, and ESSA.** The Elementary and Secondary Education Act (ESEA), first signed into law in 1965 by President Lyndon Johnson, was intended to address the historically low achievement of students from low socio-economic situations (Thomas & Brady, 2005). Throughout the next 35 years, ESEA was adjusted and important components were implemented, including standards-based instruction and the measuring of student achievement through test scores (Thomas & Brady). In 2001, President George W. Bush signed a re-authorized ESEA into law, No Child Left Behind (NCLB). Significant changes that NCLB introduced included additional responsibility and accountability for all students’

achievement and a focus on effective instruction, as evidenced by empirical research (Thomas & Brady). In 2015, President Barack Obama signed the Every Student Succeeds Act (ESSA; the re-authorization of NCLB) into law, maintaining much of the spirit of NCLB, but with adjusted terminology and accountability measures.

**Evidence-Based practice in education.** In the meantime, in the 1990s, researchers in the medical field noticed a discrepancy between research and the practice of clinicians (Spencer et al., 2012; Wilczynski, 2012). This led to reforms designed to combine the latest, high-quality research results of medical practices with professional judgment and patient preferences, the current definition of evidence-based practice (EBP) in many organizations (Spencer et al. 2012). This concept quickly spread to other fields, most notably psychology and education (Spencer et al; Wilczynski, 2012).

Efforts to address EBPs in education formally began in the late 1990s. In 1997, the Department of Education Appropriations Act included a Comprehensive School Reform Demonstration to support the ESEA requirement to address low academic achievement among students living in poverty (Department of Education Appropriations Act, 1997). The Act indicated that funding would be available to schools that used “reliable research and effective practices” to improve student outcomes (Department of Education Appropriations Act, 1997). In order to support educational agencies in this endeavor, the American Institutes of Research (AIR) published a guide in 1999 that reviewed an assortment of instructional strategies and practices and provided guidance on the effectiveness of each (1999, as cited by Coalition for Evidence-Based Policy, 2002). Unfortunately, few schools that received the funding used AIR’s resource or implemented highly rated practices, and student achievement was minimally impacted.

In 2001, the Coalition for Evidence-Based Policy was formed and in 2002, following the passage of NCLB, published a report with suggestions of how the federal government could support educators in determining effective, evidence-based practices. Similar support previously resulted in outstanding improvement in the field of medicine (Coalition for Evidence-Based Policy, 2002). The Coalition's final report, published in late 2002, recommended that: (a) research in education focus on large-scale, quantitative studies with control-group comparisons; (b) federal funding be used to support such research in schools; and (c) the Department of Education develop a "What Works Clearinghouse" (WWC); an easily accessible catalog of interventions, programs, and strategies that have been evaluated using rigorous review criteria to determine the evidence of effectiveness (Coalition for Evidence-Based Policy). Hence, in 2002, the WWC was born.

**The Individuals with Disabilities Education Act (IDEA) alignment.** In 2004, the IDEA was reauthorized with updates to bring it into alignment with NCLB regarding scientifically-based practices. Both laws now specified the requirement for "effective, scientifically-based instructional strategies" (IDEA, 2004, 20 U.S.C. §1400 (c)(5)(E); NCLB, 2001, 20 U.S.C. §6301 (9)). While the intention of this alignment was to ensure equal access to high quality education for all children, serious concerns arose regarding the severe lack of qualifying educational research that included students with disabilities. In response to these concerns, education researchers began exploring how evidence-based practices in special education could meet scientifically-based standards, but without the narrow methodological restrictions in earlier policy documents. A 2005 issue of *Exceptional Children* was dedicated solely to establishing quality indicators for methodologies often used in special education research (Graham, 2005). The discussion continued as researchers persisted to indicate the

need for an expanded federal definition of *scientifically-based practice* in order to support use of evidence-based practices in special education.

With the passage of ESSA in 2015, the term and new standard for educational practices changed to “evidence-based”. This is a significant step forward, as this term and definition provide for rigorous research requirements for educational research examining instructional practices, but without the methodological hang-ups. At this time (2018), IDEA has not been updated to align with these new terms, but one can hope this change is forthcoming.

**Professional organizations’ definitions regarding EBPs.** The Council for Exceptional Children (CEC), one of the best-known professional organizations focused on special education and disability issues, reported in 2011:

While the law requires teachers to use evidence-based practices in their classrooms, the special education field has not yet determined criteria for evidence based practice nor whether special education has a solid foundation of evidence-based practices.

Also, those teaching strategies that have been researched are difficult for teachers to access (CEC, 2011, “Evidence-Based Practice”, para. 1).

This vague description from such a well-known source was highly concerning, especially when the organization was unable to define or offer guidance on terms used in legislation. This was not, by any means, the fault of CEC, but rather a significant disconnect between lawmakers and the special education field. In 2008, CEC published a practice study manual to describe the protocol they use to determine if an intervention is, in fact, evidence-based, using the criteria set forth in the 2005 special issue of *Exceptional Children* for quality research. Finally, in 2014, CEC published specific Standards for Evidence Based Practice in

Special Education. This publication provides clear guidelines for research to be considered “evidence-based”, including methodological requirements, the number of studies and participants, and how to determine potentially positive effects, negative effects, and neutral effects. Although the CEC’s standards for determining positive effects for an intervention vary slightly from WWC’s, the effort aligns with WWC’s 2017 protocol for evaluating studies examining EBPs, described later (CEC, 2014). The CEC also adopted a definition of “evidence-based practices”, incorporating the idea of “science”, but not specifying methods. ESSA’s (2015) definition, while more detailed, aligns with the CEC’s.

The CEC also established a relationship with the Institute for Education Sciences (IES), the provider of the WWC. It appears that perhaps the collaboration of these two organizations has led to clearer and more appropriate guidelines for what are considered evidence-based practices for students with disabilities. Both the WWC and the CEC reference one another in their standards for determining EBPs, a clear indication of the collegial relationship that has developed (CEC, 2014; WWC 2017). In just the last few years, more studies that included students with disabilities have been included on WWC. Additionally, the WWC clearly shows how some studies included students with disabilities but did not necessarily disaggregate their data. This does not indicate the intervention is ineffective for students with disabilities, but neither does it provide misleading information. While the number of interventions reviewed for efficacy for students without disabilities continues to be disproportionately larger, the forward motion and progress in determining EBPs for students with disabilities is encouraging (the WWC is discussed in more detail later in this chapter).

TASH (The Association for Persons with Severe Handicaps) published a statement in 2000 that supported professional development for teachers in research-based practices, although this statement was not revised with the signing of NCLB nor the reauthorization of IDEA (TASH, 2000). Nonetheless, the statement continues to be applicable, given legislative language. Additionally, a 2002 TASH statement includes that teacher education programs should include instruction in effective instructional practices (TASH, 2002). Again, it is of interest that neither of these statements have been revised following IDEA's reauthorization in 2004, yet continue to be appropriate statements concerning the use of evidence-based practices in the education of students with disabilities. Finally, in 2010, TASH published Policy Recommendations for the upcoming reauthorization of ESEA that included a proposal that teacher education programs include instruction in evidence-based practices. These recommendations were incorporated with ESSA's (2015) authorization.

The American Association on Intellectual and Developmental Disabilities (AAIDD) recently published a policy statement requiring the use of "evidence-based, peer-reviewed instructional strategies and interventions" for all students, without a separate designation specific to those who receive special education services (AAIDD, 2018). This is a significant change from just a few years ago when AAIDD did not have a policy statement on the use of evidence-based practices at all. Again, recent changes to policy highlight the importance and timeliness of this topic. Table 1 summarizes the definitions of EBPs from these professional organizations.

Table 1

*Definitions of Evidence-Based Practices*

Organization/ Source	Definition of EBP
Every Student Succeeds Act (ESSA, 2015)	<p>the term “evidence-based”, when used with respect to a State, local educational agency, or school activity, means an activity, strategy, or intervention that—</p> <p>(i) demonstrates a statistically significant effect on improving student outcomes or other relevant outcomes based on—</p> <p>(I) strong evidence from at least 1 well-designed and well-implemented experimental study;</p> <p>(II) moderate evidence from at least 1 well-designed and well-implemented quasi-experimental study; or</p> <p>(III) promising evidence from at least 1 well-designed and well-implemented correlational study with statistical controls for selection bias; or</p> <p>(ii)(I) demonstrates a rationale based on high quality research findings or positive evaluation that such activity, strategy, or intervention is likely to improve student outcomes or other relevant outcomes; and</p> <p>(II) includes ongoing efforts to examine the effects of such activity, strategy, or intervention. (20 U.S.C. §8101(21)(A))</p>
Council for Exceptional Children (CEC, 2018)	“An intervention that is based in science”
The Association for Persons with Severe Handicaps (TASH, 2000)	No specific definition provided. Does say teacher education programs should include instruction in effective instructional practices.
The American Association of Intellectual and Developmental Disabilities (2018)	No specific definition provided. Does include a policy statement requiring the use of “evidence-based, peer-reviewed instructional strategies and interventions” for all students

**Practical Concerns with Evidence-Based Practice**

Considering the complexity of school contexts and the simple fact that EBP in education includes working with children and parents in addition to professional educators,



several obstacles make implementation of EBP a less-than-simple endeavor. As described previously, there are very few studies involving students with disabilities currently available that meet the rigorous, quantitative methodologies previously required by IDEA (2004) and NCLB (2001) to document whether or not a practice could be considered evidence-based. The Coalition for Evidence-Based Policy's report (2002) outlined concerns with study designs other than rigorous, random assignment experimental and quasi-experimental designs. According to the report, other designs, such as pre-post and non-random comparison group designs, even when well designed and implemented, contain ample opportunity for erroneous conclusions. To illustrate this, the report (2002) included several examples of experimental, random assignment studies that, had they been designed differently, might have led to incorrect conclusions.

The passage of ESSA (2015) and its requirement for evidence-based practice is a key change in legislation and indicates a shift in thinking among policy-makers. Following the passage of NCLB (2001) and re-authorization of IDEA (2004), experienced educational researchers (e.g., Brantlinger, Jimenez, Klingner, Pugach, & Richardson, 2005; Gersten et al. 2005; Emmons et al. 2009; Horner et al. 2005; Odom et al. 2005; Thompson, Diamond, McWilliam, Snyder, & Snyder, 2005) argued repeatedly that research designs other than random assignment experimental designs can be used to gather evidence to evaluate a given practice and may, in fact, be more appropriate in some circumstances, specifically in special education studies. These researchers noted specifically the use of single-case, correlational, and qualitative research designs as appropriate for these types of studies. The CEC's standards for evidence-based practice also include single-case research as acceptable designs for evaluating evidence-based practices, but the WWC committee tasked with determining

eligibility of studies for inclusion in the database determined that while other methodologies (besides experimental) continue to contribute to research, they cannot adequately support causation. Only as recently as 2012 did What Works Clearinghouse, described later, begin considering single-case research when reviewing studies for evidence of effectiveness. Again, this has been a significant change and shift in thinking, one that will strengthen support for special education research.

**Methodological and implementation issues.** Many special education researchers have raised concerns that current resources for educators and parents that describe EBPs, including the WWC, fail to sufficiently consider evidence-based practices for students with disabilities. The Coalition for Evidence-Based Policy (2002) report suggested that large, replicable studies be required for an intervention to be considered “evidence based”. Several issues exist with this position on research. First, there may not be a large enough sample of the targeted population to run such studies, without conducting the study in multiple schools, towns, or even states. This presents practical difficulties in reducing or controlling extraneous variables (researchers, demographics, etc.), securing sufficient funding, and providing the number of participants necessary to conduct statistical analysis (Odom et al., 2005). Additionally, in education, blind or double-blind studies are generally not possible; students, teachers, and parents will be aware of the experimental conditions. Ethical concerns arise regarding providing the best instruction available to students and parents may choose to opt-in or opt-out of interventions, essentially “un-doing” the randomization. Withdrawal or reversal designs may reduce this effect, but may not be possible when studying effectiveness of curricula (i.e., the teacher cannot simply withdraw the curricula). Schools with high student mobility may not be able to participate in long-term studies due to unstable student

populations. While some research questions are well suited to a control-group experimental design, many questions in special education are not.

***Quality indicators and evaluation of studies.*** As previously mentioned, *Exceptional Children* published a special issue in 2005 dedicated to developing quality indicators that should be present in research studies other than large-scale, randomized, group comparison methodologies. Odom et al. (2005) argued that various methodologies used to study educational interventions, when properly matched with the research question and held to high, rigorous standards can, in fact, provide valid evidence of whether or not a practice is effective. Some methodologies, such as correlational research, are most useful as pre-cursors to more experimental methodologies, developing a reasonable foundation upon which to base other studies (Thompson et al., 2005). Single-case designs, with sufficient attention to baseline values and/ or withdrawal conditions, are experimental, despite the lack of large, randomly assigned control groups (Horner et al., 2005). Qualitative data, sometimes similar to social-validity data, is absolutely necessary to gather some pieces of information and provides critical information to researchers (Brantlinger et al., 2005; Strain et al., 2012).

For all research designs and methodologies examined in the *Exceptional Children* special issue: qualitative (Brantlinger et al., 2005); experimental and quasi-experimental (Gersten et al., 2005); single-subject (Horner et al., 2005); and correlational (Thompson et al., 2005), authors developed a list of “quality indicators” that should be used to determine if a given study is considered rigorous (i.e., have strong internal and external validity). Although experimental and quasi-experimental research were previously deemed as providing “acceptable” evidence of the effectiveness of an intervention, Gersten et al. (2005) nonetheless included quality indicators, as the other authors did for other designs. Cook et

al.'s (2009) review of special education studies using Gersten et al. and Horner et al.'s (2005) quality indicators suggested that the quality indicators be used more widely and perhaps be better defined in order to have maximum impact on high quality, rigorous, special education studies. Still, this development of standards where there were previously none, was a productive response to the previous requirement for *scientifically-based practices* and continues to be highly relevant and important with the new ESSA (2015) guidelines for “evidence-based practices” and was the backbone for the development of CEC’s quality standards for evidence-based practices (CEC, 2014).

In 2014, the CEC published standards for special education EBPs that include quality indicators required for group comparison *and* single case research, as well as a classification system, similar to the one used by the WWC, to determine if a practice is considered an evidence-based practice. These standards are specific to studies including students with disabilities and the inherent differences in those studies compared to studies without students with disabilities. Combined, these standards provide guidelines for special education research.

### **Current Resources**

Currently, several resources exist to provide school administrators and educators access to the results of scholarly research regarding EBPs. These primarily include Internet resources, such as What Works Clearinghouse (n.d.), Best Evidence Encyclopedia (n.d.), Evidence for ESSA (n.d.), Promising Practices Network (n.d.), The National Autism Center’s National Standards Report (2009), and a division of the Council for Exceptional Children, Teaching LD (2012), all described in detail below. Each of these organizations, among others (see Kretlow and Blatz, 2011, for additional sources), conducts systematic reviews of scholarly literature to determine effectiveness of instructional strategies and programs. Each

organization has developed criteria to guide their reviews and recommendations, and while these recommendations are useful starting points for schools and districts looking to adopt particular practices, they are not without flaws. Slocum et al. (2012) suggested that educational decisions should be made using “best available evidence”, allowing for the consideration of peer-reviewed, published, empirical studies that did not meet the previous requirements of *scientifically-based*, but may meet current *evidence-based* requirements.

**What Works Clearinghouse.** WWC, a project of the Institute of Education Sciences and established in 2002 following the Coalition for Evidence-Based Policy’s report, is perhaps the best known resource for finding evidence-based instructional practices. For studies utilizing experimental or quasi-experimental group designs, studies are first reviewed for random assignment, then attrition and/or equivalent groups, and finally for results and conclusions. Single case design studies are also reviewed for quality standards. Individual studies receive a rating of “meets standards”, “meets standards with reservations”, or “does not meet standards”. By combining the results of all studies of a particular interventions and considering the statistical analyses completed by the authors, reviewers then label practices as having positive effects, potentially positive effects, mixed effects, no discernable effects, or potentially negative effects. Multiple studies that meet standards are required for the highest rating assigned by WWC, positive effects (WWC, n.d.). However, as Cook et al. (2012) point out, an intervention that is not included on the “What Works” list may not necessarily be ineffective; rather, a sufficient number of studies meeting WWC’s criteria have not been conducted that indicate that a practice is, in fact, effective. This is important to consider, as few intervention studies meet WWC criteria for inclusion.

***Research including students with disabilities.*** WWC uses specific protocols to review interventions effective for students with learning disabilities, emotional disturbance, intellectual disability, and autism spectrum disorder, but the amount of evidence and reviewed interventions for these groups is exceedingly small, at this writing, 20 recommendations of interventions for students with disabilities compared to nearly 400 recommendations of academic interventions for general education (WWC, 2018). In the last five years, only three additional interventions have been recommended for students with disabilities. For special education to establish a base of evidence-based practices, these numbers are simply too small to be useful. More concerning is that only a handful of studies reviewed practices for students with disabilities other than learning disabilities or emotional disturbance. It should be noted that some studies reviewed included students with disabilities (e.g., learning disabilities, autism spectrum disorder, and intellectual disability), but the analysis does not always clearly indicate the inclusion of students with disabilities, nor does it necessarily disaggregate the results.

In the summer of 2010, WWC and a panel of educational research experts developed a protocol to review single-case design research and establish criteria to include single-case research in WWC reviews (WWC, 2017). This represents a significant victory for special education researchers, as single-case design is often used in special education and is considered a rigorous methodology (Horner et al., 2005). The inclusion of single-case design as an acceptable methodology has undoubtedly greatly affected which practices are considered evidence-based. While the legislative language took several years to reflect this shift in acceptance, the Institute of Education Sciences' acknowledgment is note-worthy, as the federal government established the Institute in order to address NCLB and IDEA's

requirements for *scientifically-based practice*. In 2011, the WWC Review Protocol for K-12 Students with Learning Disabilities considered studies using experimental, quasi-experimental, single-case, or regression discontinuity designs. This protocol has since been updated (WWC, 2017) and similar protocols have been developed for examining studies addressing interventions for children with intellectual disability and autism, which were revised in 2017 and 2015 respectively. These protocols explicitly describe research requirements to be considered for evaluation of such studies and include standards for several of single case designs as well as regression discontinuity designs, in addition to experimental and quasi-experimental designs.

**Best Evidence Encyclopedia.** Best Evidence Encyclopedia (BEE), a project of Johns Hopkins University, reviews meta-analyses of interventions. Studies included in the meta-analysis must meet stringent requirements, including only randomized, control group-comparison studies, therefore excluding single-case research (Best Evidence Encyclopedia, n.d.). BEE does not separately evaluate studies that include interventions found to be most effective with students with disabilities. They do include a list of programs found to be effective with “struggling readers”.

**Evidence for ESSA.** Evidence for ESSA (n.d.) is also a project of Johns Hopkins University and provides a catalog of reading and math programs (i.e., curricula, not necessarily practices) that meet ESSA (2005) requirements for “evidence-based instruction”. Evidence for ESSA has reviewed many programs, providing a large number of curricular choices for educators, and their recommendations align with ESSA’s requirements for strong, moderate, and promising levels of evidence. The site provides an overview of the program, basic details about the research study that was used to make the determination, student

outcomes, staffing requirements, and professional development required. The reviews are practitioner-friendly and provide quick information that can support school personnel in making curricular decisions.

ESSA (2015) itself identifies four levels of evidence, based on the results of “at least one well-designed and well-implemented” study (ESSA). The four levels are (a) strong evidence, which requires a randomized, experimental study, (b) moderate evidence, which requires a matched, quasi-experimental study, (c) promising evidence, which requires a statistically controlled correlational study, and (d) evidence-building, which means qualifying evidence is not yet available to meet the first three levels of evidence. Standards by which the Evidence for ESSA Technical Working Group (TWG) assessed studies for inclusion and rating are included, as well as procedures for assessing studies (Evidence for ESSA, 2018). Although ESSA only requires one study to determine if a program is evidence-based, the standards are stringent and uphold a high expectation of rigor to be included (Evidence for ESSA, n.d.).

***Research including students with disabilities.*** Although Evidence for ESSA provides a filter to identify programs that have been evaluated through studies including students who receive special education services, specific information about the program’s educational impact on students with disabilities is not necessarily included. There is a notation that indicates if the study itself determined that the program was effective for a particular subgroup, including students who receive special education services (e.g., a star is noted next to the subgroup for which the program was proven effective). Additionally, the filter term is specifically “special education”, not “students with disabilities”, leaving some level of ambiguity about the students included in the study.



**Promising Practices Network.** Promising Practices Network (PPN, n.d.) was a project funded and run by the RAND Corporation. PPN required studies to utilize a comparison group and include a minimum of 10 participants. Again, PPN made no distinction among practices that may be beneficial for students with disabilities. The PPN project was discontinued in 2014, so although results are still available, no further submissions are being accepted.

**The National Autism Center's National Standards Report.** The National Autism Center's National Standards Report (NSR, 2009; NSR, 2015) also reviewed studies focused on interventions targeting people with Autism Spectrum Disorder (ASD). Their inclusion and exclusion criteria varied significantly from previously reported databases. With a clear focus on determining effective strategies for ASD, reviewers excluded studies that failed to include more than one person with ASD, that included additional diagnoses, or that did not include empirical data. Qualitative studies were not included. The NSR provides a constructive illustration of how research for students with disabilities can be reviewed. The first report was published in 2009 and a subsequent report, with updated findings was published in 2015. While the first report focused on interventions for school age children, the second report updated findings from the first report and included interventions for adults with autism spectrum disorder (ASD) as well.

**Teaching LD.** Teaching LD takes a different approach to recommending effective practices. Called "Practice Alerts", studies are reviewed by an editorial committee comprised of researchers, educators, and administrators to determine effectiveness. Interventions with high rates of success specifically for students with disabilities (especially learning disabilities) are designated with "Go for it" and studies with mixed results are designated

“Use caution”. Practice Alerts are less selective in the review process and the alert is designed to be practitioner-friendly by avoiding scholarly jargon and including important information without unnecessary detail in a handout-type format. Additional references are provided for each practice alert. Although fewer than 30 practices are reviewed, the format of the practice alerts is the most accessible and practical of all resources.

**National Center for Special Education Research.** Finally, the National Center for Special Education Research, a branch of the Institute of Education Sciences, was also established in 2002 in order to support research in special education. The Center offers grants for researchers interested in studying instructional practices in special education, although it provides only minimal, vague information regarding requirements for research specific to special education (National Center for Special Education Research, n.d.).

**Impact on students with disabilities.** It is clearly evident that additional research on effective practices for students with disabilities is necessary. Of the six resources described above, one provides a basic filter to determine if students with disabilities were included in the research study, two consider the specialized instruction needed for students with learning disabilities, one considers students with emotional disturbance, and two consider students with ASD. However, few of the reviews of educational interventions included in the resources address the learning needs of students with disabilities as compared to the number of reviews that address the learning needs of students without disabilities. Given the amount of published research, the current availability of resources that review evidence-based practices for students with disabilities is absolutely unacceptable.

This lack of information is not a result of too little research being conducted, however. Rather, in order to gain an acceptable foundation of evidence-based practices, researchers

must continue to publish research of exceptionally high quality, as much as possible, following the research standards established over the past 12 years. Additionally, consideration of additional methodologies must be made when considering evidence-based practices. The inclusion of single-case research and regression discontinuity design by WWC is a promising start, but must be expanded.

### **Professional Development Needs**

Current inservice teachers (i.e., those currently teaching in school) have limited opportunities to learn about new developments in educational research. Generally speaking, outside of graduate school, professional development is the only formal way for teachers to learn new instructional strategies or interventions, including EBPs. No Child Left Behind (2001) stated that in order for children to have access to a quality educational program, teachers must be adequately trained and be provided “substantial opportunities for professional development” (20 U.S.C. §6301(10)). ESSA (2015) echoes this sentiment, calling for effective professional development opportunities for teachers in order to build their pedagogical repertoire and provide quality educational opportunities to students. While attempts to provide PD are common, many school administrators fail to use available empirical evidence regarding professional development to ensure an effective and meaningful experience for teachers (McLeskey, 2011; Webster-Wright, 2009). Little (1993) explained that “the most promising forms of professional development engage teachers in the pursuit of genuine questions, problems, and curiosities, over time, in ways that leave a mark on perspectives, policy, and practice” (p. 133). Some strategies for effective PD, as cited in research, are being used more frequently, including giving teachers an opportunity to engage as active participants, but education must move further if truly great results from PD are

going to be realized in student outcomes (Little, 1993; McLeskey; Webster-Wright, 2009). Education must challenge the status-quo, question practices in the classroom, and collectively move toward a culture where practitioners are researchers in their own classrooms, colleagues lend safe, constructive support, and administrators orchestrate a learning institution in which all members seek new knowledge daily.

In recent years, several organizations, funded by the federal government, recognized the importance of effective PD for educators and have also been examining professional development models for teachers. The National Center for Special Education Research, part of the Institute for Educational Sciences (IES), has published a summary of current recommendations for professional development specifically to address needs in special education. Their recommendations are cited in the descriptions below (National Center for Special Education Research, n.d.).

Similarly, the National Professional Development Center on Inclusion, funded by the Office of Special Education Programs (OSEP), is building partnerships between The University of North Carolina (UNC) at Chapel Hill and individual states to address the importance of evidence-based practices and provides support to ensure their implementation in schools (National Professional Development Center on Inclusion, n.d.). The National Professional Development Center on Autism Spectrum Disorder, also funded by OSEP from 2007 to 2014, is another project originating from UNC Chapel Hill that served to provide resources and support for teachers to learn evidence-based practices for students with autism spectrum disorder.

This focus on professional development for teachers at a national level, funded by the federal government, indicates the critical importance of improving both pre-service and inservice teacher training to meet the educational needs of all children.

**The importance of shifting school cultures.** As discussed in Chapter 1, a cultural shift in education is desperately needed to improve outcomes for students, including those with disabilities. Fullan (2001) defined culture as “ideas, knowledge, practices, and beliefs” (p. 14). Fullan also described how both business and education fields are experiencing the need for change. Businesses are discovering the benefits of moral purpose to guide change, while many schools have long since identified their moral purpose and endeavored, generally, to act accordingly (although not always successfully). Schools, on the other hand, need to learn to create and share knowledge in the ways businesses have been perfecting for decades. “...leaders in business and education face similar challenges—how to cultivate and sustain learning under conditions of complex, rapid change” (Fullan, p.xi). Change, however, is not just needed in *what we do* in education—it is needed in *how we think* about what we do. We need to shift teachers’ thinking, expectations, and habits in ways to benefit students rather than maintaining status quo. Educational organizations need to change the *culture* of teaching and education, by starting with considering how we choose to learn and teach. Fullan said, “Transforming the culture—changing the way we do things around here—is the main point” (p.44); we need to change the culture of teaching. We need to move toward a culture in which teacher learning and student achievement are truly at the center of everything we do—and in order to reach our highest potential, we need to open doors, open books, and open our minds to learning new ideas. Evidence-based practices, therefore, are a logical place to begin.

A recent study highlights the importance of school culture and demonstrates the consequences of failure to create a learning-rich culture (Kensler, Reames, Murray, & Patrick, 2011). In the study, researchers followed two high schools attempting to reform by increasing evidence-based practices in classrooms. One school had the support of a state public education official during this reform. The local university educational leadership program supported the other school. Throughout the study, it was clear that one school's leadership team worked to develop a culture in which questioning data, incorporating evidence-based practices, and open collaboration among teachers were the norm. The other school was unable to create such a culture and therefore teachers continued to operate in seclusion without the benefit of collegial support. Results of the study suggested that a formal leadership team can be the change agent for the whole school, spreading knowledge, peaking interest, and providing guidance and support to colleagues. Conversely, only one member of the other school's leadership team showed genuine interest in the prospect of evidence-based practice and was unable, by himself, to develop a critical mass, although not for lack of effort on his part (Kensler et al., 2011).

This example illustrates the decisive importance of a team of dedicated colleagues, determined to successfully shift a culture to focus on improving the academic achievement of students. Although the study authors focused on the professional development and support models, the critical factor appeared to be the presence of formal meetings and a principal dedicated to the project at hand. The process, as journaled by a teacher participant and observed by university staff, was trying at times and often frustrating, but as a group, they were able to move forward and see positive results.

## **Professional Development Approaches in Education**

If EBPs are key to improving educational outcomes for children, professional development for teachers must address evidence-based practices using highly effective training components. In this study, I set out to do just that. The purpose of the following section of the literature review was to examine what types of professional development for teachers exist and what components of teacher PD have been identified and documented as effective. Therefore, I reviewed the literature in professional development for teachers and concluded that similar trends can be found in PD for both special and general education.

**Two general PD approaches.** There are two principal approaches regarding teacher professional development; they differ in how the PD is structured and delivered. Different models of PD tend to fall on a continuum between the two approaches. The first approach, expert-centered professional development, has historically been the predominant way in which PD has been delivered to teachers. McLeskey (2011) described this type of professional development as one that uses an expert to come into a school and teach teachers how to implement a new strategy. These types of PD are often considered cost-effective and are supposed to provide teachers with the knowledge needed to make immediate and effective classroom changes. However, the evidence of this effectiveness is lacking. Repeatedly, researchers have found that these expert-centered professional development sessions are actually ineffective and result in little, if any, classroom changes or improvements in student achievement (Wood, Goodnight, Bethune, Preston, & Cleaver, 2016). Multiple concerns arise with providing only this type of PD. Information provided in these types of training is generally at a basic knowledge level, meaning teachers may remember the information (for a period of time), but they do not have the opportunity to

deeply understand or apply the newly-learned knowledge. Very minimal (if any) follow up is provided, and the expert with the ability to provide support is gone before teachers can actually implement anything in their classrooms. As a result, these types of trainings are actually ineffective in most situations, despite their high rate of use (NCSE, n.d.).

At the other end of the spectrum is another approach to teacher PD, learner centered professional development (LCPD) (McLeskey, 2011). In this approach, the professional development focuses on engaging the teacher in active learning, while also incorporating other components of evidence-based decision making, including professional judgment and student/ teacher values (McLeskey, 2011). Generally, LCPD also includes ongoing support for teachers, for example, in the form of coaching, collaboration among colleagues, and a deep level of understanding of the new concept being introduced, with a focus on improving individual teacher performance (McLeskey, 2011). According to both McLeskey (2011) and The National Center for Special Education Research (NCSE, 2016), LCPD has resulted in far more direct classroom changes than workshop or expert-centered professional development and should be used to specifically address individual teachers' classroom objectives, specific content knowledge, instructional practice, and collegial collaboration.

**Models of PD.** Sparks and Loucks-Horsley (1989) published a frequently cited article that described five models of professional development for educators. Although they use slightly different terminology from current terms, the PD models described mirror those seen in today's schools. These five models are: (a) individually-guided staff development, (b) observation/assessment, (c) involvement in a development/improvement process, (d) training, and (e) inquiry (Sparks & Loucks-Horsley).



More recent literature describes *types* of professional development. These examples provide a context for *how* PD is presented, what it looks like, who is involved, et cetera. For the purposes of this literature review, these types of PD will be considered models of professional development; they align closely with Sparks and Loucks-Horsley's (1989) models. These models include (a) workshops or finite trainings (e.g., in-service training, aligns with training model), (b) coaching (aligns with observation/ assessment model), (c) the cascade model (does not align with one of Sparks and Loucks-Horsely's models), (d) professional learning communities (PLCs) and other colleague-centered approaches (aligns with both individually-guided staff development and involvement in a development/ improvement process), and (e) institutes (i.e., intensive, extended training that goes beyond the traditional one or two-day workshop in-service) (aligns with both involvement in a development/ improvement process and inquiry).

These models of PD fall on the continuum mentioned earlier between expert-centered PD and learner-centered PD. While not necessarily set at fixed points, each model is generally designed in such a way that it lends itself more easily to either expert or learner-centered methods and if we were to array them along the continuum, they tend to fall into a general order. The order in which the models are presented below aligns with their general order from expert-centered toward learner centered PD.

***Workshops.*** The workshop is the most traditional professional development model and usually falls on the expert-centered end of the continuum. In this model, new information is presented in a lecture-type format and teachers are expected to take what they have learned and apply it in their classrooms (Little, 1993; Hochberg & Desimone, 2010; Sparks & Loucks-Horsley, 1989). This model, although the most utilized and often economical, is

typically ineffective in the long term unless it is combined with another approach (Hochberg & Desimone; Linder, 2011; Sparks & Loucks-Horsley). Linder (2011) found in a study of elementary school teachers that when provided with a workshop-model of PD, teachers lacked confidence in implementing the new knowledge and felt they needed follow up training or in-classroom support. Suhrheinrich (2011) studied the effectiveness of a workshop professional development on teacher implementation of an instructional strategy for students with autism. Her results indicated that only 15% of teachers were able to properly implement workshop teachings without additional coaching support in the classroom. Similarly, Batt (2010) found that teachers who attended a workshop training on Sheltered Instruction Observation Protocol (SIOP) reported the need for additional support following the training, and only 53% of trained teachers implemented strategies following the initial training.

Workshops are convenient and time and cost efficient ways to provide information to teachers, but over 20 years of research consistently concludes that workshops alone are not sufficient to address current needs in classrooms (Little, 1993; McLeskey, 2011; NCSER, 2016; Wood, et al., 2016). As a result of the need for direct support following training, many professional development facilitators include follow-up coaching and/or cooperative peer groups, in addition to the workshop. Additionally, researchers suggest discussing individual, contextual needs and concerns with the school community (including students, teachers, parents, and administrators) to ensure the individual community needs and contexts are considered when planning the PD (Desimone, 2009; Klingner, Boardman, & McMaster, 2013; Little, 1993; McLeskey, 2011).

Workshops are not entirely ineffective, however. Multiple studies indicate that when combined with peer-consultation and follow-up classroom support, workshops can be a

strong professional development model (Sparks & Loucks-Horsley, 1989). Both Suhrheinrich (2011) and Batt (2010), for example, reported high levels of correct implementation of their respective interventions following a traditional workshop plus coaching in the classroom. Wood et al. (2016) also concluded that when combined with follow-up coaching, workshop style in-services can change teacher behaviors. These examples are reflective of additional literature and suggest that workshop-style training can be effective, but inclusion of the effective components described later is necessary, as is combining the workshop with other models of PD.

***Cascade.*** Another model that has emerged as a cost-effective means of training large numbers of people is the cascade model, also known as “Train the Trainer”. In this model of professional development, which also falls toward the expert-centered end of the PD continuum, an experienced facilitator provides a workshop-style training to a sample of the training’s intended population. This sample (middle trainers), in turn, provides the training to the rest of the intended population. This is not to be confused, however, with the training of actual trainers. Many professional development curricula require that multiple people, often experienced with the curriculum themselves, be extensively trained in order to provide formal training to schools. Actual trainer training is extensive, thorough, and results in true experts, rather than temporary “specialists”. A cascade-model example, for instance, is that in one school district, two people from each school site attend a workshop on a new instructional strategy and then return to their school and provide the same training to their colleagues. Theoretically, all teachers in the school will then begin to implement the new strategy (Wedell, 2005). While seemingly simple and logical, this model overflows with problems.

As previously discussed, PD provided without ongoing support often fails (Hochberg & Desimone, 2010; Linder, 2011; Sparks & Loucks-Horsley, 1989). The cascade model does not provide ongoing support since only one experienced facilitator is involved in the “training” of many people. Additionally, Linder (2011) found that effective facilitators, first and foremost, are knowledgeable about the topic. Teachers reported that PD facilitators must be able to answer questions about and have experience in the area in order to be credible. With the cascade model, few teachers receiving the initial training will fulfill these requirements to be credible facilitators. As such, little support is given to subsequent training recipients and few classroom level changes are associated with this model (Wedell, 2005). Additionally, while the content of the training may be appropriate and middle trainers may be able to facilitate a basic level of knowledge using active learning strategies, the middle trainers would be far less prepared to address other important components. For example, context and connections to current practices, both identified later as key components to effective professional development, would be difficult to address. Middle trainers from a cascade model are unlikely to have received adequate training that addresses the specific needs of a particular school, and they are also not true experts in the content. Without deep understanding of the content being delivered, it is doubtful that trainers will be able to successfully connect current reform practices and individualized student needs to the topic and effectively relay this information to teachers.

Wedell (2005) suggested that cascade training can be effective by addressing these two components of effective PD, context and connections. He proposed that “parallel planning” require that the initial training of future middle trainers address school specific contextual needs and describe how the new training connects to previous reforms. The

process is complex and time-consuming, and requires the middle trainers to be relatively experienced with school culture and contextual factors, but if cascade training is the only viable option for disseminating information to many people, it can be made more effective.

A more recent study by Koellner and Jacobs (2015) used a modified cascade model to implement large-scale training for teachers. Their model differed in that the middle trainers received follow-up support over the two and a half year study. Their results indicated that middle trainers were far more likely to not only implement the training, but implement it correctly. Additionally, while initial results indicated increased teacher knowledge and implementation, which increased student achievement, this change in student achievement and teacher implementation was short-lived. The study highlighted the benefits of receiving training from people who are familiar with the context of the school, but without ongoing support for all teachers from *experts*, the student impact is minimized.

***Institutes/Retreats.*** Combining characteristics of both workshops and PLCs (described later), are institutes. Institutes generally fall in the middle of the continuum between expert and learner-centered professional development. Institutes could, however, easily move more toward either side, depending on how the PD is structured and delivered. Institutes or retreats are typically longer than workshops (several days) and allow for extended, often highly meaningful learning for teachers (Little, 1993). Institutes provide opportunities for collaboration, shared learning, and a renewed excitement for teaching practices, while still providing a high level of new information to be absorbed. Institutes are substantially more expensive than typical professional development and often occur outside of the school day or year (Little, 1993), and attendance is often not mandatory. Despite these

issues, institutes have demonstrated significant changes in teacher practices and are a unique model of professional development (Little, 1993).

Institutes are unique in that they are able to address many of the components of effective PD that are described later. Specifically, institutes are inherently extended beyond just a day or two, they generally require collaborative work among participants, and often include hands-on, practical activities. Many national, well-known trainings are presented in an institute-type setting, including Relay (a renowned professional development curriculum that trains school leaders to develop high leverage leadership techniques), which requires an initial two-week institute, followed by four weekend-long follow up institutes (Relay/ GSE, 2018).

***Professional Learning Communities.*** Professional Learning Communities (PLCs) have gained popularity in education over the last few decades. PLCs are small groups of practitioners, comprised of collegial individuals with similar goals, who engage in practice reflection, problem solving, and provide constructive feedback to each other (Stoll, Bolam, McMahon, Wallace, & Thomas, 2006). Typically, PLCs in schools are small groups of teachers that work together toward a common cause. For example, a PLC may consist of all teachers in the English department who work together to address concerns with students' reading and writing abilities. PLCs fall closer to the learner-centered end of the PD continuum, as they generally focus on specific needs of a school and individual teachers. Stoll et al. (2006) identified five reasons why PLCs are effective: members have a common purpose, members are responsible to a group, members collaborate with one another, members are able to safely engage in reflection of practice, and learning is encouraged, both individually and as a group.

Sparks and Loucks-Horsley (1989) described a model of professional development in which teachers work together to design or improve programs. They described this model as assuming that teachers will work well together to address a need within their own teaching practice. PLCs address this assumption, as well as the assumption that involvement in important tasks is motivating to teachers (Sparks & Loucks-Horsley). Similarly, Hochberg and Desimone's (2010) examples of teachers grading student work and critically discussing and reflecting on teaching practices, meant to be examples of content-focused and connected professional development, mirror the work of many school-based PLCs. Stoll et al. (2006) found significant evidence of the effectiveness of PLCs in school settings. However, lack of leadership, personality conflicts, lack of purpose, and lack of time can lead to limited results from PLCs. A literature review by Blanton and Perez (2011) examined the effectiveness of PLCs specifically in special education. They concluded that PLCs provide excellent opportunities for effective professional development. The authors noted that PLCs provide a unique opportunity in inclusive settings for general and special education teachers to collaborate about curriculum and instruction for specific students and also provide opportunities for shared data analysis and instructional planning. They reflected that PLCs can shift the school culture to one in which general and special education teachers work collaboratively to address the needs of all students.

Small groups of teachers may also collaborate for types of professional development that are more individually paced, such as book studies. Sparks and Loucks-Horsley (1989) described this type of professional development as "individually guided", although teachers may undertake such activities in a group setting. Again, the opportunity for collective

reflection on practice and collaborative problem-solving can be extremely effective forms of professional development (Hochberg & Desimone, 2010).

***Coaching.*** Coaching has emerged as an effective model for providing teachers with professional development and falls on the learner-centered end of the PD continuum. As described earlier, many coaching opportunities arise following a more formal training session or workshop, but coaching can be effectively used in isolation as well. Sparks and Loucks-Horsley (1989) described coaching as “observation/assessment”, at the time of their publication, a practice not widely accepted because of its similar appearance to evaluation. However, non-evaluative feedback and the opportunity to critically reflect on practice with a trusted colleague is a strong form of assessment that almost always demonstrates positive results (Sparks & Loucks-Horsley). Recently, coaching has gained more popularity in schools and in research as an effective teaching model (NCSER, 2016).

Coaching is often done in the classroom of one teacher and the observer (coach) can be an administrator, a peer, or any other educator. Sparks and Loucks-Horsley (1989) recommended a pre-conference with the observer and the teacher being observed in order to establish on what aspect of the classroom the observer will collect data. This step helps to alleviate the “evaluation” feel of coaching, since the observed teacher will often be able to draw conclusions about his or her teaching directly from the data (Shidler & Fedor, 2010). A post-conference provides the opportunity to review the data, collaborate on what the teacher can do to improve outcomes, and engage in critical reflection. When coaching is attached to a newly acquired strategy, the post-conference provides the opportunity to reflect on how well the strategy was implemented and provide suggestions for further implementation. As stated earlier, coaching is associated with high levels of success for implementing new classroom



procedures and techniques effectively and consistently (Batt, 2010; Darling-Hammond, Hyler, & Gardner, 2017; Suhrheinrich, 2011). Coaching also provides the opportunity for individualized feedback and action steps, which aligns with LCPD.

Joyce and Showers (2002) suggested a different model of coaching, one in which the observer is “coached” by the teacher modeling or “coaching”. They recommended creating small teams to support one another in implementation of a new strategy and including classroom observations and data meetings to discuss classroom results. Although this varies from traditional coaching models, they support the idea of peer supports to best incorporate new practices.

Wood et al. (2016) studied how coaching can be an extension of professional development that serves to enhance the effects of PD. The researchers differentiated between two different types of coaching, evaluative and “side-by-side”. Evaluative or supervisory coaching is observation followed up by a feedback meeting resulting in specific action steps. Side-by-side coaching, in contrast, provides the opportunity for non-evaluative, constructive feedback that can be implemented immediately in the classroom. This can be extremely effective to ensure accurate implementation of a new strategy. The authors also concluded that most importantly, coaching leads to improved student outcomes. Likewise, McLeskey (2011) noted that the addition of peer coaching resulted in far more effective PD.

### **Conceptual Framework**

**Effective Professional Development components.** Despite the strong emphasis on student achievement and statutory directives to implement effective professional development (PD), few formal, consistent means of evaluating the effectiveness of PD exist (Desimone, 2009; Little, 1993). Specifically, most evaluation of PD is based on teachers’

perceptions of the PD, teachers' instructional behaviors following the PD, how the PD was presented, its content, and teachers' participation levels (Webster-Wright, 2009). Efficacy of PD can be measured in various ways, including using teacher surveys following a PD session, through classroom observations examining specific teacher behaviors, or through observation of a PD presentation. Interestingly, there is still a significant need for studies of the impact of teacher PD on student achievement (Desimone, 2009; Hochberg & Desimone, 2010). Despite the variability in evaluation of PD for teachers, and while there is not a recipe for fail-proof professional development, researchers have identified key components and common themes that significantly impact the effectiveness of professional development, regardless of the model used. Multiple studies over a 25-year time period have identified the same characteristics of effective professional development.

In 2009, Desimone published a frequently cited paper that focused on what makes PD effective for teachers. She eloquently pointed out that "understanding what makes professional development effective is critical to understanding the success or failure of many education reforms" (p.181). In this paper, Desimone described five components of effective professional development from the literature: (a) content focus, (b) active learning, (c) coherence, (d) duration, and (e) collective participation.

In 2010, Hochberg and Desimone proposed a more comprehensive framework for effective teacher professional development that included the five previously listed components (although they re-named "coherence" to "connections"), plus context, for a total of six components of effective professional development. Hochberg and Desimone also included a flowchart of how PD affects student achievement over time. Their model, among other frameworks for changing education through teacher professional development, is

highly individualized and, while thorough, does not describe how PD *looks*, but rather focuses on theory.

For example, McLeskey (2011) described components of Learner Centered Professional Development, based primarily on Joyce and Showers (2002) and Desimone's (2009) work. This model also closely aligns with Hochberg and Desimone's (2010) model. Additionally, these same components of effective PD also closely mirror Fullan's (2001) components in his framework for leadership. Therefore, effective PD does not always have to be structured in exactly the same way—different models may be effective in different contexts, especially when they incorporate the six components found across the frameworks. Below, I describe and explain the six components of effective professional development in detail.

***Content.*** The content or topic of the training is a critical component of any PD (Darling-Hammond et al., 2017; Desimone, 2009; Garet, Porter, Desimone, Birman, & Yoon, 2001; Hochberg & Desimone, 2010; Leko & Brownell, 2009; McLeskey, 2011). Content can cover a range of information, from specific subjects or educational standards, to instructional strategies, to data analysis, but it must provide information that is relevant and allows teachers to generalize the new understandings to their current practices (Little, 1993). Linder (2011) found that PD facilitators must demonstrate knowledge of and experience with the content of the PD in order to be credible to teachers.

The content and expectations for learning should be explicitly stated early in the PD session and all activities and discussions must concentrate on this central focus. As stated earlier, teachers have limited access to scholarly educational research. Professional development is a way to bridge the research-to-practice gap, providing useful, timely, and

meaningful information for teachers to implement in their own classrooms (Linder, 2011; Little, 1993).

McLeskey (2011) further explained that teachers must be provided with deep levels of knowledge about the PD topic. They must be able to not only understand what it is, but how to adapt it to their classroom and students. They need to understand the theoretical underpinnings and make connections between what they are learning and how students acquire new information. This is often lacking in special education PD specifically, and contributes to the low level of implementation of new practices in those classrooms (McLeskey).

Fullan's model includes Knowledge Creating and Sharing, a similar, although not identical concept (Fullan, 2001). Fullan's component focuses not just on the transference of information, but rather builds on relationships and moral purpose that he addresses first; knowledge is information with a personal twist, deeply entwined with both moral purpose and relationships. The key is recognizing that both frameworks use information and knowledge as a cornerstone to affecting change. New information is an obvious necessity for professional development, but also a critical part of lasting, meaningful change.

***Active learning.*** Described as inquiry learning by Little (1993) and alluded to by Linder (2011), teachers are most engaged within professional development and learning when they are active participants, rather than sedentary sponges soaking up new information. Active involvement includes practicing new skills, collaborating with colleagues, discussing new concepts, and engaging in activities (Garet et al., 2001; Hochberg & Desimone, 2009). Actual practice or modeling of the new skill allows participants to build muscle memory and provides teachers with the opportunity to practice rolling out the new procedure before trying

it in front of students; this opportunity is directly related to how well the teacher will be able to implement the practice in the classroom (Darling-Hammond et al., 2017; Leko & Brownell, 2009; Lemov, Woolway, & Yezzi, 2012; McLeskey, 2011).

Researchers have found multiple ways to include active learning in PD. Linder (2011) uncovered that a facilitator's use of activities and thoughtful discussion during professional development was key to being effective. Garet et al. (2001) included peer classroom observations, grading student work collaboratively, and leading small groups as examples of active participation in their analysis of effective professional development. Additionally, in order to develop deep levels of understanding, McLeskey (2011) described that videos or models of the practice should be included in the professional development.

The inclusion of examples beyond initial training assumes that professional development is continuous and ongoing, not a one-shot workshop. Additionally, the activities described by Garet et al. (2001) are meaningful activities that allow teachers to take new knowledge and generalize it to new situations. For example, perhaps a new instructional strategy has been presented and teachers are asked to collaboratively plan how they can implement the strategy and model what it will look like in front of colleagues before trying it out on the real consumers—students. Or teachers attend a professional development on using rubrics, and they work together within their departments to develop sample rubrics or evaluate student work using collaboratively designed rubrics.

Active involvement may also give teachers the opportunity to set goals or choose the PD content in which they are most interested. These authentic activities, whether completed with in-house colleagues or those from across several school sites, give meaning to the content and provide an opportunity for practice, increasing the possibility that teachers will

implement the practices independently when they return to their classrooms. As Webster-Wright (2009) summarized, “research findings have led to a general consensus that professionals learn from experience and that learning is ongoing through active engagement in practice” (p. 723).

Although viewed from a far more theoretical standpoint, Fullan’s (2001) model not only identifies components of effective leadership, but also recognizes that change requires movement—physical and mental actions from leaders and others within the organization. He identifies this movement as commitment, both external and internal. While commitment tends to initially focus on external motivations, such as policies or tangible reward systems, internal commitment follows, in many cases, once those involved realize that the action feeds their moral purpose. This is when teachers, for example, realize that EBPs will increase student achievement, they become excited to implement their new knowledge, they become active and engaged learners, and they take ownership of the change.

***Connections.*** Effective professional development is not another reinvention of the wheel. Instead, effective PD presents information that fits in with current reform practices, works with the current textbooks, and is aligned with educational standards (Garet et al., 2001; Hochberg & Desimone, 2010; Leko & Brownell, 2009). Originally described by Desimone (2009) as “coherence”, Little (1993) described this component as “plac[ing] classroom practice in the larger contexts of school practice and the educational careers of children” (p. 138). McLeskey (2011) explained that PD must align with teachers’ current beliefs and be relevant to their current needs within the school and district. Teachers know they must link new information to prior knowledge; likewise, PD facilitators must ensure that teachers understand how new information or a new practice fits in with practices or curricula

they have been using. It may replace an activity, it may adjust how instruction is delivered, or it may include use of a new technology. Regardless, teachers must be given the how and why something works and feel a sense of urgency to adjust their practices (Hochberg & Desimone, 2010). Additionally, the new reform must be practical and manageable. Fullan (2001) described the chaotic state of reform that education has endured for the last two decades. As a result, he included “coherence making” as a key component in educational leadership, further supporting the need for clear connections between the PD content and teacher practice. Linder (2011) similarly found that effective PD facilitators were aware of the latent wants and needs of teachers and provided material that was useful and could be applied as soon as the teacher returned to the classroom.

***Duration.*** Effective professional development takes time; teachers need time in order to ensure that the new knowledge is absorbed beyond a superficial level. The literature repeatedly emphasizes that to be effective, PD must continue beyond the initial training session (Desimone, 2009; Garet et al., 2001; Hochberg & Desimone, 2010; Linder, 2011; Little, 1993). Several models described previously incorporate ways to extend the PD, including follow-up sessions and providing additional support, such as coaching, in the classroom. Linder (2011) found that teachers who received workshop training without follow-up were less confident in their ability to properly apply learned techniques in the classroom and requested additional help from the facilitator. Extended time, including subsequent training, direct classroom support, or peer group activities (such as in study groups) allow teachers to internalize key components of the training, implement small changes and receive feedback, and truly begin to shift thinking, all of which move toward changing school culture (Darling-Hammond et al., 2017; Garet et al., 2001; Hochberg &

Desimone, 2010; Little, 1993). Klingner et al. (2013) found in their review of a study that used Peer-Assisted Learning Strategies (PALS) that “boosters” (e.g., scheduled meetings after school to follow up on previously taught professional development) supported teacher implementation of an evidence-based practice in the classroom. McLeskey (2011) explained that in special education PD specifically, the general lack of follow up and fragmented topics result in few lasting classroom changes following PD.

Continued development of skills over time is common in any field. Doctors spend years in the classroom, time in the field, and then continue to train under supervision after receiving their degree. Likewise, teachers spend time practicing teaching in the classroom before they teach independently. As teachers gain experience, teaching becomes easier and some techniques become automatic. When learning new information, however, teachers need the opportunity to practice the skill themselves, watch others model the skill, and practice again (Darling-Hammond et al., 2017; Lemov et al., 2012). Additionally, the opportunity to collaborate with colleagues and receive feedback is important to moving the teacher toward mastery of the new skill. This simply cannot be accomplished in one workshop, further supporting the need for any professional development to be ongoing (Garet et al., 2001; Hochberg & Desimone, 2010). Ultimately, Garet et al.’s (2001) results indicated that extended professional development, without considering other factors, is more effective, simply due to the additional time.

Another leadership quality Fullan (2001) included in his framework was Understanding Change. Although this is not equivalent to duration, he incorporated important ideas that are related to time. Most notably, Fullan advised that leaders “appreciate the implementation dip” (p. 34), the period of time following implementation of an



innovation during which progress seems to move backwards. This often happens as others try to resist change (in the case of schools, this could be teachers, parents, and/or students), pushing back to force the appearance of failure. This implementation dip could be extremely drawn out, even up to a year, but persevering through the use of various leadership styles is possible (Fullan).

***Collective participation.*** When implementing a new practice in schools, all teachers involved must be on board with the changes. At times, it is appropriate to only include one department, but the entire department must then be on the same page. Also, there may be a leadership team or small group that initiates the changes, but as time moves on, that team must bring the rest of the school into alignment. Doing so provides additional support to teachers from peers, encourages ongoing discussions of relevant topics, and provides a forum for problem solving (Garet et al., 2001; Hochberg & Desimone, 2010). Kensler et al.'s study (2011) demonstrated how full participation of all faculty members had a positive effect on implementing lasting changes, while a lack of full participation resulted in frustration for motivated participants and no change for non-participants.

Participating in professional development with colleagues who have similar needs and goals provides additional opportunity for further engaging in the content (Leko & Brownell, 2009; McLeskey, 2011; Waldron & Redd, 2011). Teachers can partake in peer observations, practice sessions, and solution-seeking discussions with coworkers in order to further their understandings and effective implementation of the new practices (Blanton & Perez, 2011; McLeskey, 2011; Waldron & Redd, 2011). When all members of a department or school are involved, this makes the collaboration natural and easy to accomplish.

Fullan (2001) noted the critical importance of relationships and collaboration with others. Truly, relationships affected each component of Fullan's model, perhaps impacting knowledge creation and sharing and coherence making most significantly. He also touted the benefits of building close relationships with those who disagree with the leaders at times, who will force the leader to continue considering different angles and ensure his or her decisions continue to be tied to the moral purpose of the organization. "We are more likely to learn something from people who disagree with us than we are from people who agree" (Fullan, p. 41). Additionally, change cannot occur without collective internal and external commitment from stakeholders. McLeskey (2011) cited further evidence that the addition of coaching significantly increases the effective implementation of new strategies presented in PD. McLeskey, as well as Darling-Hammond et al. (2017) also recommended that dedicated time be set aside to ensure teachers are able to collaborate during their regular work time.

***Context matters.*** Finally, the context in which the content of the PD is to be applied must be appropriately addressed. The students, the teachers, the demographics, the history of the school—all must be considered and professional development tailored to meet the needs of that particular school. Hochberg and Desimone (2010) included "contextual factors" and "contextual facilitators" in their model of professional development and noted that the context impacts every component of the model. They explained that these contextual factors influence how teachers and students interact and therefore, how teaching occurs. The PD facilitator's understanding of these individual school contexts, including challenges, school culture, and strengths, is necessary for successful professional development (Linder, 2011). McLeskey (2011) referenced this component as needing to "be consistent with teachers' knowledge and beliefs, as well as policies related to school reforms, standards, and

accountability that influence the local school context” (p. 29). Klingner et al. (2013) also highlighted that “[Comprehensive] PD includes a strong focus on the social and organizational context in which schools and districts adopt new practices rather than merely encouraging individual teachers to implement new practices independently within their classrooms” (p. 202). Fullan (2001) addressed context in his *Understanding Change and Coherence Making* components of leadership. First, the context must be understood and considered when planning for changes—understanding the change process includes “redefining resistance”, where leaders use those who resist change as change agents—helping the leader identify and act upon key areas of need.

Other contexts, including teacher background and education, require that PD be implemented in an individualized way: Little (1993) described several examples in which long-term reform required that teachers experience instructional changes in the same way that students do. One example included teachers re-learning mathematics in a conceptual way and another required that teachers understand how humanities studies tie in to other curricula. The teachers’ backgrounds in these examples did not provide the requisite knowledge needed to make appropriate connections, therefore, the PD included new knowledge and provided an opportunity for teachers to understand the new information, practice teaching it, and then receive additional support as needed through follow-up. Without the instruction for the teachers, these highly successful reform projects would have failed.

Similarly, teachers in rural schools face different challenges in teaching than teachers in urban settings. For example, in special education, there are fewer students with low-incidence disabilities in rural schools. As such, supports, training, and experiences with students with disabilities are typically limited and teachers may struggle to adequately

address appropriate education for all students (Berry, Petrin, Gravelle, & Farmer, 2011). In larger districts, additional support, larger populations of students, and access to resources is less of an issue. Again, context is key to determining appropriate supports and professional development for teachers.

## **Conclusions**

The educational system is complex and currently in need of significant, large scale changes to improve student outcomes. This is particularly true for students with disabilities whose post-school outcomes lag far behind their typically developing peers (Wagner, Newman, Cameto, Levine, & Garza, 2006). One of the current concerns is the lack of evidence-based practices being used in classrooms and teachers' genuine ignorance surrounding what are "research-based" instruction and strategies. Despite countless studies demonstrating causal relationships between strategies and student learning, teachers and administrators rarely collaborate with these researchers, resulting in a research-to-practice gap that fails our children. Even more disheartening is that these problems have been studied for over 50 years, but attempts to address the issues, including passing multiple laws, have made minimal impact in classrooms. Further complicating the research-to-practice gap is poor professional development opportunities for teachers. Often, EBPs are taught in PD workshops, but inconsistent and inadequate PD instruction and lack of follow up and coaching renders these attempts minimally effective.

Hope can be found between the journal pages, however. Researchers have uncovered common themes that can increase the effectiveness of PD, and even more exciting, these themes have not changed significantly over time. By putting together the research puzzle pieces, a solid, empirical base of knowledge exists of how to effectively inform and support

teachers in implementing evidence-based practices in all classrooms. Fullan noted “Moral purpose is usually accompanied by a sense of urgency” (2001, p. 9); the challenge now is to develop that sense of urgency in teachers to learn about and implement the strategies, to provide teachers with access to research of evidence-based practices, and to equip all school faculties with the support needed to carry out the newly learned knowledge.

## Chapter 3

### Method

In recent years, an increased focus on teacher accountability and effectiveness, as evidenced by standardized test scores, has put teachers in a difficult situation. Most teachers are eager to implement effective instructional strategies in their classrooms, but they may lack knowledge of the appropriate tools, access to the tools themselves, and time in which to plan implementation. The tools that are easiest to access often do not have empirical evidence to back their efficacy, but effective tools are often not easily accessible to or known by teachers. Additionally, professional development designed to provide access to effective, evidence based practices are often poorly planned and teacher implementation is weak (Little, 1993).

This purpose of this study was to develop, implement, and evaluate a curriculum-style professional development (PD) model in which teachers were not only educated about evidence-based practices (EBPs) and the significance of implementing EBPs in the classroom immediately, but teachers were given access to the necessary resources, including primary research articles and summaries of research studies, follow up coaching, and peer supports. The specific research questions addressed in this study were: (a) What are teachers' understandings of evidence-based practices? (b) What do teachers report about how they implement EBPs in their own classrooms, given EBP professional development over an extended period of time and with follow up coaching and support? (c) Given EBP professional development over an extended period of time and with follow up coaching and support, what do teachers report about choosing to use or discontinue use of EBPs in lesson

planning and everyday instruction? and (d) What do teachers report about participating in this type of PD?

### **Overview: Professional Development Model for the Study**

While several comprehensive models for professional development exist, I found those models to lack clear direction of how to implement a large-scale reform with a school or district (See Chapter 2). They focus on individual components of PD rather than providing instruction on how to develop a complete, sustainable approach to ongoing professional development. As such, I developed a comprehensive template for professional development, centered on EBPs, incorporating key components of effective professional development from the literature with the strengths of several of the models described. My model primarily focused on providing teachers with increased capacity to consume research and implement strategies with collegial support. In this way, instructional leaders can support teachers beyond learning the content of a few strategies; instead, instructional leaders can teach teachers to find the information about EBPs and implement these strategies collaboratively within a school.

My model was designed as a six-session curriculum, implemented over consecutive weekly sessions lasting approximately 50 minutes each. I conducted follow-ups to these sessions at curriculum team meetings held twice weekly during regular curriculum team meeting times. Curriculum team meetings are held twice weekly at the school where the study took place and provide individual departments time to review current student outcome data collaboratively and make curricular decisions. These teams are described in more detail below. The model included a combination of (a) workshop style (i.e., teachers attended a scheduled meeting with a planned agenda designed to impart new information), (b) peer

coaching (i.e., direct peer support to teachers in implementing the evidence-based strategies they selected), and (c) participation in a Professional Learning Communities (PLCs) (i.e., I provided follow-up support to teachers in regularly scheduled staff meetings, curriculum team meetings, that included collegial collaboration.). The combination of consecutively scheduled workshops with follow up collaborative work closely resembles an institute model of PD (see Chapter 2). Additionally, the components of effective educator professional development, as summarized earlier (see Chapter 2), were also addressed, as follows:

**Content.** Regularly scheduled curriculum team meetings provided opportunity for teachers to use instructional data to identify students requiring differentiated instructional practices and collaborate with colleagues to address varied levels of student achievement. This PD addressed *how* to differentiate the instruction and classroom practices using evidence-based practices. This is especially critical in an inclusive environment in which students with disabilities and students who are gifted are educated almost exclusively in the general education classroom. Teachers also learned how to identify strategies that can be implemented across individual units of study, content areas, and grade levels. Additionally, I implemented the PD and I have done extensive research on EBPs, ensuring the competency and knowledge of the presenter.

**Active learning.** The curriculum incorporated discussions and small group activities, as well as the opportunity to include real-life examples from the classroom. The primary means of transferring new knowledge was through presentations (i.e., direct instruction), but was supplemented with discussion questions and participation from teachers. Teachers had the opportunity to ask questions, provide examples, and collaborate with one another to deeply understand the content. Beyond the weekly presentations, teachers participated in peer



observations, and I organized PLCs based on the chosen EBPs, which met on Fridays immediately following the whole group PD. Within the PLCs, teachers not only read about the EBP they had selected to study, they discussed how to implement it in their classrooms, participated in peer observations of each other using the EBP, collaborated during curriculum teams to discuss the efficacy of the implemented instructional strategies, and often practiced with one another what implementing the strategy would look like within the classroom.

**Connections.** This curriculum incorporated recent changes to educational reform in the United States by focusing on evidence-based practices. Previously, both NCLB (2001) and the IDEA (2004) required that teachers use “scientifically-based instruction”, which has been updated to “evidence-based interventions” with ESSA (2015). Although *evidence-based* instruction differs from *scientifically-based* instruction, it is the opinion of many in the special education field that in fact, *evidence-based* instruction is more appropriate for students with disabilities, especially due to the research that exists in special education (Brantlinger et al., 2005; Emmons et al., 2009; Gersten et al., 2005; Horner et al., 2005; Odom et al., 2005; Thompson et al., 2005). Additionally, an increased focus on Common Core State Standards and decreased focus on boxed curriculum has left teachers redesigning many of their lesson plans from previous years. This PD presented an opportunity for teachers to examine and practice empirically proven strategies to present instruction to students.

Current trends in education have placed significant pressure on teachers to demonstrate teaching competence through student achievement. The best ways to educate students have been and continue to be thoroughly investigated by researchers in the field, and this PD curriculum showed teachers how to access that valuable information. Additionally,

the information presented did not require that teachers discard previous instructional strategies, but rather make small changes to current practices or activities. These changes could be easily implemented and are therefore, more likely to be used immediately (Brown, 1992).

**Duration.** The PD was a series of six weeks of instruction, with collegial collaboration and coaching between the weekly instructional sessions. While teachers could have requested additional support from the researcher/ trainer at any time and could also request support from the instructional coaches or principal, they did not access these resources during the study differently than or more often than they normally do.

Opportunities to collaborate with colleagues were built in with curriculum teams and peer observations, providing additional ongoing support for teachers, both during and following the study. This PD could be repeated yearly, either as separate, weekly sessions, as an in-service day prior to or during the school year, or it may also be adapted to address the learning needs of both new and returning staff. New staff could be trained separately, but collaborate with previously trained colleagues, or they could receive the same refresher training, but be more supported by colleagues in implementing the strategies.

**Collective participation.** All teachers in the school were involved in the PD. Teachers who did not wish to participate in the actual study were not included in data collection, but still participated in the PD. Full participation of all instructional staff (including instructional coaches) is key to implementing effective change in a school setting and it is also important that all students have access to highly trained teachers. If this curriculum were implemented again, for example, the principal could require documentation of evidence-based strategies within lesson plans, which should not lengthen the lesson plan,

but instead will indicate the strategies that have substantial evidence of effectiveness in empirical studies.

**Context.** The context of the school was addressed in this curriculum by structuring the PD in such a way that teachers defined any site-specific obstacles and found research that specifically addresses that obstacle. Since the content of the PD—evidence-based practice—is general and applicable to all schools, the school specific contexts were inherently addressed by individual teachers.

### **Setting**

The study took place in a charter elementary/middle/high school, grades kindergarten through second and sixth through eleventh, in a medium-sized city in the southwestern United States. Students are admitted to the charter school through a blind lottery, and parents choose to enroll students in the school instead of the neighborhood school. Each individual class enrolls no more than 30 students, with maximum grade level enrollments (for that particular year) as follows: Kindergarten, 60; first grade, 60; second grade, 90; sixth through eleventh grades, 120. All special education academic services are provided in the general education setting. Math and most reading classes used a co-teaching model with both a general education teacher and a special education teacher sharing classroom responsibilities. Some reading classes, as well as science, social studies, and elective classes use a collaboration model of inclusion, with general and special education teachers collaborating outside of class to address differentiation. Elementary students attended a reading and science/social studies class, a math and writing class, and a specials class (art or PE) daily. Middle school students attended five 85-minute classes daily, including two reading and math classes daily (one focused on grade level standards and the other focused on rebuilding

foundational skills), as well as science, success principles, and/or physical education every other day. High school students also attended five 85-minute classes daily, including daily reading, writing, and math classes, and science, social studies, and Spanish every other day.

### **Participants**

Participants in this study were a convenience sample of special and general education instructional personnel, including teachers and instructional coaches from a charter elementary/ middle/ high school in a medium-sized city in the southwestern United States. All teachers were licensed in the state as a special or general education teacher. All instructional staff from the school participated in the PD, as well as the instructional coaches, approximately 64 people altogether. Of this group 32 teachers and instructional coaches initially signed consent forms for participation in the study. Over the course of the study, four participants took jobs elsewhere and left the school, and therefore did not complete all study activities. (See procedures section below for a detailed description of participant recruitment procedures.) Participant demographics are represented in Table 2 below.

Table 2

#### *Study Participant Demographics*

Demographic Category	Demographic Responses	Percentage of Participants	Actual Number of Participants
Gender	Female	81%	26
	Male	19%	6
Ethnicity	Caucasian	69%	22
	Hispanic	13%	4
	African American/ Black	3%	1

Demographic Category	Demographic Responses	Percentage of Participants	Actual Number of Participants
	Native American/ Alaskan Native	0%	0
	Asian/ Pacific Islander	6%	2
	Other	3%	1
	More than one ethnicity	6%	2
Licensure	General Education, K-8	30%	10
	General Education, 7-12	34%	11
	Special Education	9%	3
	General Education, K-8 + Special Education	6%	2
	General Education, K-8 + Other	3%	1
	Other	9%	3
Licensure Level	Intern/ Provisional	9%	3
	Level I	28%	9
	Level II	16%	5
	Level III	9%	3
	Intern + Level 1	6%	2
	No response	31%	10
Years of Experience	0-3 years	53%	17
	4-7 years	25%	8
	8-12 years	9%	3
	13-15 years	9%	3
	16-20 years	0%	0

Demographic Category	Demographic Responses	Percentage of Participants	Actual Number of Participants
	20+ years	3%	1
Highest Level of Education	Earned Bachelor's	34%	11
	Working on Master's	16%	5
	Earned Masters	38%	12
	Working on Doctorate	6%	2
	Earned Doctorate	3%	1
	No response	3%	1
Is your highest earned degree in an education field?	Yes	66%	21
	No	28%	9
	No response	6%	2

## Design

**Design experiment.** I chose to use design experiment as the methodology for my dissertation study. Design experiment is a methodology that emerged in the early 1990s as a means of conducting educational research and has slowly gained popularity over the last 20 years (Brown 1992; Collins, Joseph, & Bielaczyc, 2004). The basis of design experiment is that a researcher determines a research question(s) related to an educational practice, drafts a plan and methods to address that question, but adjusts the methods as the study progresses. The intent is to continually refine a practice that meets the participants' needs, while it continues to address the research question.

Design experiments lend themselves well to the naturally unpredictable and unique environment of classrooms that must be flexible and adaptable (Brown, 1992). Children do not attend laboratories every day; they attend schools and classrooms within those schools. When working with such unpredictable participants in educational research, researchers must consider this relevant factor. Because researchers cannot fully control the actions of the participants, children and teachers, educational researchers must design a plan that can be adapted throughout the study, depending on the responses and actions of the participants (Collins et. al, 2004). Furthermore, researchers need to engage in research that is reproducible and generalizable to various, diverse classroom settings. Brown (1992) stated the following in regard to design experiment:

This is intervention research designed to inform practice. For this to be true, we must operate always under the constraint that an effective intervention should be able to migrate from our experimental classroom to average classrooms operated by and for average students and teachers, supported by realistic technological and personal support. (Brown, 1992, p.143)

Moreover, providing professional development to only a small group of teachers, therefore impacting only some students, raises ethical concerns about providing the best possible education to all students. Design experiment addresses these concerns by easily including all teachers and all students in every class. Design experiment also incorporates (documented) adjustments based on current feedback, similar to how classroom teachers must be able to adjust lesson plans to meet immediate student needs (Collins et. al, 2004).

While this study was intended to be a design experiment in which the weekly plan for the PD sessions was adjusted according to feedback from participants and the

needs of the group, the feedback received indicated that very little adjustment was needed week to week. The original PD curriculum outline addressed most issues brought up in participant surveys and changes that were made addressed how time was used (different from what was planned), eliminating some whole group sharing, or reducing the presentation time and content to provide additional PD time. Changes to the plan are outlined in Appendix A. I was able to note ideas for changing future PD, for example, adjustments to presentations and limiting choices of EBPs for the first round of PLCs (See study procedures below and Chapter 5).

### **Study Procedures**

Potential participants were notified of the study approximately one and one half weeks prior to the start date. During a daily faculty meeting, my doctoral advisor provided an informational flier describing the study to all potential participants, provided a basic summary of the study's purpose, and provided informed consent forms. She answered any questions regarding the study and offered her contact information for follow up questions. I collected completed consent forms as people handed them directly to me or placed them in my school mailbox. Potential participants could sign and return the consent at any time prior to the study's start date. Three days prior to the start of the study, I sent an email reminder to all teachers to return consent forms if they were interested in participating. Teachers who did not wish to participate were included in the PD, but data were not collected on their participation.

The participants and I met weekly for 50 minutes in the staff training room of the school during the professional development time that is built in to the schedule each morning, from 7:30 am to 8:20 am. Typically, the weekly professional development schedule



includes two days for curriculum team meetings (described later in this section), one day for grade level meetings, one day for an informational staff meeting, and one day that is flexible, based on the needs of the school at that time. This study's PD replaced the flexible day for six weeks during the fall semester and follow-ups were conducted during regularly scheduled curriculum team meetings. Curriculum teams at this school consist of content-specific teams (between 6 and 17 teachers per team, in this study) who review formative classroom data, including students' completed class assignments, short quizzes, and more formal common formative assessments (CFAs) and short cycle assessments. Teachers work collaboratively to analyze data and plan for instruction, given the outcomes of the data analysis (e.g., to discuss strategies for higher and lower achieving students). Teams meet twice weekly for 50 minutes and instructional coaches plan and lead their individual curriculum meetings. Each department meets in a different classroom, so there is rarely combining of departments for these meetings. During this study, the curriculum teams included a math team, a math II team (teachers who teach math intervention), a language arts team (reading and writing), and an elementary team.

The sequence of professional development activities was: each Friday meeting (whole group PD) introduced new concepts and started the new "week". Curriculum meeting follow-ups were held the following Wednesday and Thursday. I attended one curriculum meeting per department, per week, for 15-40 minutes, depending on the needs of teachers. This schedule resulted in presenting the new topic or concept immediately following the follow up meetings from the "week" prior. The whole group PD sessions consisted of an interactive presentation model in which I prepared a multi-media presentation, and then alternated between providing information, engaging in discussions with the participants, and providing

time for collaborating and reading resources and research. I actively involved participants and non-participants through questioning and open-ended discussions throughout each of these sessions.

All teachers (participants and non-participants) chose their EBPs during the first two follow up curriculum meetings. My follow up in the first curriculum meetings lasted 15 minutes or less. At the first curriculum meeting, I asked teachers to consider one aspect of instruction they would like to focus on changing in their classrooms. I gave examples, such as reducing problem behaviors, improving reading fluency, remediating academic skills, improving reading comprehension, and teaching algorithmic procedures. I directed instructional coaches (several of whom were participants in the study) in these meetings to consider department-wide issues they wanted to address, such as quality control of lesson plans and data, since they were not currently in a classroom teacher role. I instructed everyone to choose one area to address, and we discussed their ideas within the curriculum meeting.

My second follow up during curriculum meetings had a specific focus on the issues or strategies teachers wanted to explore; these meetings took 30-45 minutes for each department as teachers collaborated with one another about classrooms needs. Teachers divided into small groups within these meetings and focused on one issue or strategy they wanted to research and implement. As I progressed through each curriculum meeting, I was able to share groups that formed in other curriculum meetings, giving teachers the option to choose one of the established groups or make a new group focused on a new issue. Some co-teaching pairs decided to work in the same group, while others worked in two different groups. I officially formed PLC meetings at the third whole group PD, so that all teachers,

across departments, who were focusing on a specific topic could join one cohesive PLC. I listed all the groups on a presentation slide that I projected in the next whole group PD meeting so that people who had not fully determined an issue to address were able to choose a PLC. We continued this until every person was assigned to a PLC. Once PLCs were established, they met during the Friday, whole group meetings, following my interactive presentation (e.g., 10-45 minutes).

Throughout the study, teachers (participants and non-participants) were asked to complete surveys on their understandings of EBPs and the PD's relevance: first, following the first PD session; second, halfway through the study (after the third week's follow up curriculum meeting); and finally following the study. Two additional follow-up surveys were also conducted with participants only. See Table 3 below.

Table 3

*Survey Timeline*

Survey	Date Administered
Initial Survey	Week 1
Mid-Study	Week 3
End of Study	Week 6
Follow up 1	Week 9
Follow up 2	Week 19

All whole group PD meetings (not curriculum meetings) were audio-recorded in order to provide a record to use when reviewing each week's meeting. Although I did record the meetings, I did not listen to them or use them for reflection purposes. Instead, I took notes

during the PD meeting and subsequent curriculum meetings and used these to reflect on the meetings and how content and activities could be adjusted to meet the needs of the teachers. The whole group, Friday PD meetings consisted primarily of me presenting information and the PLCs' work; my discussions with teachers within the PLC groups and curriculum teams were focused more on specific strategies, less on what was actually taught during the PD. Therefore, I felt the notes captured the details of possible changes more so than the audio recordings.

After the first two curriculum team follow-up meetings, I used the curriculum time to provide follow-up feedback and support to teachers in the implementation of EBPs they had chosen to study. As described above, in the first two curriculum team meetings, I worked with teachers to determine which issue to address in the classroom as well as some ideas for possible EBPs. In subsequent curriculum meetings, after EBPs and PLCs were established, I provided follow up support in the form of discussions regarding possible EBP solutions to student learning needs identified by team members through examining the data, refining the implementation of EBPs, or identifying a need for an EBP.

### **EBP Topics**

Participants chose their own EBPs to study, based on what they felt needed to be addressed in their classrooms; I divided all teachers into professional learning communities (PLCs) based on those EBP topics. Only 30% of the chosen topics focused on academics, while 70% of the topics chosen focused on behavior and classroom management. Teachers (participants and non-participants) chose these EBP topics to complement and enhance procedures already inherent in the school's culture. I did provide suggestions and ideas as requested by teachers.

Teachers (participants and non-participants) chose from the following classroom management topics: (a) Routines and Procedures (i.e., implementing consistent classroom procedures), (b) Self-Monitoring (for redirection, i.e., student maintains personal data for the number of redirections in class), (c) Self-Monitoring (for significant, problematic behaviors), (d) Narrate the Positive (i.e., teacher provides positive, verbal praise for students who are following the expectations), (e) Narrate the Positive with Routines (i.e., teacher provides positive, verbal praise for students who are following the expectations for routines in the classroom), (f) Mindfulness/ Self-Regulation (i.e., students are provided specific instruction to monitor their emotional/energy state and use and are taught strategies to maintain a level conducive to learning), and (g) Movement/ Engagement (i.e., incorporating movement into classroom activities in order to increase student engagement). Additionally, teachers chose the following academic topics: (h) Vocabulary Instruction (i.e., explicit instruction in vocabulary), (i) Formative Assessment (i.e., ongoing assessment to drive instruction), and (j) Discussion Methods (i.e., learning through planned and intentional questioning and large group discussion). All teachers in the school participated in the PD but only some participated in the study; study participants were included in each of the PLC groups.

### **Curriculum Outline**

This section describes the actual content for each week of the PD. Since design experiment requires adjustment as indicated by participants and/or the researcher as a study progresses, the actual content had the potential to change during the course of the study. A comparison of the originally planned content and the actual content is provided in Appendix A. The PD sessions took place on Fridays, with follow up curriculum meetings on the following Wednesdays and Thursdays.

**Week 1 PD Training Objective:** Instill in teachers an urgent need to use EBPs in their classrooms.

The interactive presentation defined evidence-based practice and distinguished EBP from popular practice and “tried and true” teaching methodology.

1. Small group activity: Jeopardy!
  - a. Participants created four teams based on seat location in the room and played Jeopardy!
  - b. Jeopardy! was focused on the history of ESEA/ NCLB, IDEA, current legal requirements, and the definition of EBPs and other closely related terms. It was intentionally designed to be difficult and somewhat confusing for participants, as a means to illustrate the complexity and urgent nature of the problem.
2. PowerPoint presentation outlining increased accountability, NCLB/ IDEA requirements, research-to-practice gap, EBP terminology.
3. Examples/ non-examples of EBP (definitions, curricular claims/folklore/actual research).
4. Why is EBP use imperative and urgent? Preview of what the PD would cover.
5. Initial survey (i.e., a survey focused on participants’ current understandings of EBPs).

**Week 1 Curriculum Meetings:**

1. Discussions about pinpointing issues that continually come up in data (e.g., fluency problems, recalling algorithmic procedures, recalling details of a reading passage, answering WH questions, remedial skills).

2. Teachers discussed issues with colleagues. Some teachers decided their focus, others continued to consider ideas.

**Week 2 PD Training Objective:** Provide basic information to teachers about EBP resources available (i.e., databases that include links to scholarly articles on evidence-based practices) and how to include scholarly reading as part of their professional duties.

1. I presented an interactive presentation of current resources available, including:
  - a. What Works Clearinghouse
  - b. Best Evidence Encyclopedia
  - c. Proven Practices Network
  - d. Teaching LD
  - e. Council for Exceptional Children
  - f. Visible Learning by John Hattie
  - g. Marzano
  - h. Professional/scholarly literature (including Google Scholar and ERIC)
2. Teachers spent about 12 minutes looking through resources to find a possible intervention to address the academic or behavioral concerns in their classrooms.
3. I provided teachers with a handout that included helpful EBP resources, short descriptions as appropriate, and websites.

**Week 2 Homework:** Teachers (participants and non-participants) emailed the researcher interventions or EBPs of interest and the citations for related articles. I accessed these additional resources and provided them to the teachers via email (e.g., A teacher in a

PLC told me about a strategy she or he had read about and wanted to implement, such as Socratic methods of discussion. I found information about the strategy, through one of the online resources and/or professional journals. I emailed this information back to the teacher.).

**Week 2 Curriculum Teams:** I met with each curriculum team for 30-45 minutes, with the objective of narrowing the teachers' (participants and non-participants) foci and choosing an EBP to implement. I gave specific examples of possible topics in academics and behavior. The reading and math departments tended to create grade level teams within their curriculum groups to focus on one strategy. I instructed teachers to create or determine an assessment tool they could use to monitor students' progress related to the chosen EBP, and create or determine a data collection tool to organize the results of student assessment data. While I gave teachers direction to create a data collection tool, I did not check or have teachers turn in evidence of their data collection.

**Week 3 PD Training Objective:** Create a Professional Learning Community, research, and begin!

1. I presented a short presentation on PLCs, the research behind their use, our PLC norms, and the purpose of PLCs in this study. Teachers added quality ideas for group norms.
2. Teachers selected a PLC based on the targeted student skill and specific EBP they had chosen to implement during the study:
  - a. Most PLCs were determined at curriculum meetings prior to the Week 3 training. These PLCs were provided as options for teachers who had not yet chosen an EBP to focus on.



- b. Each PLCs had between three and eight teachers participating, not necessarily from the same content area (e.g., some PLCs had people from both math and language arts departments). Co-teachers were encouraged to join the same PLC, but not all pairs did.
  - c. Each elementary grade level team worked together as one PLC on one strategy.
3. PLCs moved to separate rooms to work. Teachers in each PLC requested resources and planned together how to implement the EBP in their classrooms.

**Week 3 Homework:**

1. I directed teachers (participants and non-participants) to complete a baseline assessment of their students' performance of the skill they had chosen to focus on and prepare to implement the EBP with that skill within one week.

**Week 3 Curriculum Teams:**

1. Participants completed the mid-study survey.

**Week 4 PD Training Objective:** Participants reflected on their implementation of the selected EBP and shared this with the PLC.

1. Researcher provided a short presentation on how to conduct peer observations (using Joyce and Showers' [2002] ideas of the observer as the "coached" and the teacher being observed as the "coach").
2. Participants read and shared additional research and primary source information with their PLCs.

3. Participants planned at least one observation with another teacher for the following week.

**Week 4 Homework:**

1. Teachers (participants and non-participants) observed at least one teacher also implementing the same EBP and debriefed about the observation. Debriefing should have focused on the effectiveness of the strategy, including academic and behavioral progress of students, and details about how to most effectively implement the strategy in the classroom. This step was not monitored for individual teachers.
2. Teachers (participants and non-participants) continued to collect data on student achievement.

**Week 4 Curriculum Teams:**

1. Teachers (participants and non-participants) checked in briefly with the PLC members.
2. Teachers (participants and non-participants) shared data on student achievement.
3. Teachers (participants and non-participants) had the opportunity to choose to make adjustments to their implementation, as suggested by PLC colleagues.

**Week 5 PD Training Objective:** PLC collaboration and follow up, additional information and review if needed.

1. No formal presentation given, just a brief whole group discussion reviewing EBPs being implemented, discussing/giving support in data collection, sharing what was working and struggles.

2. Teachers divided into PLC groups, and I went from group to group to check in and give guidance or support as needed.

**Week 5 Homework:**

1. Teachers (participants and non-participants) continued implementation and data collection.
2. Teachers (participants and non-participants) completed another observation and debrief with a PLC colleague.

**Week 6 PD Training Objective:** Wrap up/Sharing results/Maintenance

1. PLCs individually reported out about their EBP and data.
2. Teachers (participants and non-participants) were encouraged to sign up for email updates from resources (including *Teaching LD* and *Best Evidence Encyclopedia*).
3. Teachers (participants and non-participants) played Jeopardy! from the first week, to review what they learned.
4. Teachers (participants and non-participants) completed the post-study survey.

**Follow up:** I provided follow up surveys to participants 3 weeks following the study and again 13 weeks following the study. I copied a reminder note to the back of each follow up survey, asking participants to complete the survey and return to my staff mailbox. I numbered each survey on the corner of the paper and put a corresponding number next to the participant's name on a staff list. When each survey was returned, I tore off the number from the survey (before reading it), and marked off the corresponding number next to the participant name. By using this strategy, I was able to follow up with participants who did

not return follow up surveys by placing an additional survey in their staff mailbox or reminding them verbally to complete the follow up survey.

### **Data Collection**

I used multiple sources to collect both qualitative and quantitative data in this study. Participant responses were primarily gathered through surveys that included both Likert-scale questions and short answer responses, during and following the study. Additionally, I made notes, created personal researcher reflections, and summarized participant comments and questions obtained during the whole group PD and curriculum meetings and collected them in a researcher's journal. During curriculum team meetings, I also took notes in the researcher's journal related to teacher-reported areas of need and positive and negative results of implementation, in order to support the implementation of the EBPs, as well as reflections about how the PD session went and what might be considered for future sessions. The following week's presentation was adjusted accordingly, based on my reflection, notes, and survey responses (See side-by-side comparison of planned activities and presentations and actual activities and presentations in Appendix A). The researcher's journal and an electronic spreadsheet were used to collect participant responses to survey questions, analyze data, and answer the research questions. Using a combination of the researcher's journal and the surveys' qualitative and quantitative data, I was able to address my research questions and determine the effectiveness of the professional development on teachers' understanding and use of EBPs in classrooms.

**Surveys.** Surveys were administered five times throughout the study to determine pre-study knowledge, post-study knowledge, and social validity data, to solicit feedback from participants, and to provide insight to answer the research questions posed by the study. I

included both Likert scale and short answers questions in each survey. All teachers (participants and non-participants) completed a survey following the first professional development presentation, following the entire professional development sequence, as well as a survey halfway through the study. Participants used a special notation to indicate on the survey that their survey form should be included in data collections (i.e., by placing an asterisk on the top of the paper). Participants also completed two follow-up surveys three and 13 weeks after the study. See Table 3 above.

In line with the design experiment methodology of the study, I solicited feedback from all teachers (participants and non-participants) within the study surveys about how to adjust the PD. See copies of the surveys in Appendix B and a side-by-side comparison of the planned versus actual activities in Appendix A.

**Data analysis.** Once I received each set of surveys, I sorted them into “participant” and “non-participant” piles. I read through all surveys, but used only the participant surveys to make notes and reflections in the researcher’s journal. I then created an electronic spreadsheet to record each survey question, possible responses, and the quantity of each response. I also recorded verbatim each short answer response into the spreadsheet.

**Trustworthiness.** I addressed the trustworthiness of the data analysis in multiple ways. First, I used multiple sources of data to address triangulation. Specifically, I used quantitative data (obtained through Likert-type survey questions) and qualitative data (obtained through short answer survey questions), as well as a researcher’s journal in which I recorded notes from research activities and reflections of the process. Using these multiple sources allowed confirmation of themes and findings across data sources, strengthening the credibility of the results. Throughout the analysis, my committee member, Dr. Elizabeth

Keefe, also reviewed the sorting of participant responses to the open-ended survey questions. Based on her review, we discussed any differences in how responses were sorted, and with her support, I re-sorted responses, collapsed categories, and analyzed emerging themes. This carefully sequenced process helped to reduce potential bias on my part in determining the key themes across data sources, further strengthening the trustworthiness of the findings.

***Quantitative analysis.*** Once I had received all completed surveys, I combined Likert/ quantitative data for each survey. I constructed graphs to show responses over time and used visual and descriptive analysis to draw conclusions about the data. I used descriptive statistics to summarize and describe the quantitative data collected from the surveys (i.e., the Likert scale data).

***Qualitative analysis.*** I used thematic analysis to analyze qualitative data from the short answer questions (e.g., What was most useful?). First, I read through each comment and typed it verbatim into the electronic spreadsheet, next to a copy of the individual question. I organized the spreadsheet by survey with a different tab for each survey. I then copied each survey answer, including the question it addressed (since many responses were not clearly linked to a specific question; e.g., “PLC time” would have been a reasonable response to several questions) on to index cards, with a different color index card for each survey. I sorted each comment into categories with other comments that were similar in meaning. I then defined and named each category, such as teacher benefit or student benefit. For each subsequent survey, I used constant comparison to sort responses, maintaining categories and subcategories already determined, but also adding new categories and subcategories as they emerged. After I completed the analysis for all surveys, I re-sorted the

responses with all categories and subcategories. Some responses fell into multiple categories and were included in both.

## Chapter 4

### Results

The purpose of this study was to examine the following: (a) What are teachers' understandings of evidence-based practices (EBPs)? (b) How do teachers report how they implement EBPs in their own classrooms, given EBP professional development (PD) over an extended period of time and with follow up coaching and support? (c) Given EBP professional development over an extended period of time and with follow up coaching and support, what do teachers report about choosing to use or discontinue use of EBPs in lesson planning and everyday instruction? and (d) What do teachers report about participating in this type of PD? These questions were addressed through both quantitative data obtained from Likert scales and qualitative data also included on surveys.

First, I will report the quantitative data obtained from the surveys. Next I will summarize the process used to analyze open-ended survey question responses. Finally, I will discuss the themes that arose from analysis of the qualitative data.

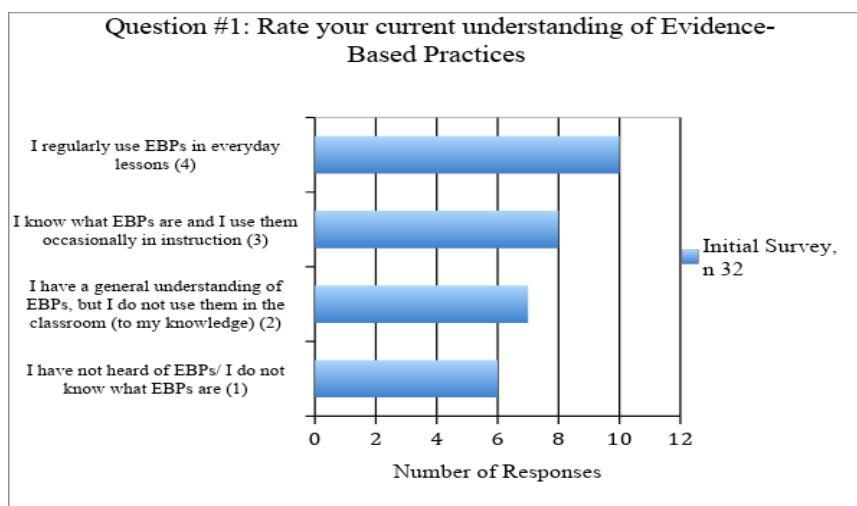
#### Surveys

The initial survey, labeled "initial-survey" in Appendix B, was administered in week 1 immediately following the first PD session. The mid-study survey was given week 3, and the end-of-study survey was administered week 6, following the last day of the PD. Follow up surveys were administered week 9 and again week 19. See Table 3 in Chapter 3.

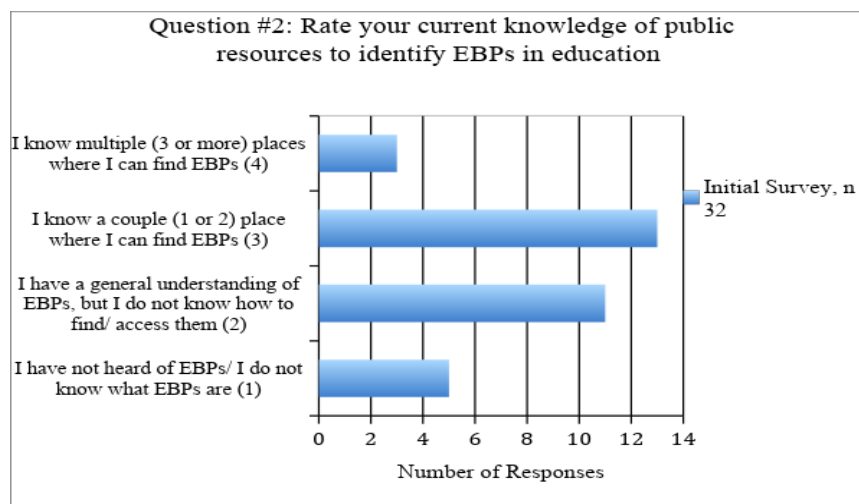
**Initial surveys.** The initial survey was given to participants immediately following the first day of PD. I received 32 surveys back, which included all participants. The majority of the respondents (81%) to Question 1 indicated at least a general understanding of EBPs on the question about current understandings of Evidence-Based Practices (see Figure 2).



Participants' answers ranged from one to four with a mean of 2.73, with 31% of teachers reporting that they use EBPs in everyday lessons. This result is seemingly contradictory to responses to the next question, which asked participants to rate their current knowledge of public resources to identify EBPs in education. Participants' responses to Questions 2 ranged from one to four with a mean of 2.44 (see Figure 3). Nearly 70% of respondents indicated that they either did not know how to access EBPs or knew of only one or two places to access them. This could indicate that professional development in EBPs is necessary for teachers to properly implement them. It also raises the question of how teachers were implementing EBPs in their classrooms, as indicated by the response to Question 1, when they did not know how to access the needed resources. One possibility is that participants defined EBPs as the daily PD at the school in which the study took place. In this case, participants may not be necessarily using scholarly literature and resources to find EBPs. Possible explanations for this finding are further discussed in Chapter 5.

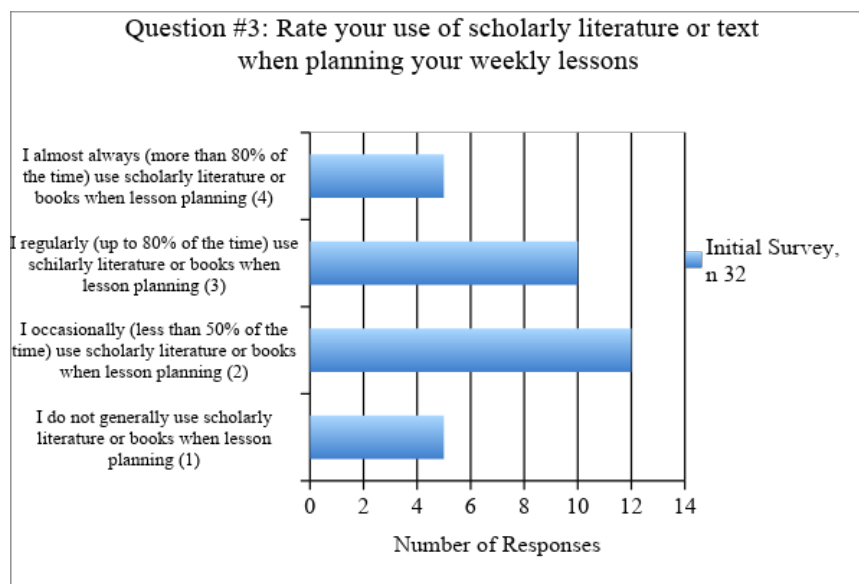


*Figure 2: Initial Survey, Question 1.*



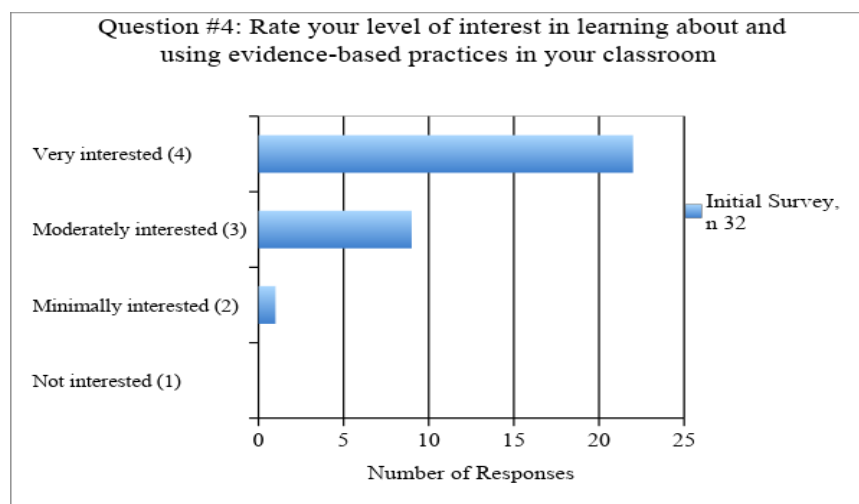
*Figure 3: Initial Survey, Question 2.*

Closely linked to the previous question, Question 3 asked participants to rate their use of scholarly literature or texts when planning weekly lessons. Participants' answers ranged from one to four with a mean of 2.47. Question 3's answers aligned with the responses from Question 2, supporting the results that teachers do not know how to access resources and consequently, a majority of respondents indicated that they use EBPs less than 50% of the time in their lesson planning (see Figure 4).



*Figure 4: Initial Survey, Question 3.*

Finally, respondents to Question 4 reported a high level of interest in learning about EPBs (see Figure 5). Their responses ranged from two to four with a mean of 3.66, and it should be noted that only one response indicated “minimally interested”, with 97% of responses falling under “moderately” and “very interested”.

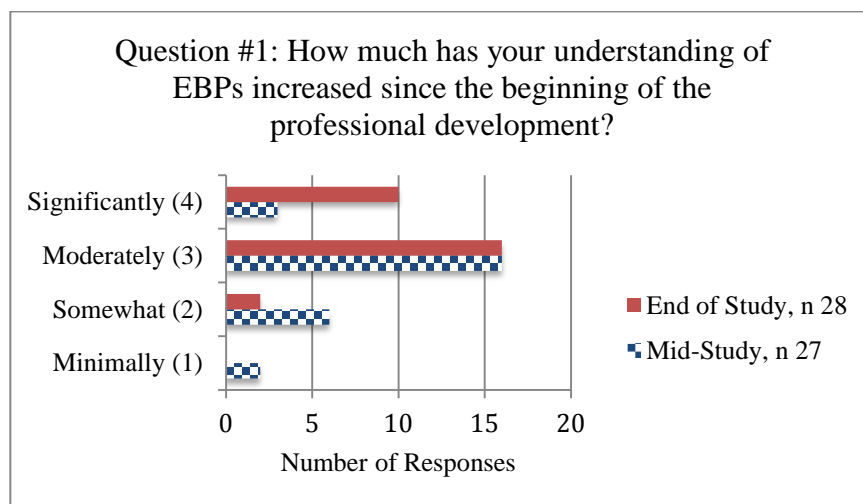


*Figure 5: Initial Survey, Question 4.*

This survey also included a short answer question: Why is the use of evidence-based practice important in everyday classroom instruction? The answers were coded and emerging themes are discussed in a later section.

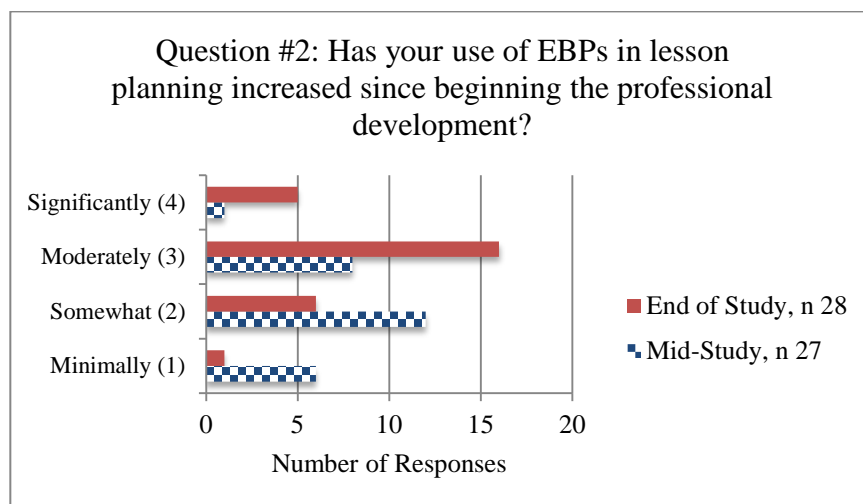
**Mid- and end-of-study surveys.** The mid-study survey was given on Week 3, and I received 27 surveys back. The end-of-study survey was presented following the final PD session in Week 6 and used the same questions as the mid-study survey. I received 28 end-of-study surveys back. The surveys are available in Appendix B.

Question 1 asked how much participants' understandings of EBPs increased since the beginning of the professional development. Participants indicated overall increased perceptions of their own understandings over time, with the mid-point survey responses ranging from one (minimally) to four (significantly) with a mean of 2.74 and the end-of-study survey responses ranging from two to four with a mean of 3.29, as indicated in Figure 6. While the number of "moderately" responses remained the same over the two surveys, in the mid-study survey, 30% of responses indicated the PD "minimally" or "somewhat" increased their understanding while in the end-of-study survey, only 7% indicated their understanding increased only "somewhat" and 0% indicated "minimally."



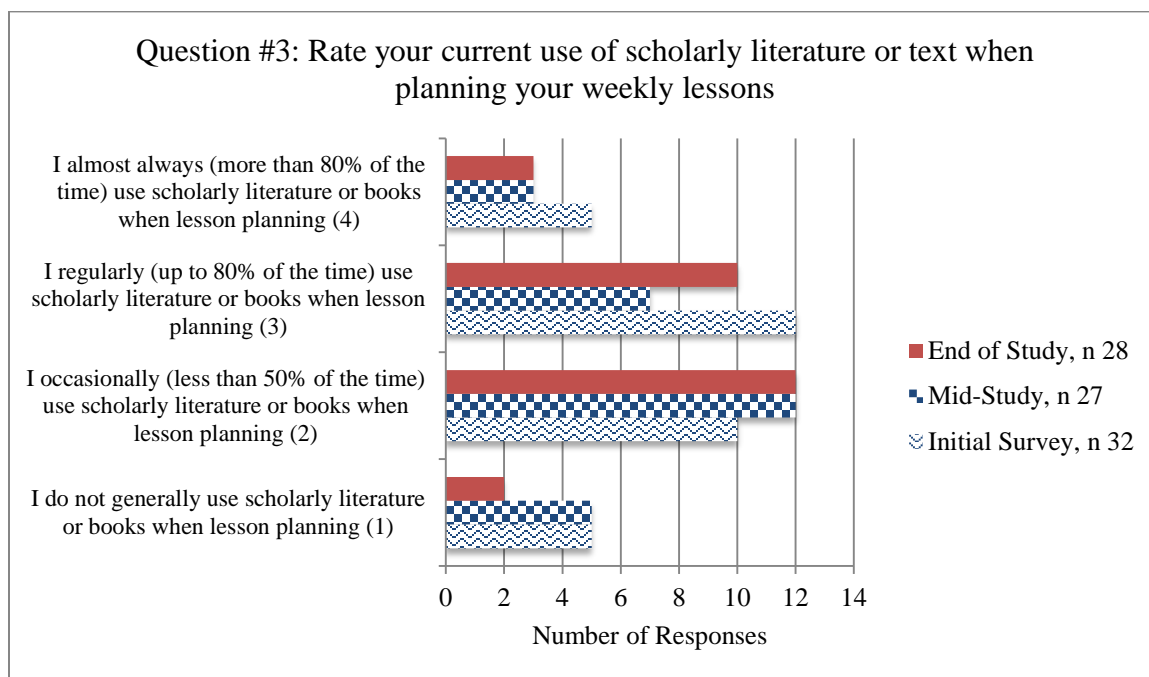
*Figure 6: Mid- and End-of-Study Surveys, Question 1.*

With increased understandings, responses to Question 2 indicate more frequent use of EBPs in lesson planning since the beginning of the professional development. Results ranged from one to four in the mid-study survey responses with a mean of 2.15 (see Figure 7). This increased to a mean of 2.89 in the end-of-study survey, with the same range of one to four. A visual analysis of the graph reveals that 75% of the respondents in the end-of-study survey indicated their use of EBPs in lesson planning increased moderately or significantly compared to only 33% in the mid-study survey.



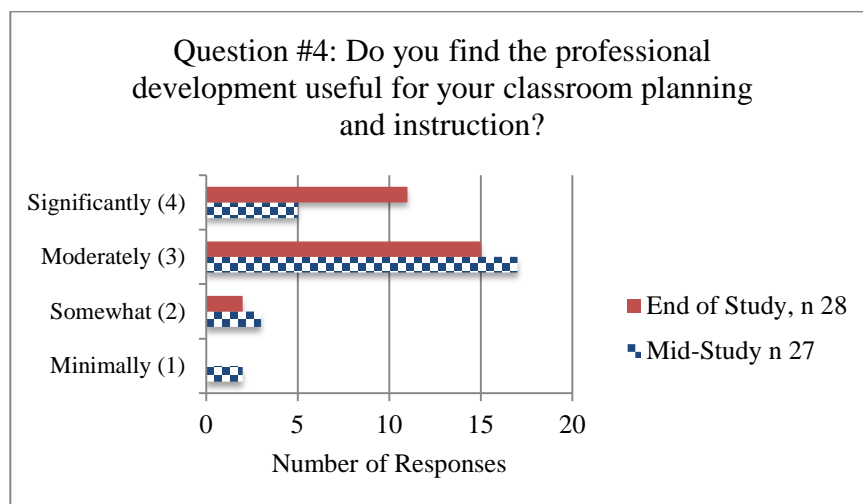
*Figure 7: Mid- and End-of-Study Surveys, Question 2.*

Once immersed in professional development, participants' ratings of their current use of scholarly literature or text when planning weekly lessons decreased from their preliminary reports in the initial survey. Participants' answers to Question 3 ranged from one to four on both the mid-study and end-of-study surveys with means of 2.30 and 2.52 respectively (see Figure 8). Although there is no discernable change in means from the initial survey to the end-of-study surveys (means of 2.47 and 2.52 respectively), the mid-study to end-of-study results indicate that regular and frequent use of scholarly literature increased from 37% to 50% of participants. It is possible that participants rated their use of EBPs and scholarly literature artificially high in the initial survey due to lack of understanding of EBPs. As participants increased their understandings of EBPs and resources over the course of the PD, this may have resulted in more accurate reporting of their actual use in the later surveys.



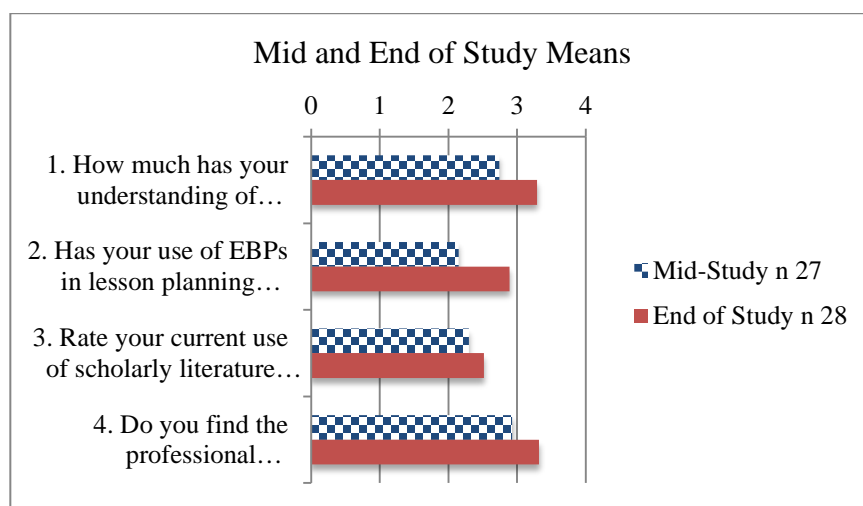
*Figure 8: Mid- and End-of-Study Surveys, Question 3.*

Finally, on Question 4 participants responded positively when asked if they found the professional development useful for classroom planning and instruction. The answers ranged from one to four on the mid-study survey with a mean of 2.93 and increased to a mean of 3.32 for the end-of-study survey with a range of two to four (see Figure 9). Participants overwhelmingly reported that they found the PD useful for planning and instruction in their classroom, as indicated by reports of moderate to significant usefulness increasing from 81% in the mid-study survey to 93% in the end-of-study survey.



*Figure 9: Mid- and End-of-Study Surveys, Question 4.*

Figure 10 shows the overall means for responses on each question of the mid and end-of-study surveys. A visual analysis indicates an overall positive trend with increased mean scores over time. The change in means between mid and end of study was smaller on the question regarding use of scholarly references than for other questions; mean ratings of participants' reports of their understanding of EBPs and use of EBPs was more pronounced and indicated a larger change.

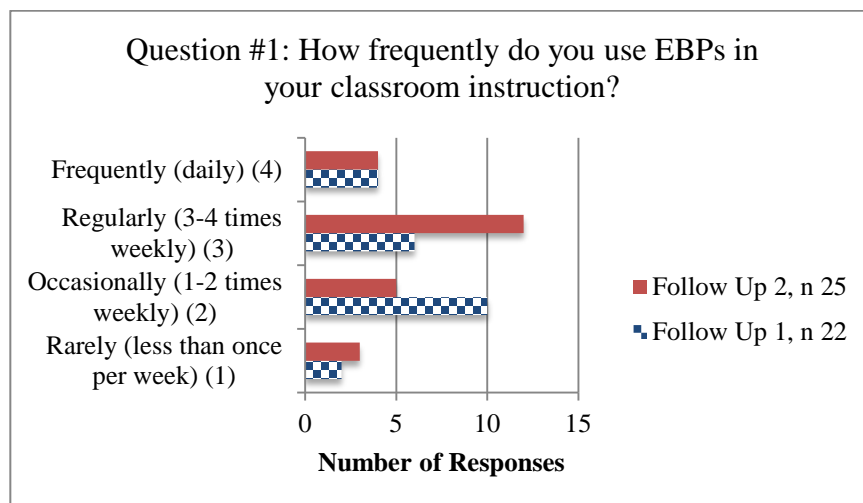


*Figure 10: Mid- and End-of-Study Surveys Mean Responses.*



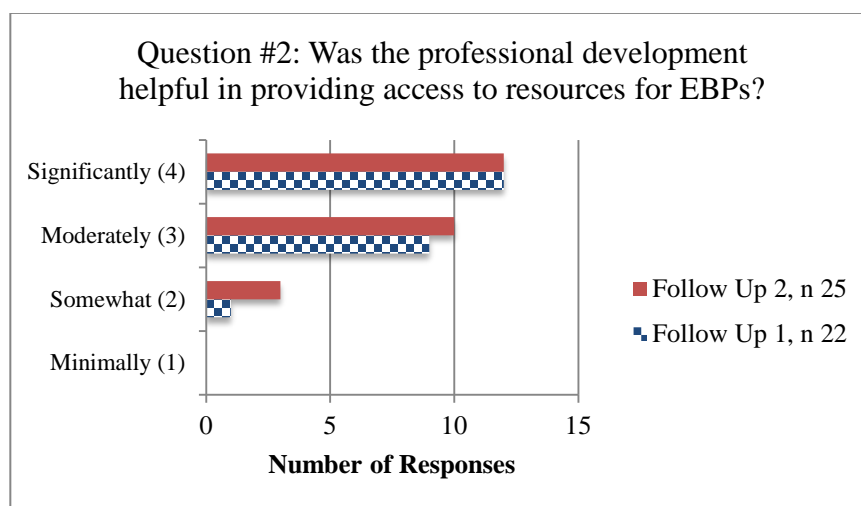
These two surveys also included two short answer questions: (1) What has been the most useful part of the professional development, and (2) What suggestions do you have to make the professional development more relevant and/ or engaging? I coded these responses and used thematic analysis to analyze them; these findings are discussed in a later section.

**Follow up surveys.** Follow up surveys were administered 3 and 13 weeks following the final PD session. Questions remained the same for both follow up surveys. I received 22 follow up surveys for the first round and 25 the second round. Question 1 asked how frequently participants used EBPs in their classroom instruction, their answers ranged from one to four with a mean of 2.55 for the first follow up and 2.74 for the second follow up (see Figure 11). Again, although the means themselves do not differ widely, only 45% of participants' responses indicated regular to frequent use of EBPs in classroom instruction in the first follow up, whereas 64% of their responses in the second follow up indicated regular to frequent use of EBPs in classroom instruction, suggesting that use of EBPs increased over time, even several weeks after the professional development sessions were over.



*Figure 11: Follow up Surveys, Question 1.*

The second question asked participants if the professional development was helpful in providing access to resources for EBPs. Participants reported answers ranging from two to four with a mean of 3.5 in the first follow up and 3.36 in the second follow up (see Figure 12), with 95% of participants' responses indicating moderate to significant usefulness in the first follow up and 88% in the second. Although there was not a noteworthy change in responses over time, the results suggest that participants did find the professional development useful and they learned how to access EBPs. Participants indicated overall that they both learned new knowledge of EBPs and, very importantly, they are using the knowledge in their classroom instruction. This is an important and positive outcome from the professional development that potentially increases student access to EBPs. Figure 13 shows the means for the quantified follow up survey questions.



*Figure 12:* Follow up Surveys, Question 2.

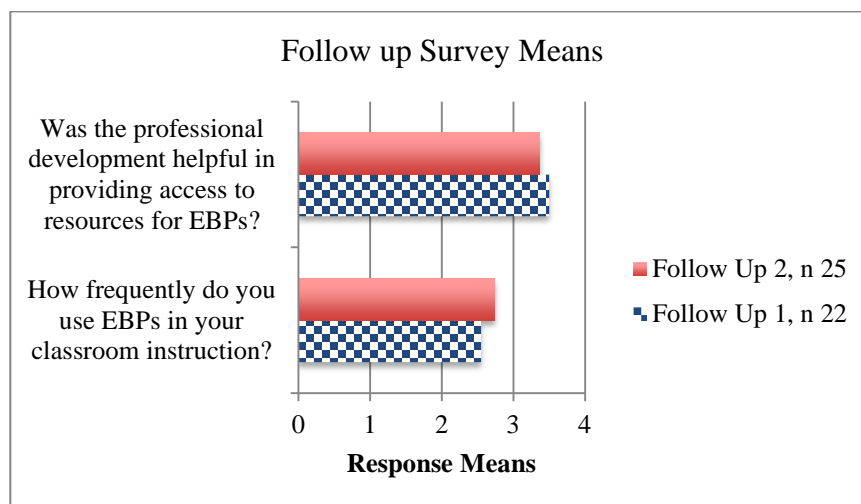
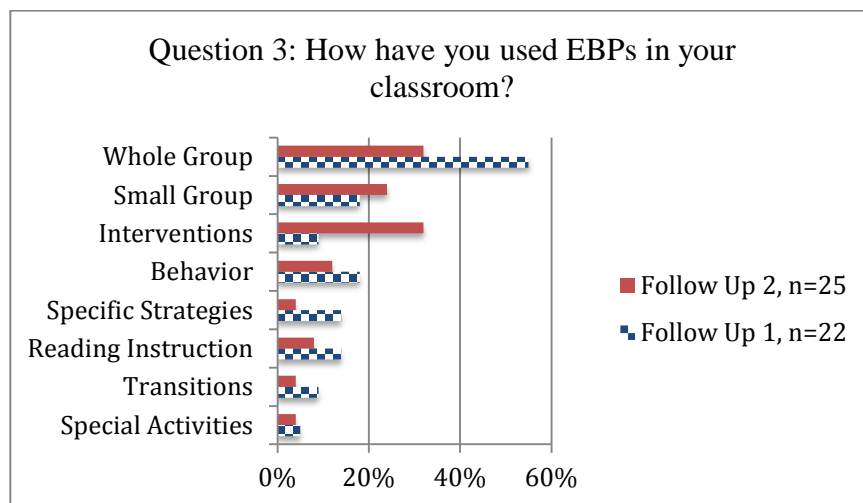


Figure 13: Follow up Survey Means.

**Quantified short answer results.** Follow up surveys also included a question that asked participants how they used EBPs in the classroom. This question included examples such as: as a regular part of whole group or small group activities, as an intervention, or when doing special activities. Although this was intended to be a short answer response in which participants would describe how they used EBPs, participants seemed to view it as a multiple choice question and circled one or more of the examples, while also writing in additional responses as appropriate for their situation. Therefore, I have quantified the responses here. Multiple responses were often included for this question, therefore, results are presented as percentages of total responses to this question for each example. Whole group instruction was reported as the most frequently used opportunity to implement EBPs, with 55% of participants reporting using EBPs in this format in the first follow up and 32% in the second follow up survey. Other categories fluctuated in frequency between the surveys and details for each can be found in Figure 14. Overall, participants reported using EBPs most frequently for whole group instruction, individual student interventions, small group activities, and classroom or behavior management. Most importantly, these results indicate

that participants used EBPs for a variety of classroom activities and adjusted according to classroom needs.



*Figure 14:* Follow up Surveys, Question 3.

Both follow up surveys also asked participants what was the most useful part of the professional development, again, with provided examples (working with a small team, reading professional literature, peer observations). Although this was intended to be a short answer question, many participants responded by circling or otherwise selecting the provided examples. More participants did include their own responses to this question than they had done to the previous question. Results indicated the following parts of the PD were most useful: working with others (including working with a small team and peer observations): Follow up 1: 82%, Follow up 2: 76%; and resources (including reading professional literature): Follow up 1: 23%, Follow up 2: 36%. Figure 15 illustrates all reported responses. These results have important implications for future PD, as described in Chapter 5.

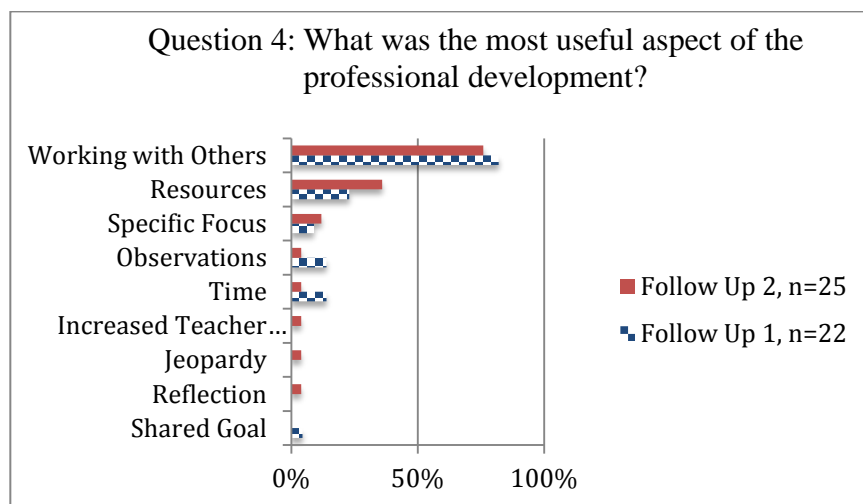
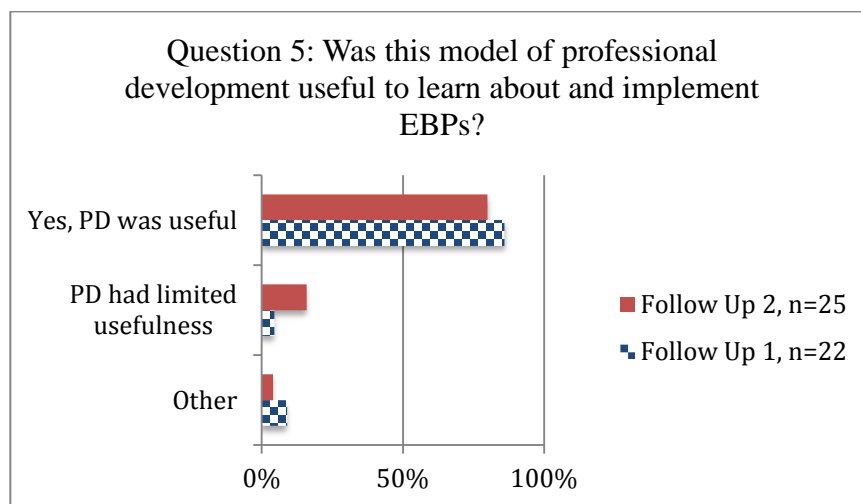


Figure 15: Follow up Surveys, Question 4.

Finally, the follow up surveys asked participants if they found this model of professional development useful as a means to learn about and implement EBPs in their classrooms. In the first follow up survey, 86% of responses indicated the PD model was useful and 5% of the responses indicated the PD model had limited or moderate usefulness. In the second follow up survey, 80% of responses indicated the PD model was useful and 16% indicated limited or moderate usefulness. The remainder of responses indicated something other than useful or limited usefulness (e.g., “teaching students with ID learning disability and how to look for specific teaching strategies (sic)” and blank responses). One response indicated that while the participant found the PD model useful, the participant was not interested in other topics being presented using this model (See Figure 16).



*Figure 16:* Follow up Surveys, Question 5.

Overall, the results of the surveys indicated an initial high level of interest in learning about EBPs, followed by increased understanding and subsequent use of EBPs during and after the PD. Participants also reported that they found the PD useful for classroom planning and instruction as well as providing access to resources. Follow up surveys indicated continued interest and use of EBPs even after the PD ended. Four additional short answer questions were included on the follow up surveys. The results of the thematic analysis of all open-ended questions are discussed below.

### **Thematic Analysis**

Short answer comments revealed three overarching themes across most surveys: Collaboration, Knowledge Acquisition, and Outcomes. Subcategories emerged within each theme as well, with Time emerging within each theme as its own, distinct subcategory. Table 4 below illustrates the themes and subthemes that emerged from the qualitative data.

Table 4

*Themes and Subthemes*

<b>Themes</b>	<b>Sub-Themes</b>
<b>Collaboration</b>	<ul style="list-style-type: none"> <li>● Observations</li> <li>● Shared Goal</li> <li>● Time</li> </ul>
<b>Knowledge Acquisition</b>	<ul style="list-style-type: none"> <li>● EBPs Work</li> <li>● General Information</li> <li>● Resources</li> <li>● Challenges and Supports</li> <li>● Time</li> </ul>
<b>Outcomes</b>	<ul style="list-style-type: none"> <li>● Student Benefit</li> <li>● Teacher Benefit</li> <li>● Accountability</li> <li>● Data</li> <li>● Challenges               <ul style="list-style-type: none"> <li>○ Nature of the Classroom</li> </ul> </li> <li>● Time</li> </ul>

**Collaboration.** Collaboration, defined as working cooperatively with peers to learn information, develop solutions to problems, and practice new skills, was a strong theme that emerged immediately from both the short answer responses and quantified short answer results, and remained apparent throughout the PD. Approximately 80% of follow up surveys received (82% in the first follow up and 76% in the second follow up) identified “working with others” as a useful aspect of the PD. Across all surveys, except the initial survey, participants consistently identified working with PLCs or collaborating with colleagues as the most useful aspect of the professional development. Examples of comments included: “[The most useful part of the professional development is] developing strategies with colleagues who are more experienced than I am,” “The most successful part of the professional development is acquiring ample opportunities to collaborate and enhance

learning/ management/ planning in the classroom,” and “Working with a small team is extremely beneficial because more can be done in small groups.” Specifically, several responses focused on the opportunity to discuss and talk with colleagues about what they were doing. For example, “[The most useful part of the professional development is] being able to discuss [within] our grade level [and] curriculum [department]” and “Discussion [with] my team helps highlight solutions to issues.”

**Observations.** A sub-category of collaboration that emerged throughout the surveys was the usefulness of peer observations. Again, when asked about the most useful part of the PD, participants responded with comments such as “peer observations, stealing best practices” and “working with and observing peers.” Furthermore, when asked about what suggestions they had to make the PD more useful, participants responses included “have peer-models,” “...I would like classroom support (observation and feedback) to improve my implementation,” and “more classroom observations—classroom observations are so beneficial!!!”.

**Shared goal.** Based on the participants’ responses, I defined a shared goal as a group of colleagues working together toward a common purpose; in this case, implementing the same EBP in their classrooms was the shared goal. While in this study, I assigned participants to their PLC based on the EBP they chose to implement, a few comments about the groupings arose; one participant remarked that he or she liked the “intentional mixing of content areas,” while other participants appreciated “finding a grade level focus” or requested “all elementary and secondary SElectives (an in-house term for the science, social studies, and electives department) teachers could meet together and adapt these things to our classroom and lessons.”



However, regardless of the groupings, another related sub-category emerged under collaboration: working with peers, but specifically toward a common or specific goal. Participants reported that “PLC time with people that have similar goals to generate ideas,” “working with a small team toward a common goal,” and “working with peers who had the same goals” were one of the most useful parts of the PD. Another participant remarked “The most useful part of the professional development is collaboration with peers who are working on similar EBPs in their classrooms.”

***Time*** Time was a theme that repeatedly arose throughout the participant comments and responses, as well as through the quantitative results. However, the issue of time presented itself in many different ways in participants’ responses and overlapped all the other themes. Therefore, in this study, it is described not as its own theme, but rather as a sub-category of the three other large themes. Time is defined simply as an elapsed period, which can be measured in minutes or hours. For each theme, a more specific definition will be provided, as it changed slightly in each context.

When considering collaboration specifically, time is defined as extended opportunities for participants to engage with one another and with students about EBP implementation. Time was noted as both a strength and a weakness of the PD, as participants appreciated the time set aside specifically for EBP implementation, but also felt the time provided was not adequate to accomplish all they hoped to accomplish. While one participant noted “I had time to plan and discuss and have a peer observation,” others wrote “more time to meet with PLC” and “...more time to be observed by the coach would have been useful” as recommendations to make the PD more useful. Other participants reported that PD strengths were “PLC time with people that have similar goals to generate ideas” and “The

most useful aspect of PD was the reminder every Friday of the goal with a team of peers.” These findings were echoed in responses to other survey questions. In the mid-study surveys, 30% of responses recommended additional time as a suggestion to make the PD more relevant or engaging. In the end-of-study surveys, 18% of responses made the same recommendation.

**Knowledge acquisition.** Another prevalent theme throughout the comments was acquisition of knowledge. Knowledge acquisition was defined as the learning of new ideas, practices, and resources. This theme encompassed everything from basic, low level knowledge to high levels of personal reflection, as well as use of resources and practice of EBPs. In the initial survey, a few participants commented that they were unsure of the importance of EBPs, writing, for example, “I’m not exactly sure what [EPB] is, but it seems like it is something that will help because you are implementing strategies that have already been proven to work” and “...perhaps EBPs are beneficial for elevated learning opportunities in the classroom.” Most participants, however, especially throughout later surveys, indicated increased knowledge and understanding as they experienced the PD throughout the study.

**EBPs work.** This sub-theme was defined as the understanding that EBPs, by definition, are effective means of educating students. When initially asked why the use of EBPs is important in everyday classroom instruction, only one participant expressed possible skepticism by commenting, “My classroom is unique and I would have to see some examples of EBP in my discipline.” Another indicated a requirement by the school by saying “It is proven to have worked. Why reinvent the wheel? Plus, [school name] requires it.” Primarily, however, participants responded overwhelmingly with the simple idea that “they work”. For example, responses included “We want to use what works and not what doesn’t work” and

“Evidence-based means that it works.” Many responses specifically included the idea that evidence is “proven,” insinuating an understanding that some level of research or data is required to reach a qualification of “evidence-based.” Examples of comments include “EBP is important to use in classroom instruction because the research has been done in order to give educators best practices,” “It uses strategies proven to help students learn and grow,” and “It says it all in the title ‘Evidence-Based.’ That means that it has been tested and it works!” In the end-of-study surveys, participants continued to focus on the effectiveness of EBPs when asked about the most important aspect of the PD. Responses included “reflecting upon the effectiveness of EBP application and collaboration,” “learning the history and justification behind EBPs,” and “so many great strategies to use that have been proven to work.”

***General information.*** General information was defined as basic knowledge, such as definitions and examples, of EBPs. Since the definition of EBPs was not well known at the onset of the PD, this foundational knowledge was critical to participants’ experiencing benefit from the PD. Participants responded in both the mid-study and end of study survey that basic information about EBPs was important to them. When asked about the most useful part of the PD, responses included “awareness of EBPs,” “learning what EBP means,” and “learning the terminology and practices.” Several mid-study comments mentioned being overwhelmed with too much information; when asked about suggestions for making the PD more relevant, some responses were “Great resources, great articles, need direction for given practice” and “It was a lot to take in, and I need to find ways to implement into my curriculum.”

**Resources.** Resources were defined as sources of information about EBPs, including internet-based sources and scholarly literature, which provide definitions of the EBP, instructions on how to implement it, and reference or describe the empirical research supporting the practice. Throughout the surveys, participants noted the resources provided through the PD as an overall strength and some indicated a desire for additional time and help with the resources. Overall, nearly 30% of responses across all surveys (except the initial survey) indicated resources as one of the most useful parts of the PD. Responses included the following: [The most useful part of the PD is] “understanding current research of education,” “reading the research and targeting need for EBP,” “our time to research specific strategies that address specific to what I need [sic],” “reading professional literature and learning the best places to find it,” “finding resources for specific areas of improvement,” and “having the time to focus on the research and implementation of EBPs.” Another respondent noted that he or she would like more PD using this model because “...there was an abundant amount of useful researched [sic] based articles, etc.”

**Challenges and supports.** Participants identified two challenges (i.e., barriers to EBP implementation) and one support (i.e., effective learning tool used in PD) multiple times. These are described below.

**Challenges.** During the study, when asked what suggestions participants would recommend to improve the PD, 13% of responses indicated the desire for more opportunity to practice the EBP itself, have peer-models, provide video examples, or examples of data collection. For example, one respondent wrote “I suggest examples of how to collect data or different ideas of collecting data,” while another suggested “presentations on specific practices or examples of templates.” Another response said “practice what is preached- allow

time for people to try w/o worry of failure” and another said “more practical, more practice.” While only three responses from the follow up surveys mentioned this idea, they carry the same message: “having more videos and other readily available materials would be useful,” “[a barrier to my implementation is] practice using them,” and “[barriers to my implementation are] knowledge, time, practice.”

*Supports.* An unexpected support in the PD, defined as an effective tool that supported knowledge acquisition of the topic, was mentioned in 9% of mid- and end-of-study surveys, the Jeopardy-type game from the first PD session. Three and six weeks after playing, when asked which suggestions they had for improving the PD, participants responded “more jeopardy (sic),” “love the Jeopardy,” and “more games (maybe every other week) and I enjoyed the group assignment.” Another response indicated one of the most useful parts of the PD was “...game-like format for facts quiz.”

*Time.* As discussed earlier, time emerged as a subtheme across all themes. When related to knowledge acquisition, time was mentioned across all surveys (except the initial survey) as a desired commodity of which participants needed more. Participants indicated lack of time to research as a barrier to daily implementation of EBPs, a need for more time to practice the EBPs, and a need for more time to research and explore resources as recommendations to make the PD more effective. One comment acknowledged the time provided to do these activities, but indicated the need for even more time: “I liked having the time to focus on this alone. I would like more time for looking up, discussing, and implanting EBPs.” Other examples of comments included: “I just need the time to explore the resources,” “more dedicated time for reading and note-taking during PD,” “I don’t have as much time to research then implement [EBPs],” and “Researching and finding more

appropriate EBPs takes time. I wish I had more time to dedicate.” In the follow up surveys, lack of time was the most frequently noted barrier to continued implementation, mentioned in 27% of the first follow up surveys and 48% of the second follow up surveys.

**Outcomes.** The final theme to emerge from the data was outcomes, or what the PD accomplished. The outcomes fell into six distinct categories, including student benefit, teacher benefit, accountability, data, challenges, and again, time.

***Student benefit.*** Identified primarily in the initial study, participants identified student benefit as one of the most important reasons to use EBPs. Student benefit includes engagement (e.g., “Evidence based practice is important to instruction because it increase (sic) student engagement, student academic success/growth, and reaches a variety of learning styles.”), as well as educational opportunity (e.g., “...perhaps EBPs are beneficial for elevating learning opportunities in the classroom.”). Addressing student needs is also linked to student benefit; for example, “I want to be sure I’m addressing their needs and not my desires for teaching” and “[EBP] allows the teacher to have valuable data to improve student achievement.” Finally, participants identified student academic achievement as another benefit of EBPs, as they stated “We want the most growth we can inspire in students” and “[EBP] uses strategies proven to help students learn and grow.” In later surveys when asked about the most useful part of the study, a few participant comments circled back to EBPs benefiting students; participants responded as follows: “learning new practices to help students,” “our negative classroom behaviors have decreased,” and “teaching students w/ID learning disability and how to look for specific teaching strategies (sic).”

***Teacher benefit.*** Throughout the study, participants identified various benefits for teachers using EBPs, including increased effectiveness, better classroom management, and

improved lesson development. In the initial survey, participants noted how EBPs are important because of the impact on their teaching, for example, “[EBPs are important] to become a more effective teacher,” “EBP is important because the research has been done in order to give educators best practice,” and “To be effective as an educator, why not do what is proven to work?”

In later surveys, participants described how they used EBPs “to make my lessons more meaningful,” “training teachers,” and “in planning, analyzing, and constructing lessons and classroom management.” Participants also noted how EBPs changed their teaching, including “negative classroom behaviors have decreased,” “[I look] at different ways to handle behavior,” and “I feel like working with other teachers helped give me better insight for my lessons.” Participants also indicated overall that the model and content of the PD was helpful: “...it ensures we are consistently learning, reflecting, and growing.”

**Accountability.** The idea of accountability surfaced less commonly, but consistently across the mid-study, end-of-study, and first follow up surveys. In the mid-study survey, participants suggested “deadlines/due dates to help me keep [EBP implementation] in the front of my brain” and “One suggestion I have pertains to more accountability as far as implementing EBPs go.” In the end-of-study survey, one teacher stated “positive encouragement and accountability for EBPs” was useful while another suggested “more accountability as far as data collection and reflection go.” Finally, one teacher reported an obstacle to continued implementation was “time and remembering to put into lesson.”

**Data.** Data surfaced in several ways in the surveys, as a component of student achievement (described above) and on its own as a separate sub-theme. Participants reported in the initial survey that EBPs are important because they “[help] provide information based

on instruction where our students are at during our unit” and “it allows the teacher to have valuable data to improve student achievement.” In the end-of-study survey, participants also brought up data when asked what was useful about the study; “knowing what to look for to take meaningful observations/ collect data,” “information and data [has been the most useful part of PD],” and “discussions and advice from colleagues and data collection [have been the most useful parts of PD].”

**Challenges.** Participants identified a number of barriers to implementation in both follow up surveys. While some barriers were only named once, for example, “...scope and sequence of curriculum,” “student resistance,” and “...organization can be a challenge,” other barriers were listed multiple times by multiple participants. One such barrier was that of the participant’s role in the school, such as an instructional coach. Participants wrote, for example, “useful to learn, role prevents utilization on a day to day basis” and “[a barrier that has prevented me from using EBPs on a frequent basis is I am] not always in the trenches.” Another more frequently cited barrier to implementation was the nature of the classroom, everyday obstacles that present themselves in real classrooms that may not be discussed or described in empirical research studies on specific EBPs. For example, participants responded “it is tough because of the size of my room and how crazy it can get,” “staying consistent [is a barrier to consistent implementation],” “[one barrier to implementation is] disruptions in day causing disruptions to procedures,” and “one barrier has been juggling a few new things at once, therefore EBPs are not the focus.” These “nature of the classroom” barriers indicated some of the struggles associated with consistent implementation of EBPs were simply part of the classroom experience and teachers may require additional support to overcome these obstacles or learn to implement the EBPs in spite of these obstacles.



**Time.** When considering outcomes of the study, time came up in two ways, both as strength of the PD and as a barrier to implementation. In the end-of-study and both follow up surveys, time, defined as the hour of committed PD time weekly, repeatedly emerged as a strength of the PD; “our time to research specific strategies that address specific to what I need,” “time to look at research,” “dedicated time to do the research and make the plan. Helped my world,” and “having the devoted time to focus on the research and implementation of EBP.”

Time also repeatedly surfaced in the end-of-study surveys and in both follow up surveys as both a barrier to implementation (follow up surveys) and as a recommendation to improve the PD (end-of-study survey). Even in the mid-study survey, one teacher wrote “no suggestion”, crossed it out, and wrote “teachers need more time.” The end of study surveys included comments such as “more work time in the clock,” “the time to go deeper,” “longer—6 weeks is only enough to get started,” “ more and regularly...,” and “...could have used more meetings; as it is it was minimally effective.” Over 38% of the follow up surveys mentioned time as a barrier to daily implementation. This appeared in multiple forms, including “...time constraints...,” “time to impliment (sic) them,” “time management/scope and sequence of curriculum,” “time/pacing,” “time to study and prepare,” and “time. Exhaustion, dealing w/ disruptions, etc.”

### **Summary**

Short answer responses indicated most participants shared the same sentiments about the PD. Overall, they indicated that they enjoyed learning and working with peers, and enjoyed working toward improving their own teaching and student achievement. They generally found the PD to be useful, they felt the model was effective, and appreciated the

opportunity and time for focused work on a topic they felt was beneficial to their classroom and teaching. However, participants consistently indicated the need for additional time and, to an extent, focused direction and implementation directions. Struggles with following through with implementation or generalizing the new knowledge to different school roles indicate the need for ongoing PD and more specialized learning topics.

The Likert scale question data similarly indicated that while participants overall felt the PD was useful and provided focused opportunity for learning new information, there remained some room for improvement. Participants addressed these concerns more specifically through short answer questions. Responses indicated a high level of interest in the topic and overall increased knowledge and use of scholarly resources over the course of the PD. This also aligns with the short answer results, specifically participants indicating that they appreciated the new knowledge, but wanted more time to explore resources and practice their new skills.

## **Chapter 5**

### **Discussion**

This study used a design experiment to develop and implement a curriculum-style professional development (PD) for practicing teachers that guided them through identifying and learning about evidence-based practices (EBPs) and implementing these practices in their classrooms. The specific research questions addressed in the study were: (a) What are teachers' understandings of evidence-based practices? (b) How do teachers report how they implement EBPs in their own classrooms, given EBP professional development over an extended period of time and with follow up coaching and support? (c) Given EBP professional development over an extended period of time and with follow up coaching and support, what do teachers report about choosing to use or discontinue use of EBPs in lesson planning and everyday instruction? and (d) What do teachers report about participating in this type of PD?

Participating teachers in the study reported that they found the professional development focused on EBPs beneficial for both themselves and their students. Findings from the study not only address the research questions, but also further inform the field's understanding of how to create professional development for teachers that deepens their understanding of what are EBPs, their knowledge of resources to support continued learning in this area, and their skill in actually using them in their classrooms. The findings from this study also align with current research on this topic and provide considerations for future research, future PD, and considerations for school administrators.

## Synthesis of Research Questions and Answers

**What are teachers' understandings of evidence-based practices?** The answers to this question evolved over the course of the study, but served as a strong indication of the effectiveness of the professional development. Results from both the Likert scale questions and short answer questions indicated that teachers' likely misunderstood what evidence-based practices were at the study's onset. Short answer survey comments support this idea, such as "I'm not exactly sure what it is, but it seems like it is something that will help because you are implementing strategies that have already been proven to work" and "No idea [why EBP use is important]! But, perhaps EBPs are beneficial for elevating learning opportunities in the classroom" from the initial survey. Over time, the participants reported increased understandings, both of what EBPs *are* and how to access them. For example, the end of study survey results indicated that all participants felt their understandings of EBPs increased over the course of the study, with 93% of participants reporting their understandings increased moderately or significantly. Participants also provided some short answer comments that support the idea of increased understandings, such as "[the most useful part of the PD was] understanding current research of education" and "learning the history and justification behind EBP".

**How do teachers report how they implement EBPs in their own classrooms, given EBP professional development over an extended period of time and with follow up coaching and support?** The overall intent behind this study and the topic is, of course, to increase teacher usage of EBPs in everyday classroom instruction. In order for this to occur, teachers need to have knowledge about what are considered to be EBPs and how to find information about them, in addition to figuring out how to implement EBPs in regular

classroom routines and instruction. While some EBPs are a specific curriculum or program (e.g., Read 180), many are simply strategies that can be used with any content area or age group (e.g., Class-wide Peer Tutoring). Both quantitative and qualitative data from the study indicated that participants may have over-estimated their use of EBPs or misunderstood what qualified as EBPs at the beginning of the study. As a result, while they reported increased *understandings* of EBPs, they initially reported decreased *usage* of EBPs. Survey results from later points in the study indicated that teachers increased their usage of EPBs as the study progressed. Specifically, participants' mean responses to the question "Rate your usage of scholarly literature or text when planning weekly lessons" ranged from 2.47 in the initial survey, to 2.30 in the mid-study survey, to 2.52 in the end-of-study survey. Participants' short answer results also provided documentation that teachers found the PD useful and wanted additional time and support to further implement the EBPs. For example, as discussed in Chapter 4, time was repeatedly reported as a precious commodity of which teachers wanted more to better implement the EBPs.

**Given EBP professional development over an extended period of time and with follow up coaching and support, what do teachers report about choosing to use or discontinue use of EBPs in lesson planning and everyday instruction?** Another important question this study sought to answer was whether this format of PD was sufficient to support teachers' ongoing use of EBPs in classrooms following the professional development. Despite somewhat static mean responses of teachers reporting their use of EBPs in everyday lessons, 57% of follow up surveys indicated that participants use EBPs at least three to four times weekly, an increase from 34% in the initial survey and 37% in the mid-study survey. Additionally, short answer responses repeatedly indicated that teachers found the lack of

continued dedicated time to research and practice EBPs to be a significant and frequent barrier to implementation, which suggests that teachers might increase usage, given continued, dedicated time to learn about and practice them.

**What do teachers report about participating in this type of PD?** While this study specifically looked at PD focused on EBPs, the study also considered models and components of effective professional development in general. This provides information to guide further PD opportunities focused on a range of topics. Overall, participating teachers responded positively to the professional development model used in the study. Most participants expressed an interest in either continuing the EBP PD and/or another PD topic using this model. Over 90% of participants reported they found the PD useful for their classroom planning and over 80% reported that they liked the model of the PD. Short answer responses ranged from specific positive feedback for the EBP topic (e.g. “Yes! I want more of this to keep it in the front of my mind!”) to interest in learning new topics through this model (e.g. “Yes, these would be excellent weekly workshops with various topics we need additional help in for teaching purposes.”).

### **Teachers’ Understandings and Use of Evidence-Based Practices**

One issue revealed through analysis of the study’s data is the continuing gap between the requirements of federal mandates for use of EBPs and classroom teachers’ actual understanding of what these are and where to learn about them. As explained in earlier chapters, federal education law has mandated the use of empirically sound instruction for nearly two decades. Although NCLB’s (2001) requirement for “scientifically-based” instruction had some practical flaws (e.g., the requirement for only experimental and quasi-experimental research evidence), the spirit of the law, to utilize instructional practices proven

to be effective, was clearly evident. ESSA (2015) adjusted the terminology to be more inclusive of additional types of high quality research, but again, the intention that instruction be based on practices that have been empirically examined has remained the same. That being said, nearly 70% of participants in this study initially reported that they did not know where to find resources for learning about EBPs or knew of only one or two places to find them. In an apparent contradiction, on the same survey, 31% of teachers reported in response to a different question that they used EBPs every day in their lessons.

Teachers' self-reported lack of knowledge about EBPs in this study is somewhat alarming because again, the laws have been in place for many years, and teachers are being held accountable to use these practices with their students through teacher and school evaluation systems. How can 70% of teachers in a sample be unaware of where to find resources to fulfill a long-standing federal mandate? Additionally, how were teachers using EBPs in everyday instruction (as some reported on their surveys) when they reported not knowing where to access resources on EBPs? These findings suggest that classroom educators do not fully understand what EBPs are and may or may not be using them within classroom instruction.

One possible explanation for these contradictory findings is that teachers in this study seemed to initially define evidence-based practices as the strategies they were taught or that were emphasized during the daily PD that took place at the school where the study was conducted. They did not appear to consider other sources of information on EBPs, such as professional literature (e.g., research studies) or other professional resources when thinking about what were EBPs. Since the school where the study was conducted intentionally requires its teachers to incorporate highly effective practices into their classroom instruction,

this conclusion is not entirely inaccurate. However, teachers in this study seemed to depend on their administration (e.g., principal or instructional coach) about what were effective practices and they expected to be provided with explicit directions for implementation of these practices, rather than holding a deeper understanding of what are EBPs and knowing where to research EBP strategies independently. For example, when asked specifically if they accessed scholarly literature when planning lessons, less than half of the participants responded that they did so. Additionally, when asked why it was important to study EBPs, one participant responded “[School name] requires it!”

This finding in particular—that classroom teachers, even in a school with daily PD on effective practices, are still unsure about what are EBPs or where to learn more about them—highlights the urgent need for quality, effective, and “classroom-practical” (i.e., teachers can readily implement the intervention in their classrooms without the need for extensive materials or preparation) professional development for practicing teachers. Although the design of this study did not allow me to answer why participants did not know about EBPs or where to locate information about them, it seems likely that they had not received prior inservice training on how to identify a practice as an EBP or where to locate information about practices considered to be EBPs. Their teacher preparation programs may or may not have included information on what EBPs are, but from the results of this study, it appears that they did not learn where to continue to access information about EBPs after leaving their respective programs.

On a positive note, the qualitative analysis of open-ended survey questions indicated that participating teachers *want* to learn about and implement the most effective practices they can for their students. This is also supported by another survey question that indicated



97% of participating teachers were interested in learning about EBPs at the study onset. Short answer questions revealed that teachers recognized the importance of EBPs and the potential benefit of them for student outcomes, but need support to find the resources, guidance, and time to do so. For example, teachers noted strengths of the study to be having dedicated time each week to focus on just EBP research and implementation, as well as simply learning about EBPs and where to find them.

**Implications for practice and future research.** The finding that teachers are interested in and want to know about evidence-based practices is one of the most exciting and promising findings of this study. This opens the doors for school administrators to provide professional development and opportunity for teachers to share practices and problem solve to fix issues within their classes. Given dedicated time and opportunity to collaborate, participants in this study were excited to learn about these practices. This finding also provides pre-service teacher programs with a clear indication of a possible significant missing element in their programs: instruction on what are EBPs and where to find them.

Future research studies examining PD could ask more detailed questions about participants' pre-service teacher programs and more detailed questions regarding whether or not teachers knew what EBPs were. In this study, the initial survey was provided *after* the first PD session, so responses were not truly "pre-test" responses, which may have influenced their responses. This information, however, is especially important because although most pre-service teacher preparation programs likely do address EBPs, this study indicates that many teachers do not sustain the EBP practices they learned while enrolled in their teacher education programs. This could be because teachers assume the curriculum they are using is evidence-based or they may not know where to find EBP resources outside of a University

Library. This information will be useful in determining how to better support teachers in implementing EBPs throughout their careers.

### **Teachers' Selection of Evidence-Based Practices to Study**

Another finding from the study that informs provision of effective professional development on EBPs was participants' choice of which EBPs to investigate and implement. Participants in this study were able to choose their own classroom issue to address through an EBP, and then worked with colleagues to browse resources on EBPs and determine which EBP to implement. Interestingly, results indicated that 70% of EBPs chosen by study participants addressed behavioral concerns rather than academic instruction. While the bulk of EBPs in the literature focus on academic strategies and programs, in this study, that was not what teachers primarily felt was the biggest concern in their classrooms. Instead, they selected EBPs for study that were related to behavioral or classroom management concerns.

This finding could be directly related to unique characteristics of the school population where this study occurred, including both teachers and students. The student population for the specific school in which the study took place is a charter school that targets a primarily "at risk" population, meaning a majority of students live in poverty, come from families without high levels of formal education, identify as ethnic minorities, and many of whom have struggled with limited success in school prior to attending this school. Behavior management is of upmost importance in this setting as students often enter the school below grade level in academics and have developed maladaptive behaviors in order to compensate for their learning struggles.

On the other hand, the participants in the study were, overall, relatively inexperienced teachers; 53% of the participants were within their first three years of teaching and an

additional 25% of participants had been teaching between four and seven years. In all, 78% of participants had less than eight years of teaching experience. Furthermore, several of the EBPs chosen (e.g., creating classroom routines and procedures) are grounded more in basic classroom management than actual behavioral interventions. This is not surprising given that research on teacher induction shows that novice teachers often report needing assistance with implementing classroom management procedures (Emmer & Stough, 2001; Moore et al., 2017). Although the school where the study took place puts a heavy focus on classroom management and provides specific training throughout the year on this topic, including annual training in Positive Behavioral Interventions and Supports (PBIS), this finding suggests that additional focused training on specific classroom management topics, possibly suggested by teachers, as the PD in this study provided, may be more preferred and valued by teachers. Participants' choice of EBPs, therefore, may be more closely linked to a relatively novice participant sample in combination with a school culture that communicates to teachers that classroom management is expected and highly valued, rather than a direct result of the student population's characteristics.

**Implications for practice and future research.** Administrators planning professional development for their schools should carefully consider the school contexts when designing PD. Unique teacher and student characteristics and learning needs, such as those in the school where this study took place, should guide selection of topics and development of PD activities. Additionally, providing choice for teachers regarding which aspect of their classroom to improve gives them ownership of the task and likely improves PD implementation.

Future studies might examine if this PD were implemented in a school setting with a different student population or more experienced teacher sample, would participating teachers choose to focus primarily on behavioral strategies or academic interventions instead? Another area for future research is to examine if implementing EBP academic interventions alone has an impact on undesired behaviors in the classroom.

### **Participants' Perceptions of the PD Model**

**Importance of time for collaboration.** Time was a theme found across all participant surveys and across the study. This finding has important implications for informing development of effective professional development on EBPs. If the goal is to create authentic, sustained changes to teachers' daily instructional practice, professional development must be long-term with built-in opportunities for teachers to engage in collaborative opportunities for practice and feedback. This is supported by participants' responses to survey questions that highlighted the critical importance of providing dedicated, regularly scheduled time to support teachers in the successful implementation of EBPs, beyond the informational sessions held each week. A majority of participants reported the need for time to properly research, study, and plan to implement EBPs.

Participants described multiple ways in which they used their dedicated time to learn about and practice implementation of their selected EBPs. These findings offer additional information to inform future PD models. Teachers reported that they appreciated and valued the dedicated time that was provided to work in the PLCs accessing resources and reading research on their selected EBPs. They also used this time to problem-solve implementation challenges with colleagues in their PLC, to practice how they would implement the strategy, and to celebrate successes. Participants also used their prep periods (which are 85 minutes

daily in this school) to conduct peer observations of each other using the EBPs and provide constructive feedback.

It is important to point out that this PD model provided more time for teachers to learn and practice the content taught than many other types of PD. While many professional development events last only a day or two, this curriculum was designed to be ongoing for six weeks, with weekly meetings lasting 50 minutes each, short follow ups throughout each week, and continued collaboration and coaching with colleagues throughout. Both McLeskey (2011) and Desimone (2009) highlighted the critical need for PD to be ongoing and of sufficient duration. In this study, approximately 60-80 minutes were dedicated weekly to the PD over a period of six weeks. It should be noted that the implementation of EBPs did not actually begin until nearly halfway through the study. Early on in the PD, participants needed time to learn about what EBPs were and where to find available resources on them, as well as to read the resources and plan for their implementation. Follow up surveys indicated that without the dedicated time for participation in the PLCs and time to read research on selected EBPs, the implementation of EBPs became more difficult to sustain. With so many competing activities and priorities for teachers, the dedicated time to *focus solely on* EBPs was critical to the implementation's success.

Despite the extensive dedicated time for follow up embedded within this PD model, however, some participants said that it was still not enough. Some participants mentioned that they needed even *more* time in order to properly implement the EBPs; more time to read research, more time to thoughtfully consider how to incorporate the strategies into their lessons; and more time to collaborate with colleagues.

In summary, the dedicated time for study and practice embedded within this PD model was perceived by teachers to be vital to their successful implementation of EBPs. Teachers have many competing activities that all require time, but their survey responses suggest that they highly valued PD that afforded them the sustained time to learn and practice EBPs. They saw this component of the PD as instrumental to their ability to successfully implement the EBPs. Additionally, their follow up surveys indicated that the removal of dedicated time for collaboration and research after the study ended was a significant obstacle to continued use of EBPs in the classroom.

***Implications for practice and future research.*** One practical suggestion to address the issue of providing additional time for PD might be to keep the PD ongoing throughout the year, with adequate time to learn about EBPs, research them, and implement one EBP for a semester. Teachers could then add another EBP the following semester, once the first has become engrained in the class procedures and teachers are more familiar with researching and planning for EBPs. This would support making EBPs a part of school culture as well. Future studies could examine this lengthened PD and specifically look to see if teachers report an easier time maintaining the implementation over time given the longer PD.

As administrators and school leaders look at how to best support their teachers in using EBPs, creating time for teachers to study and practice new strategies is a crucial factor to consider as well as when building the PD into the school day. Another unique feature of the school used in this study is built-in daily professional development. This feature ensured the time used for PD and PLCs was consistent and already part of the duty day, guaranteeing that teachers were not required to dedicate additional time outside of the duty day in order to benefit from the PD. While this model may not be feasible in all school settings, there may

be options to ensure teachers are able to attend PD and PLCs within the confines of the school day, such as arranged lunch meetings, extra prep periods for PLC work, or stipends for extended duty days.

**Choice and collaboration.** Participants identified as helpful two additional components of the PD model used in this study that can inform understanding of how to effectively provide professional development on EBPs to educators. These two components, working in collaborative groups and having choice of what content to study, are not typically present in the PD provided to educators or may be provided in ways that educators have not always found useful. For example, although PLCs have strong support in professional teacher education literature, at the beginning of this study, teachers audibly groaned when told they would be forming PLCs as part of the PD. Yet, throughout the study, it became clear that the collaborative nature of groups that have a clear and specific focus was actually one of the most commonly reported strengths of the PD model. Study results also suggest the importance of structuring PD so that PLCs or other types of collaborative groups are working toward shared or common goals with colleagues. Participants specifically noted benefits of both working collaboratively with colleagues and how especially beneficial was the focus on working toward shared goals, in this case of successfully implementing EBPs in their classrooms.

Determining the composition of each group is another important consideration in planning PD activities: for example, should PLC groups consist of individuals with similar teaching experiences and interests or is it more effective to compose groups of educators with a variety of teaching backgrounds and years of experience? Participants in this study offered varied perspectives on this issue. While some participants mentioned that it was helpful to

work with people outside of their department, others suggested that it would be useful to work on one strategy with their department or grade level colleagues. Participants also mentioned the benefits of working with colleagues who had more or different types of teaching experience. It is important to remember that while a majority of participants in the study had relatively few years of teaching experience, all teachers in the school (participants and nonparticipants) participated in the PD itself, meaning that participants worked in PLCs with other teachers who may have had significantly more experience than they did.

Based on this study's outcomes, several factors seem important when planning collaborative groups as a part of professional development on EBPs. First, clearly defining the focus for the groups and providing explicit directions for what needs to be accomplished each week are important. Doing so may help teachers with knowing how to approach the often complex task of learning new strategies and then incorporating them into their daily pedagogy. Having a clear focus for group work also aligns with the reported strength of a shared goal; teachers in this study knew what their PLCs were supposed to be working on, and they perceived that they were working toward this goal together.

Providing teachers with choice of the topic of PD is another important factor in designing effective PD that is supported by the results of this study. My decision to allow participants to choose their own EBP for study and determine which classroom issues to address was intentional in order to provide immediate buy-in. While at times, administrators must make decisions about what classroom issues need to be addressed, in this case, teachers were able to make accurate decisions about what they needed to tackle in their own classes and therefore may have had more motivation to engage in the professional development activities. When possible, the opportunity for teachers to choose the area of need to address



in PD may result in better implementation of the learned strategies. This particular finding substantiates McLeskey's (2011) findings regarding Learner Centered Professional Development (LCPD); he found that PD is more effective when based on the needs and wants of the learner, in this case, the teachers.

Another critical factor when planning professional development is considering coherence. Fullan (2001), for example, addressed the need for coherence across educational reforms, noting that schools often take on too many projects requiring change, and, as a result, make little or no forward progress on these competing priorities. In this study, there was a single focus, evidence-based practices. Participants mentioned how much they appreciated having shared or common goals to work toward with colleagues. This finding supports research that teachers want to feel united and supported when implementing new strategies.

Desimone (2009) highlighted another aspect of coherence (later described as "Connections" in Hotchberg and Desimone, [2010]) as a critical component of effective PD. Coherence also addresses the need for PD to "fit" within a teacher's current system of beliefs and knowledge. This ensures buy-in, which improves the chances that teacher behaviors (i.e., implementation of the PD topic, in this case EBPs) will change. Additionally, coherence addresses the need for PD to also "fit" with other areas of reform or trends the school or district is undertaking. Cohesion across all areas of reform helps teachers recognize the importance of the reforms, how they may fit together towards a larger whole, encourages consistent implementation across multiple settings or classrooms, and effectively addresses high areas of student need.

***Implications for practice and future research.*** Collaborative opportunities within teacher PD is an area that can be explored extensively in future studies. For example,

although not explicitly addressed in this study's research questions nor in the surveys, this PD model provided opportunity for not only experienced and novice teachers to collaborate, but for general and special education teachers to collaborate. Historically, general and special education teachers have had limited opportunities for collaboration with one another, despite increasingly shared responsibility for the education of all students (Blanton, Pugach, & Boveda, 2014). Although the school included in this study has an inclusive model of special education services, other research carried out in schools with more segregated services could certainly benefit from the PD itself and the collaboration with general and special education teachers could be included. This could potentially lead to improved collaborative relationships among traditionally separated teachers and improve instruction for all students.

Educator choice of PD content is another opportunity for future research. Researchers could design studies to compare the benefits of administrators choosing EBPs for teachers to study or providing a list of options for teachers versus allowing teachers to choose their own. Although one of the strengths of this study was the opportunity for participants to choose their own EBP based on the needs of their individual classrooms, there may be practical benefit to limiting those choices in future implementation of the PD. For example, focusing on one EBP for a grade level or for a department would provide increased opportunity for collaboration in other weekly meetings. PLCs would be already established and instructional coaches could support entire departments with one EBP—thus infusing the department culture with EBP practices.

Another option that may strengthen PD as it is initially implemented in a school is to pre-determine a few well-established EBPs relevant to the school context and ask teachers to choose one they want to study and implement. Size of PLCs could be managed by organizing

PLCs by grade level, for example. This option would provide the opportunity for the PD presenter to first familiarize teachers with the selected EBP and its implementation, including how to track data on its effectiveness, without struggling to find resources for multiple EBPs (see Limitations). The benefit of teachers choosing their own EBP would still be present to some extent. Additionally, following this initial EBP implementation, future PD could provide the opportunity for teachers to select and research additional EBPs they wanted to explore more thoroughly to implement in their classrooms. By that time, they would have a stronger grasp of what EBPs are and are not and have developed additional skill in researching, implementing, and monitoring student outcomes associated with an EBP. This process would make the overall implementation of the new EBP easier since it would be built on a solid foundation of experience.

Researchers could also experiment with creating department specific PLCs or intentionally creating interdisciplinary PLCs. Perhaps results of this study could be compared to other studies with a more experienced teacher sample to find similarities and differences in teacher perceptions of EBPs and PLCs. The findings from this study, especially regarding PLCs have great potential to improve the use of PLCs as a tool in effective professional development.

### **Application and Continued Use of Evidence-Based Practices**

**Nature of the classroom.** Study findings also provided insight into factors that may limit continued implementation of EBPs in the classroom after the PD is over. Participants reported several obstacles that they perceived to restrict or prevent them from implementing EBPs to the extent they would have liked. These included needing additional, dedicated time to continue researching and practicing EBP implementation after the PD ended, as well as

everyday, typical classroom occurrences that impeded their ability to utilize the EBPs they had selected. They reported events such as interruptions during instruction, absent colleagues, and large class sizes as affecting their ability to implement or sustain use of the EBPs they had selected. These specific limitations are not usually mentioned in empirical research on the long term effects of professional development, yet are relatively common classroom issues, so likely are important for school administrators to consider when planning PD.

These findings also provide some potential insight into the initial finding that teachers reported that they wanted to implement EBPs, but in practice, may not actually implement them. Obstacles, such as those mentioned above in this study's participant follow up surveys, are prevalent in *every* classroom. They may be more problematic for novice teachers, so this finding could also be related to the relative inexperience of the teacher participants in this particular study. These obstacles are typical concerns raised by many new teachers. Also mentioned previously, however, teachers must prioritize which activities and tasks to engage in because there is simply not enough time in the day to do everything they would like. As Fullan noted, "in schools... the main problem is not the absence of innovations, but the presence of too many disconnected, episodic, piecemeal, superficially adorned projects" (2001, p.109). The use of evidence-based practices, however, must be moved to the top of the priority list. Administrators must make this a non-negotiable, required part of teachers' practice that becomes a part of teaching culture. The current legal requirements give schools and educators no excuse to not require EBPs in daily lessons. Additionally, use of EBPs will support most other reforms, primarily increased student achievement (Desimone, 2009; Klingner et al., 2013; McLeskey, 2011). The research on which practices are determined to be evidence-based has largely been done for teachers, but the findings of this study suggest that

the priorities for teachers need to shift to privilege implementation of EBPs as a daily part of instruction. The use of EBPs will increase efficiency and quality of student learning and will decrease unnecessary activities that do not result in increased student achievement. This will help support closing the achievement gaps and meet the higher standards required of students today.

**Implications for practice and future research.** Future implementations of this PD curriculum would be strengthened by specifically addressing how to overcome the common obstacles mentioned by participants. If the issues negatively affecting teachers' use of EBPs are, in fact, primarily a function of teacher inexperience, including explicit guidance on how to manage common disruptions and prioritize one strategy or activity over another could be included as a part of any PD. This might occur within an intentional PLC assignment in which veteran teachers could provide mentoring of new teachers in this regard. Instructional coaches could also support teachers in dealing with some of these concerns in order to ensure EBP implementation is occurring. Support for teachers in this way could improve the manner in which teachers ultimately address the academic and behavioral needs of their students.

The lack of accountability for implementing the EBPs also came up in the follow up surveys as factor that limited continued use of EBPs following the PD. Use of EBPs may not become a routine part of teachers' practices without ongoing external structure and/or administrative oversight. Perhaps requiring a notation indicating practices as EBPs in the lesson could become part of lesson plan requirements, which would support teachers in maintaining EBP use as a critical component of instruction.

### **Evidence-Based Practices for School Leaders**

One of the most exciting findings in this study was to read participants' survey responses about enjoying learning something new. In fact, gaining knowledge about EBPs and resources of where to find them was a common response to survey questions inquiring about benefits of the study. However, a potential missed opportunity in this study was more specifically targeting the role of instructional coaches in supporting EBP use in classrooms. Most of the school's instructional coaches were also participants in this study. In this school, instructional coaches are licensed and experienced teachers, but do not carry a student caseload. Instead, they provide support and non-evaluative coaching to classroom teachers. According to survey results, several coaches noted that their current role as an instructional coach limited how effective this particular PD was to them in their coaching role. In retrospect, I see these comments as pointing to an opportunity where coaches could have established their own PLC focused on evidence-based coaching strategies. This could have further supported the teachers' own efforts to use EBPs in their classrooms.

**Implications for practice and future research.** Future research could examine this type of PD curriculum solely with instructional leaders, For example, researchers could examine models in which the instructional coach participates as a guide for the teachers' PLC, or a model in which the coaches comprise their own PLC to study and implement adult learning strategies to use with their teachers. In practice, it is notable that instructional coaches did not see how this PD applied to them, but it is certainly an area where coaches could also benefit.

## **Limitations**

This study had limitations that should be noted. First, it was relatively brief, consisting of only six weeks altogether with only three weeks of actual EBP implementation. Participants repeatedly commented that they enjoyed having the time specifically set aside to work on EBPs and extending the duration, with a combination of brief whole group check in and more PLC collaboration time may have resulted in better, longer lasting implementation of the strategies. Several participants noted they felt the PD was cut off too soon and they did not have time to go deep enough with the research or implementation. That said, most PD provided to educators is much shorter (one to two days). Some school administrators, however, might find it difficult to embed ongoing professional development on a single focus across multiple weeks of the school year. The school where I implemented my study already had a structure for providing the PD and had a school culture in which teachers were expected to engage in routine PD daily. Creating this type of structure in larger public schools with different challenges might pose barriers not experienced in this study. As mentioned earlier, some options might include structured lunch PLC meetings or additional prep periods in which teachers are expected to engage in PD. Clearly the opportunity to engage in regular, meaningful PD beyond just a few days per year is an ongoing issue that schools need to address in a way that is practical and addresses the needs of students and teachers.

Another limitation was the schedule and timing of weekly whole group and follow-up sessions. Whole group PD was held on Friday mornings, with curriculum meeting follow-ups on the following Wednesday and Thursday. This resulted in only one night between the follow up session and the new “week” of PD. When I was sending resources to participants, I

was limited by time since they needed it the next morning. An ideal schedule would have been whole group PD on Monday or Tuesday, with follow-ups on Wednesday and Thursday. This would have provided a few days to process and prepare better for the next whole group PD.

A third limitation was that although I audio recorded each of the whole group PD meetings, I did not re-listen to the recordings when planning and making adjustments for the next week. I took notes in the researcher journal after each presentation and made only minor adjustments each week to the planned activities. Listening to the recordings would have helped me to make more detailed notes and perhaps follow up on individual comments I may have missed while conducting the presentations. The recordings may have also provided evidence of an underlying tone or need that I may have missed. I do not think, however, that when implementing the PD (not as a study) that audio recordings would be necessary. I think frequent surveys of teachers would provide enough information to address needs or concerns of specific groups. In a research setting, however, the audio recordings may have provided information I did not have.

### **Conclusions**

Overall, this study demonstrated a successful implementation of a curriculum style PD for teachers to study and practice how to implement EBPs in their classrooms. Participants reported increased understanding of EBPs and positive impacts on students and their own teaching practices, as well as positive experiences working with colleagues. The PD model examined could be adapted to different teacher learning needs, experience levels of teachers, and specific needs of students (e.g., specific academic or behavioral needs).



Over the last five years, the topic of evidence-based practice has gained tremendous strength. Within that time, the Council for Exceptional Children not only developed a definition of the term “evidence-based practice”, but also standards by which researchers can measure quality of the research evidence supporting the efficacy of these practices. The federal education law has also changed its terminology to a more inclusive and appropriate “evidence-based instruction” rather than “scientifically-based instruction”. The topic has become more established and common in teacher education and instructional literature, as well as among administrators. My concern continues to lie, however, in the lack of appropriate professional development for inservice teachers to understand *what* EBPs are and just as importantly, *how to find them*, especially once teachers have completed their pre-service teaching programs. This basic knowledge of EBPs must then be expanded to support teachers as they learn to actually implement the practices in their classrooms. This is a critical missing element in the discussion of teachers’ use (or lack thereof) of EBPs. This study’s findings align with and expand previous research and recommendations on effective training on EBPs for educators. Strengthening how educational organizations provide PD on EBPs will not only provide teachers access to informational resources and open the doors of opportunity for increased student achievement, but also reinforces to all educational stakeholders the significant importance of this topic.

**Theoretical implications and conclusions.** Fullan’s framework for leadership is focused on qualities and characteristics of leaders who pave the path of opportunity for “more good things [to] happen [and] fewer bad things [to] happen” (2011, p.4). Using this model, I attempted to emulate his leader qualities in the PD model I developed. I also used current research on effective educator professional development to complement Fullan’s

leadership qualities to create a strong, comprehensive model for teacher professional development.

Detailed explanations of components of the PD aligned to the model developed by Hotchberg and Desimone (2010) are discussed in Chapters 2 and 3, as well as general alignment of these components to of Fullan's (2011) leadership model. It is also important to examine ways in which I, as the leader, endeavored to grow professionally, exemplify the traits Fullan described (2011), and deliberately created PD components that addressed the key parts of Fullan's model. For example, I ensured my moral purpose for developing this PD was abundantly clear to participants and addressed it directly in the first PD meeting: EBPs are timely and critically important to effectively educating students. I demonstrated an understanding of change and knowledge creation by structuring the PD in particular ways. First, I did this by providing teachers with a choice of what practice to implement and supported them by providing resources to learn about EBPs in their chosen interest area. I focused the PD on making small shifts in their classrooms rather than large overhauls that might have seemed too overwhelming and thus reduced buy in from participants. I used my previously established relationships with participants and built upon those to foster a learning community; this included supporting effective professional learning communities (PLCs), despite some participants' previous experiences with ineffective PLCs. Finally, I demonstrated coherence making by linking what teachers were already doing well in their classrooms to EBPs and encouraging them to adopt new practices to further enhance or extend their practice.

The findings from this study demonstrate that Fullan's model can be successfully applied to professional development for educators; that is, by addressing Fullan's

components of effective leadership, leaders can earn the commitment of members of their organizations, and “more good things will happen” (Fullan, 2004, p. 11). It therefore makes practical sense that continued practice and growth using his defined components of leadership may result in even greater change, across more than just one school or organization.

As previously explained, future research and the study’s implications for practice include continued, multiple iterations of the PD using different EBPs, adjusting PLCs to meet school or district’s individual needs, and creating specialized PD for school leaders. I also believe this model of PD, aligned to effective professional development for teachers and Fullan’s framework for leadership, can be applied more broadly to support educators and school administrators in many areas where change is needed in education. Fullan (2011) eloquently explained that rapid and frequent changes in education have created a confusing state of chaos that has the potential to be productive, but is not—except in a few isolated examples. In these examples, Fullan explained how school leaders epitomized the leadership traits and processes he described and as a result, effectively increased student achievement.

The approach of the PD model I created proved effective in this study and could meet the needs of many schools and districts. One key to the success of using a PD model such as this one is deep understanding of both Fullan’s framework and the research on effective PD for teachers. This requires time, reflection, and thoughtful collaborative planning among school leaders to address specific areas of concern. One of the strengths of the PD model I developed is its natural flexibility regarding the specific topic or subject of change. The model can be used to address any change in teacher or administrator behavior, simply

(although likely not easily) by intentionally addressing all components of effective PD and adapting Fullan's leadership characteristics.

Perhaps one option for districts or schools wanting to utilize the model studied would be an institute in which school leaders can escape the pressure of day-to-day operations and instead focus on the intentional and careful planning of change and the PD needed to support that change. Just as the participants in this study expressed appreciation for the dedicated time devoted specifically to EBP implementation, school administrators are often forced to prioritize their own urgent responsibilities on a regular basis, making deliberate, reflective, proactive action challenging at times. An institute away from daily operations, specifically designed to provide knowledge, support, and collegial collaboration to learn about the change process and effective professional development, as well as the opportunity to develop leadership traits described by Fullan, is one option with potential to make a large impact on education.

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## Appendix A:

### Side-by-side comparison of planned versus actual activities in the study

Original Planned Activities	Actual Activities
<p>Week 1: PD</p> <ol style="list-style-type: none"> <li>1. Pre-study survey.</li> <li>2. Small group activity: Jeopardy!</li> <li>a. Participants will create three or four teams and play Jeopardy!</li> <li>b. Jeopardy! will be focused on the history of ESEA/ NCLB, IDEA, current legal requirements, and the definition of EBPs and other closely related terms. It will be difficult and intentionally somewhat confusing for participants, as a means to illustrate the complexity and urgent nature of the problem.</li> <li>3. PowerPoint outlining</li> </ol>	<ol style="list-style-type: none"> <li>1. Small group activity: Jeopardy!</li> <li>a. Participants created four teams based on seat location in the room and played Jeopardy!</li> <li>b. Jeopardy! was focused on the history of ESEA/ NCLB, IDEA, current legal requirements, and the definition of EBPs and other closely related terms. It was intentionally designed to be difficult and somewhat confusing for participants, as a means to illustrate the complexity and urgent nature of the problem.</li> <li>2. PowerPoint presentation outlining increased accountability, NCLB/ IDEA requirements, research-practice</li> </ol>

	Original Planned Activities	Actual Activities
	<p>increased accountability, NCLB/ IDEA requirements, research-practice gap, EBP terminology.</p> <p>Examples/ non-examples of EBP (curricular claims/ folklore/ actual research).</p>	<p>gap, EBP terminology.</p> <p>3. Examples/ non-examples of EBP (definitions, curricular claims/ folklore/ actual research).</p> <p>4. Why is EBP use imperative and urgent? Preview of what the PD would cover.</p> <p>5. Pre-study survey (i.e., a survey focused on participants' current understandings of EBPs).</p>
<p>Week 1</p> <p>Curriculum</p> <p>Meetings</p>	<p>1. Pinpoint issues that continually come up in data (e.g., fluency problems, recalling algorithmic procedures, recalling details of a reading passage, answering WH questions).</p> <p>2. Choose one issue to address during the study.</p>	<p>1. Discussions about pinpointing issues that continually come up in data (e.g., fluency problems, recalling algorithmic procedures, recalling details of a reading passage, answering WH questions, remedial skills).</p> <p>2. Teachers discussed issues with colleagues. Some teachers decided their focus, others</p>



	Original Planned Activities	Actual Activities
		continued to consider ideas.
Week 2 PD	<ol style="list-style-type: none"> <li>1. I will present an interactive presentation of current resources available, including:               <ol style="list-style-type: none"> <li>a. What Works Clearinghouse</li> <li>b. Best Evidence Encyclopedia</li> <li>c. Teaching LD</li> <li>d. Visible Learning by John Hattie</li> <li>e. Council for Exceptional Children</li> <li>f. Professional/ scholarly literature (including Google Scholar and ERIC)</li> </ol> </li> <li>2. Participants will spend about 20 minutes looking through resources and will consider something they read about as a possible intervention to the academic concerns in their classrooms.</li> </ol>	<ol style="list-style-type: none"> <li>1. I presented an interactive presentation of current resources available, including:               <ol style="list-style-type: none"> <li>a. What Works Clearinghouse</li> <li>b. Best Evidence Encyclopedia</li> <li>c. Proven Practices Network</li> <li>d. Teaching LD</li> <li>e. Council for Exceptional Children</li> <li>f. Visible Learning by John Hattie</li> <li>g. Marzano</li> <li>h. Professional/ scholarly literature (including Google Scholar and ERIC)</li> </ol> </li> <li>2. Teachers spent about 12 minutes looking through resources to find a possible intervention to address the academic or behavioral concerns in their classrooms.</li> <li>3. I provided teachers with a handout that included helpful</li> </ol>

	Original Planned Activities	Actual Activities
		EBP resources, short descriptions as appropriate, and websites.
Week 2 Homework	Participants will email researcher interventions or EBPs of interest and the citation for related articles. I will access these additional resources and provide them to the participants.	Teachers (participants and non-participants) emailed the researcher interventions or EBPs of interest and the citations for related articles. I accessed these additional resources and provided them to the teachers via email (e.g., A teacher in a PLC told me about a strategy she or he had read about and wanted to implement, such as Socratic methods of discussion. I found information about the strategy, through one of the online resources and/or professional journals. I emailed this information back to the teacher.).
Week 2 Curriculum Meetings	Participants will narrow down which issue they will address in the classroom during the study, create	I met with each curriculum team for 30-45 minutes, with the objective of narrowing the teachers' (participants

	Original Planned Activities	Actual Activities
	<p>or determine an assessment tool they can use to monitor students' progress related to a chosen EBP, and create or determine a data collection tool to organize the results of student assessments.</p>	<p>and non-participants) focuses and choosing an EBP to implement. I gave specific examples of possible focuses in academics and behavior. The reading and math departments tended to create grade level teams within their curriculum groups to focus on one strategy. I instructed teachers to create or determine an assessment tool they could use to monitor students' progress related to the chosen EBP, and create or determine a data collection tool to organize the results of student assessment data. While I gave teachers direction to create a data collection tool, I did not check or have teachers turn in evidence of their data collection.</p>
Week 3 PD	<p>1. I will present a short presentation on PLC norms and</p>	<p>1. I presented a short presentation on PLCs, the research behind</p>

Original Planned Activities	Actual Activities
<p>purposes for the study.</p>	<p>their use, our PLC norms, and the</p>
<p>2. Teachers will select a PLC based on the specific EBP they will implement:</p>	<p>purpose of PLCs in this study. Teachers added quality ideas for group norms.</p>
<p>a. PLCs will have between four and six teachers each, but they do not necessarily have to be from the same discipline. Co-teachers within a classroom should join the same PLC.</p>	<p>2. Teachers selected a PLC based on the targeted student skill and specific EBP they had chosen to implement during the study:</p>
<p>b. I will have between three and five EBPs picked out with appropriate resources, for teachers/ PLCs without a clear idea of what they would like to implement.</p>	<p>a. Most PLCs were determined at curriculum meetings prior to the Week 3 training. These PLCs were provided as options for teachers who had not yet chosen an EBP to focus on.</p>
<p>3. Teachers will read resources and plan together how to implement</p>	<p>b. Each PLCs had between three and eight teachers participating, not necessarily from the same content area (e.g., some</p>

	Original Planned Activities	Actual Activities
	<p>the EBP in their classrooms</p> <p>over the next week.</p>	<p>PLCs had people from both math and language arts departments). Co-teachers were encouraged to join the same PLC, but not all pairs did.</p> <p>c. Each elementary grade level team worked together as one PLC on one strategy.</p> <p>3. PLCs moved to separate rooms to work. Teachers in each PLC requested resources and planned together how to implement the EBP in their classrooms.</p>
Week 3 Homework	<p>1. Participants will pre-test students, implement the EBP, and begin data collection.</p>	<p>1. I directed teachers (participants and non-participants) to complete a baseline assessment of their students' performance of the skill they had chosen to focus on and prepare to implement the EBP</p>

	Original Planned Activities	Actual Activities
		with that skill within one week.
Week 3 Curriculum Meetings	<ol style="list-style-type: none"> <li>1. Compare and share data collection and assessment tools.</li> <li>2. Mid-study survey.</li> </ol>	Participants completed the mid-study survey.
Week 4 PD	<ol style="list-style-type: none"> <li>1. Participants will share their experiences and data with the small group.</li> <li>2. Participants will read and share additional research and primary source information, if needed.</li> <li>3. Participants will plan at least one observation with another teacher for the next week.</li> <li>4. Researcher will provide a short presentation on how to conduct observations (using Joyce and Showers (2002) ideas of the observer as the “coached” and the teacher being observed as the “coach”).</li> </ol>	<ol style="list-style-type: none"> <li>1. Researcher provided a short presentation on how to conduct peer observations (using Joyce and Showers [2002]) ideas of the observer as the “coached” and the teacher being observed as the “coach”).</li> <li>2. Participants read and shared additional research and primary source information with their PLCs.</li> <li>3. Participants planned at least one observation with another teacher for the following week.</li> </ol>

	Original Planned Activities	Actual Activities
Week 4 Homework	<ol style="list-style-type: none"> <li>1. Participants will observe at least one teacher also implementing the same EBP and debrief about the observation. Debriefing should focus on the effectiveness of the strategy, including academic and behavioral progress of students, and details about how to most effectively implement the strategy in the classroom.</li> <li>2. Participants will continue to collect data on student achievement.</li> </ol>	<ol style="list-style-type: none"> <li>1. Teachers (participants and non-participants) observed at least one teacher also implementing the same EBP and debriefed about the observation. Debriefing should have focused on the effectiveness of the strategy, including academic and behavioral progress of students, and details about how to most effectively implement the strategy in the classroom. This step was not monitored for individual teachers.</li> <li>2. Teachers (participants and non-participants) continued to collect data on student achievement.</li> </ol>
Week 4 Curriculum Meetings	<ol style="list-style-type: none"> <li>1. Participants will check in briefly with the PLC members.</li> <li>2. Participants will share data on student achievement.</li> </ol>	<ol style="list-style-type: none"> <li>1. Teachers (participants and non-participants) checked in briefly with the PLC members.</li> <li>2. Teachers (participants and non-</li> </ol>

	Original Planned Activities	Actual Activities
	3. Participants may choose to make adjustments to their implementation, as suggested by PLC colleagues.	participants) shared data on student achievement. 3. Teachers (participants and non-participants) had the opportunity to choose to make adjustments to their implementation, as suggested by PLC colleagues.
Week 5 PD	1. Participants will review and reflect on implementation and data with PLCs. 2. If needed, I will provide a presentation with additional EBP information or will review previously discussed information.	1. No formal presentation given, just a brief whole group discussion reviewing EBPs being implemented, discussing/ giving support in data collection, sharing what is working and struggles. 2. Teachers divided into PLC groups and I went from group to group to check in and give guidance or support as needed.
Week 5 Homework	1. Participants will continue implementation and data collection. 2. Participants will complete	1. Teachers (participants and non-participants) continued implementation and data collection.



	Original Planned Activities	Actual Activities
	another observation and debrief with a PLC colleague.	2. Teachers (participants and non-participants) completed another observation and debrief with a PLC colleague.
Week 6 PD	<ol style="list-style-type: none"> <li>1. Participants will play Jeopardy! from the first week, to review what they have learned.</li> <li>2. Participants will sign up for email updates from resources (including Teaching LD and Best Evidence Encyclopedia).</li> <li>3. Participants will complete the post-study survey.</li> <li>4. PLCs will individually report out about their EBP and data.</li> </ol>	<ol style="list-style-type: none"> <li>1. PLCs individually reported out about their EBP and data.</li> <li>2. Teachers (participants and non-participants) were encouraged to sign up for email updates from resources (including <i>Teaching LD and Best Evidence Encyclopedia</i>).</li> <li>3. Teachers (participants and non-participants) played Jeopardy! from the first week, to review what they</li> </ol>

	Original Planned Activities	Actual Activities
		<p>learned.</p> <p>4. Teachers (participants and non-participants) completed the post-study survey.</p>
Follow Up	<p>Follow up with teachers at 9 weeks and 11 weeks using surveys. Are they continuing to seek out EBPs and implement them on a regular basis? Check in with teachers at data teams and provide support to teachers for implementing EBPs.</p>	<p>I provided follow up surveys to participants 3 weeks following the study and again 13 weeks following the study. I copied a reminder note to the back of each follow up survey, asking participants to complete the survey and return to my staff mailbox. I numbered each survey on the corner of the paper and put a corresponding number next to the participant's name on a staff list. When each survey was returned, I tore off the number from the survey (before reading it), and marked off the corresponding number next to the participant name. By using this</p>

## Original Planned Activities

## Actual Activities

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strategy, I was able to follow up with participants who did not return follow up surveys by placing an additional survey in their staff mailbox or reminding them verbally to complete the follow up survey.

## Appendix B:

### Surveys

#### Initial Survey:

Please rate yourself for each of the following questions. Please be as honest as possible!

1. Rate your current understanding/ use of Evidence-Based Practices (EBPs)
  - 1 I have not heard of EBPs/ I do not know what EPBs are.
  - 2 I have a general understanding of EBPs, but I do not use them in the classroom (to my knowledge)
  - 3 I know what EBPs are and I use them occasionally in instruction
  - 4 I regularly use EBPs in everyday lessons
2. Rate your current knowledge of public resources to identify EBPs in education
  - 1 I have not heard of EBPs/ I do not know what EPBs are.
  - 2 I have a general understanding of what EBPs are, but I do not know how to find/ access them
  - 3 I know a couple (1 or 2) places where I can find EBPs
  - 4 I know multiple (3 or more) places where I can find EBPs
3. Rate your current use of scholarly literature or text when planning your weekly lessons
  - 1 I do not generally use scholarly literature or books when lesson planning
  - 2 I occasionally (less than 50% of the time) use scholarly literature or books when lesson planning
  - 3 I regularly (up to 80% of the time) use scholarly literature or books when lesson planning
  - 4 I almost always (more than 80% of the time) use scholarly literature or books when lesson planning
4. Rate your level of interest in learning about and using evidence-based practices in your classroom
  - 1 not interested
  - 2 minimally interested
  - 3 moderately interested
  - 4 very interested
5. Why is the use of evidence-based practice important in everyday classroom instruction?

**Mid-Study/ End of Study Survey:** *This survey will be given twice, once immediately following week 3 of the PD and once immediately following week 6 of the PD*

1. How much has your understanding of EBPs increased since beginning the professional development?  
 1 Minimally  3 Moderately  
 2 Somewhat  4 Significantly
  
2. Has your use of EBPs in lesson planning increased since beginning the professional development?  
 1 Minimally  3 Moderately  
 2 Somewhat  4 Significantly
  
3. Rate your current use of scholarly literature or text when planning your weekly lessons  
 1 I do not generally use scholarly literature or books when lesson planning  
 2 I occasionally (less than 50% of the time) use scholarly literature or books when lesson planning  
 3 I regularly (up to 80% of the time) use scholarly literature or books when lesson planning  
 4 I almost always (more than 80% of the time) use scholarly literature or books when lesson planning
  
4. Do you find the professional development useful for your classroom planning and instruction?  
 1 Minimally  3 Moderately  
 2 Somewhat  4 Significantly
  
5. What has been the most useful part of the professional development?
  
  
6. What suggestions do you have to make the professional development more relevant and/or engaging?

**Follow-Up Surveys:**

1. How frequently do you use EBPs in your classroom instruction?  
 1 Rarely (less than once per week)                       3 Regularly (3-4 times weekly)  
 2 Occasionally (1-2 times weekly)                       4 Frequently (daily)
  
2. How have you used EBPs in your classroom (e.g., as a regular part of whole group, small group, or intervention, when doing special activities, etc.)?
  
3. What (if any) barriers have prevented you from using EBPs in your classroom on a frequent basis?
  
4. Was the professional development helpful in providing access to resources for EBPs?  
 1 Minimally                       3 Moderately  
 2 Somewhat                       4 Significantly
  
5. What was the most useful aspect of the professional development on EBPs (e.g., working with a small team, reading professional literature, peer observations)?
  
6. Was this model of professional development (weekly workshops with coaching and follow-up throughout) useful to learn about and implement EBPs? Would you be interested in other PD topics being presented through this model?