ABSTRACT

The Effects of Active Learning on Professional Development Motivation
in Early Childhood Teachers

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A quasi-experimental design was conducted to examine the motivation of in-service early childhood teachers to pursue additional professional development opportunities and implement evidence-based strategies in their classrooms after engaging in active learning professional development. Analysis of variance was used to measure the relationship between active learning and provisional development and between active learning and motivation to implement evidence-based strategies. A total of 143 educators participated in the research study, completing a survey at the end of a one day workshop. Focus groups were conducted with 33 participants and 30 participants participated in a 30-days post-intervention survey. Results suggested that, when compared to lecture-style professional development, active learning professional development was related to higher levels of professional development motivation and motivation to implement evidence-based strategies within the early childhood classroom. Initial analysis indicates that thirty days after the professional development and Wave 1 survey, the group that received active learning professional development continued to score higher in professional development motivation and motivation to implement evidence-based strategies than the

group that received lecture-based professional development. These findings indicate that active learning professional development may be beneficial to increasing professional development motivation, which may increase the quantity and quality of professional development early childhood teachers seek. Initial findings also indicate active learning professional development increases early childhood teacher motivation to utilize knowledge gained in the training and actually implement the strategies within the classroom. Therefore, active learning teaching strategies could be considered a valuable component of high-quality professional development for early childhood teachers. When designing professional development workshops, trainers might consider including hands-on activities, multiple opportunities for teachers to practice instructional strategies, presentations to colleagues, reflections upon personal learning and opportunities to analyze the needs of their individual students.

The Effects of Active Learning on Professional Development Motivation
in Early Childhood Teachers

by

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A Dissertation

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To my beloved children

You have endured three college degrees during your lifetime. Having a mom who is a student is no joke – you learn to make sandwiches for dinner and how to wash your own laundry at an early age. You help carry suitcases full of books when leaving for Disney World and listen to audio textbooks on the way home from practice. You spend summers living in the family RV so your mom can attend classes far from home. There are many sacrifices, but (I believe) just as many benefits. You learn that there is no excuse for missing homework and that the light over the kitchen table burns brightest at five a.m. You learn about commitment, the importance of an education and how to think critically. Most importantly, you learn that your potential is unlimited and it is never too late to make your mark on the world. Without you, none of this would have any meaning.
I hope I have made you as proud as you make me every day.

CHAPTER ONE

Introduction

Background and Significance

High-quality professional development has been identified as key in the

improvement of early childhood education (Landry, Anthony, Swank & Monseque-

Bailey, 2009; Lynch, 2017; Wagner & French, 2010). Garet, Porter, Desimone, Birman,

and Yoon (2001) suggest that professional development which includes a focus upon

academic subject matter (content), opportunities for hands-on work (active learning), and

is aligned with the priorities of the school (coherence) can produce increases in teacher

knowledge and skills which result in improved student outcomes. Early childhood

teachers are motivated to become active participants in professional development when

they view the content as engaging and relevant to their classroom (Diamond & Powell,

2011). When teachers engage in professional development workshops that contain active

learning components, the quality of their teaching practices improve (Lynch, 2017).

Scholars report that a high level of motivation to take part in active learning professional

development activities results in changes to teacher perception and internalization of

workshop content; which then improves teaching practices, resulting in increased

academic achievement of students (Wagner & French, 2010).

There is additional evidence that highly trained teachers are a critical component

in early childhood education programs that result in positive outcomes for young children

and families (Arnett, 1989; Barnett, 2003; Buchanan, Morgan, Cooney, & Gerharter,

2006; Diamond & Powell, 2011; Shonkoff & Phillips, 2004; Wagner & French, 2010).

Research indicates that educator participation in high quality professional development builds capacity to improve student outcomes by producing superior teaching, which then translates to increases in student achievement (Hochberg & Desimone, 2010). Teachers have reported changes in their view of a child's capabilities and changes in view of how children learn after participating in high quality professional development (Wagner & French, 2010). This suggests that there is potential to affect the educational philosophy of teachers through professional development. The personal educational philosophy of a teacher is a powerful determinant in the classroom practices they utilize and opportunities they provide to their students (Guskey 2009; Lynch, 2017). Other researchers argue that there is limited rigorous empirical evidence available to suggest a causal relationship between professional development and positive outcomes in the classroom (Snyder, Hemmeter, & McLaughlin, 2011; Snyder, Hemmeter, McLean, Sandall, McLaughlin, & Algina, 2018). Specifically, additional empirical research is necessary to ascertain which processes support the acquisition of new knowledge and skills, as well as changes in motivation and educational philosophy for early childhood educators (Sheridan, Edwards, Marvin, & Knoche, 2009; Brown & Engelhardt, 2016).

In the United States, local education agencies often plan generalized continuing education for the educators they employ, with little regard for classroom composition, content area taught or teacher perception of individual strengths, weaknesses, and interests (Diamond & Powell, 2011; Fitzgerald & Theilheimer, 2013; Helterbran & Fennimore, 2004; Lawler, 2003; Lino, 2014). American teachers report that much of the professional development available to them is not useful and inadequate to develop their learning in the evolving field of early childhood education (Fitzgerald & Theilheimer,

2013; Horm, Hyson, & Winton, 2013). Although the relationship between high quality professional development and positive student outcomes is understood, a discrepancy exists between research-supported professional development practices and the professional development that early childhood teachers are actually receiving (Cox, Hollingsworth, & Buysse, 2015; Gomez, Kagan & Fox, 2015). While most teachers across the United States participate in some form of professional development each year, there is a wide variation in the types of professional development experienced as well as the quality of the professional learning undertaken (Darling-Hammond, Chung Wei, Andree, Richardson, & Orphanos, 2009; Gomez et al., 2015; Fisher, Schumaker, Culbertson, & Deshler, 2010). First, there are limited opportunities for teachers to have a voice in the topic and/or content of professional development, often contributing to a disaffected audience (Helterbran & Fennimore, 2004). Second, teachers report the duration of professional development offerings significantly decreased to 8 hours or less per topic, down from prior spans of 9-16 hours per topic (Darling-Hammond et al., 2009; U.S. Department of Education, 2012). Despite short-term trainings being often the only reasonable professional development option for educators, there is little evidence of improvement of implementation as a result of these trainings (Buchanan et al., 2006). Third, opportunities for collaboration with other teachers and/or mentors are often lacking; only 16% of teachers surveyed agreed that cooperative effort occurs amongst staff members at their school (Chung Wei, Darling-Hammond, & Adamson, 2010).

In recent years, professional development opportunities have become a source of public scrutiny (Miller, Curwen, White-Smith, & Calfe, 2014; Cox et al., 2015; Snyder et al., 2018). Increased federal oversight of education agencies has resulted in an emphasis

on provisions for scientifically based research and evaluation in education programs (Garet et al., 2001; Hochberg, & Desimone, 2010; Cox et al., 2015). As a part of this initiative, state and local agencies were asked to examine if their educator professional development programs were research-based. In a research report presented to the Council of Chief State School Officers, only one third of evaluation studies reviewed were able to report measurable effects of teacher professional development on student outcomes (Blank, de las Alas, & Smith, 2008). Following this report, organizations such as the National Science Foundation (NSF), the Council of Chief State School Officers (CCSSO), and the National Staff Development Council (renamed Learning Forward in 2010) established a consensus of evidence-based professional development features related to successful outcomes (Darling-Hammond et al., 2009; Karabenick & Conley, 2011; Learning Forward, 2011; Weiss & Pasley, 2009).

School reform has been at the forefront of news and policy, with early childhood teacher development a frequent subject of scrutiny (Buysse, 2015; Snyder, Hemmeter, McLean, Sandall, McLaughlin, & Algina, 2018). Early childhood classrooms are more diverse than ever, representing an array of ethnicities, races, family compositions, and ability levels (Diamond & Powell, 2011; Horm et al., 2013; Nitecki, 2014). Children come to school with a variety of educational and social-emotional needs, and teachers must be properly equipped to respond appropriately (Diamond & Powell, 2011; Kinzie, Whitaker, Neesen, Kelley, Matera, & Pianta, 2006). A joint position statement by the Division for Early Childhood (DEC) of the Council for Exceptional Children (CEC) and National Association for the Education of Young Children (NAEYC) states that education organizations should implement an integrated professional development system

in which shared assumptions for inclusive education in the early childhood classroom determine what practitioners need to know and be able to do, as well as how these learning opportunities are delivered (DEC/NAEYC, 2009). Snyder et al. (2018) note that demands for competent early childhood practitioners have brought about the need for integrated professional development systems in early childhood and early childhood special education.

Effective Professional Development

Positive student outcomes have been reported when teachers participate in professional development situated within a concise content area and focused on problem solving rather than prescribed instructional strategies (Hochberg & Desimone, 2010). It is also important that the design of the professional development incorporates collective participation of teaching colleagues and opportunities for active learning (Garet et al., 2001; Desimone, Porter, Garet, Yoon, & Birman, 2002; Wayne, Yoon, Zhu, Cronen, & Garet, 2008; Whitworth & Chiu, 2015). Active learning strategies include, but are not limited to, engaging in hands-on activities, developing and analyzing lesson plans related to the content, presenting to colleagues, and practicing teaching strategies (Garet et al., 2001; Desimone et al., 2002). Activities that provide active engagement in the analysis of teaching practices and rationale for new instructional practices have shown to be effective in improving student achievement (Hochberg & Desimone, 2010; Landry et al., 2009). Coherence with campus and district initiatives is also essential for effective professional development (Garet et al., 2001; Desimone et al., 2002; Wayne et al., 2008; Whitworth & Chiu, 2015).

Evidence-based Practices in Early Childhood

Evidence-based practices (EBPs) for early childhood education inform decision-making processes by integrating the best available research evidence with professional wisdom and the values of individual families (Buysse, Wesley, Snyder, & Winton, 2006; Farley, Brock, & Winterbottom, 2018; Purper, 2016; Snyder, 2006; Snyder et al., 2018). Scholars in early childhood education agree that there is a relationship between EBPs and positive educational outcomes for young children (Odom, 2009; Walsh, Kemp, Hodge & Bowes, 2012; Cook & Odom, 2013; Ledford, Barton, Hardy, Elam, Seabolt, Shanks, & Kaiser, 2016; Farley et al., 2018; Snyder, Hemmeter, & McLaughlin, 2011; Snyder et al., 2018). Scholars also agree that EBPs are linked to the overall quality of early childhood education programs (Farley et al., 2018). Adopting an approach rooted in EBPs requires that teachers have access to research-based practices that are relevant to their classroom situation (Buysse et al., 2006). Additionally, teachers will need to acquire the knowledge and skills necessary to apply these research-based practices to the needs and priorities of individual students and families (Buysse et al., 2006; Farley et al., 2018; Odom 2009).

Asking practitioners to navigate EBPs on their own would require concerted effort, including: (a) defining the parameters of evidence-based practices; (b) locating and reviewing research for evidence and efficacy; and (c) consideration of whether said EBP is developmentally appropriate (Farley et al., 2018). Furthermore, this establishes unrealistic expectations for teachers who already struggle to balance limited resources with multiple demands upon their time (Farley et al., 2018) and are charged with using child characteristics to make effective instructional decisions (Ledford et al., 2016). Professional organizations such as the DEC, CEC, NAEYC, What Works Clearinghouse

(WWC), American Educational Research Association (AERA), and American Speech-Hearing-Language Association (ASHA), are led by researchers and professionals in the early childhood field who have the resources and training to interpret findings and effectively disseminate the research to practitioners (Farley et al., 2018). Organizations that support early childhood educators, NAEYC in particular, are uniquely situated to fulfill an essential role in clarifying the boundaries of EBPs, as well as providing guidance to educators as they seek to identify and implement those practices (Farley et al., 2018). Thus, it is imperative that leadership, guidance and dissemination of the available research are provided by skilled researchers along with professional and/or government organizations considered reliable sources within early childhood education, with the purpose of helping practitioners navigate early childhood practices and implement EBPs (Farley et al., 2018).

Shifting Professional Development Needs

The inclusion of preschool classes in public education and increased emphasis on quality early education for all young children have been accompanied by a demand for alignment of standards for early childhood education and elementary education (Helterbran & Fennimore, 2004; Feldman, 2010). As a result, many early childhood teachers are experiencing pressure to ensure that even the youngest children develop formal academic skills (Helterbran & Fennimore, 2004; Fowler, 2017). Additionally, the need for coordination of systems for teacher preparation and professional development has received increased attention (Lobman & Ryan, 2008; Nitecki, 2014; Norris, 2010). Consequently, professional development for early childhood educators has undergone a change of focus, moving from individualized content application to a deepening of the

practitioners' conceptual knowledge base and valuing child development in context (Horm et al., 2013; Lino, 2014).

Based upon their rich experiences with professional development and classroom implementation, early childhood educators are well positioned to identify what professional development strategies work for them (Fitzgerald & Theilheimer, 2013). Teachers seek professional development activities that are active and engaging, include opportunities for collaboration, and recognize their prior experience, providing varying levels of content knowledge and valuable insight into educational practices (Bill & Melinda Gates Foundation, 2014; Covay Minor, Desimone, Caines Lee & Hochberg, 2016; Lynch, 2017; Wagner & French, 2010). Improvement of professional learning opportunities for early childhood teachers is crucial to transforming schools and improving academic achievement (Buchanan et al., 2006; Diamond & Powell, 2011; Nitecki, 2014). Professional development workshops that incorporate opportunities which promote active learning such as small group collaboration, reflection, and in-depth practice application have shown to be successful in promoting knowledge transfer and strategy implementation, as well as promoting teacher motivation (Buchanan et al., 2006; Desimone et al., 2002).

It is common for early childhood educators with a variety of educational backgrounds and varying levels of classroom experience to attend the same professional development session (Darling-Hammond et al., 2009; Fitzgerald & Theilheimer, 2013; Gabriel, 2010). When a professional development audience consists of a continuum of experience and backgrounds, it is beneficial for the trainer to utilize active learning strategies such as sharing among peers, reflection and engaging activities situated within

the context of the teaching assignment to meet the education needs of all participants and ensure that everyone remains engaged (Brown Easton, 2015; Desimone & Garet, 2015; Garet et al., 2001; Lino, 2014). As early childhood educators of all experience levels attempt to balance the complexities of the rigorous standards for learning with EBPs for all students, it becomes increasingly necessary that they obtain engaging, high-quality professional development (Buchanan et al., 2006; Diamond & Powell, 2011; Gabriel, 2010; Lino, 2014).

Motivation to Attend Professional Development

Although several studies have been conducted to examine the relationships between professional development and teacher knowledge and practices (e.g., Jaquith, Mindich, Chung Wei, & Darling-Hammond, 2010), few have considered the relationship between professional development and its effects on teacher motivation (Wayne et al., 2008; Karabenick & Conley, 2011; McDonald, 2012; Daniels, 2016). In a study of motivation and teacher learning as a result of professional development, researchers identified the importance of teacher investment in the process of developing as a professional (McDonald, 2012). In another study, researchers found that teachers indicated higher levels of motivation when attending professional development that was engaging, directly correlated to their classroom needs, involved teacher participation, and encompassed initiatives which were supported by their campus-level administration, even when the professional development activities required significant amounts of time and personal investment (Karabenick & Conley, 2011). Professional development motivation also has significant positive associations to teachers' sense of responsibility for student academic outcomes (Karabenick & Conley, 2011). Researchers have studied factors

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influencing non-degreed early childhood teachers' motivation to attain formal higher

education (Duetsch & Riffin, 2013; Early & Winton, 2001; Huss-Keeler, Peters, & Moss,

2013), motivation to continue teaching within the field of early childhood education

(Kontos & Stremmel, 1988; Torquati, Raikes, & Huddleston-Casas, 2007), and

motivation to elicit specific behaviors and/or social skills from their students (Brown,

2015; Lang, Mouzourou, Jeon, Buettner, & Hur, 2017; Mita, Li, & Goodell, 2013).

Several researchers have studied motivation in the context of early childhood education,

but none have explored the relationship between active learning professional

development and motivation for further professional development.

One study has been conducted to examine the relationship between professional

development for early childhood educators and their associated motivation to attend

further professional development activities (Wagner & French, 2010). The results of the

Wagner and French study (2010) provide insight into the potential of further research

regarding the relationship between professional development motivation and changes in

teacher practices. Researchers found that teachers who displayed high levels of

motivation to engage in a professional development workshop were more open to

implementation of the resulting strategies in their classrooms – and the implementation of

these strategies was related to improved student outcomes (Wagner & French, 2010).

Motivation to attend professional development affected how teacher experienced and

engaged with the learning opportunity. Teachers who exhibited intrinsic motivation

towards the professional development reported changes in their teaching practices and

improved classroom outcomes, whereas teachers who were not motivated to engage in

the professional development found it to be of no value and reported no impacts on their

teaching practices or classroom outcomes (Wagner & French, 2010). Additionally, teachers who reported that they had little or no choice regarding participation in the workshop exhibited low measures of intrinsic motivation (Wagner & French, 2010). Seemingly, lack of choice regarding participation in professional development yields low intrinsic motivation towards the learning opportunity, which is related to stagnation of teaching practices and student outcomes. This further indicates that an individual's intrinsic motivation to engage in professional development will determine the degree to which the new learning is integrated into one's sense of self and personal educational philosophy (Wagner & French, 2010). Changes in educational philosophy may result in changes to individual teaching practices, which have been shown to affect student outcomes (Guskey, 2002; Lynch, 2017). Since 2010, no further research has explored the motivation of early childhood educators to engage in professional development.

In a project sponsored by the University of Michigan and funded by the National Science Foundation, teacher professional development motivation was studied, and a psychometric tool developed for the purpose of measuring professional development motivation (Karabenick & Conley, 2011; Karabenick & Conley, 2014). Various motivation theories, including expectancy-value theory (Watt & Richardson, 2007), self-determination theory (Assor, Kaplan, Feinburg, & Tal, 2009), interest theories (Hidi & Renniger, 2006), achievement goal theory (Butler & Shivaz, 2008), and teacher affect and emotions (Pekrun, Frenzel, Goetz, & Perry, 2007) were considered for correlations. The varying conceptual frameworks of motivation provided a range of constructs and modes of assessment relevant to understanding the role of professional development motivation (Scheib & Karabenick, 2011). Participant experiences were recorded and

categorized for use in the development of an assessment tool to measure professional development motivation. Throughout the literature, a common theme emerges – there is a need for additional research into the relationship between professional development for educators and professional development motivation (Karabenick & Conley, 2011; Karabenick & Conley, 2014). This is especially true in the field of early childhood education, where minimal studies on the topic have been conducted.

Statement of the Problem

The professional learning needs of early childhood educators have changed from what they were decades ago, yet the content and structure of early childhood professional development has not experienced a systemic change to reflect recent research findings (Han, 2014; Markussen-Brown et al., 2017; Snyder et al., 2011; Snyder et al., 2018). One way teachers of adult learners can support educators is by designing their professional development sessions to include activities that will support differing learning preferences, varied levels of experience, and diverse educational backgrounds, while engaging adult learners. A conceptual framework for effective professional development of teachers exists (Desimone & Garet, 2015). A search of the literature reveals much research concerning the need for improved professional development opportunities in the field of early childhood education. High-quality professional development has the potential to influence teacher motivation to attend further professional development (Schieb & Karabenick, 2011). Teachers who exhibit high motivation to participate in professional development are more engaged with the content in ways that will foster improved outcomes in the classroom (Crawford, 2017; Wagner & French, 2010). However, there is minimal literature concerning the professional development motivation of early

childhood educators. The current study will address the professional development

motivation of early childhood educators after receiving active learning professional

development.

CHAPTER TWO

Literature Review

This literature review is composed of research concerning professional development for early childhood educators, active learning in professional development and professional development motivation, as shown in Table 1.

Contradicting opinions in the professional development literature are addressed. An exploration of the literature regarding Deci and Ryan's Self-determination Theory (SDT) is included for the purpose of establishing a theoretical framework for the current study. A summation of pertinent position statements and policies concerning programming for early childhood education are included to give context to the professional development needs of early childhood educators. To promote responsibility in early childhood education research and respect research standards recognized with the field, a span of twenty years was used in the search parameters for the literature review (Buysse, Sparkman, & Wesley, 2003). Twenty years allows for the intricacies and flow of research funding in the field of early childhood education, as well as the opportunity for multiple members of the early childhood research community to engage in mutual analysis to refine research and practice (Sheridan et al., 2009; Wesley & Buysse, 2001). Multiple databases found on the EBSCO search engine were used including *Academic Search Complete, Education Research Complete, ERIC (EBSCO), ERIC (Online: Institute of education Sciences and ERIC (ProQuest)*. Criteria for inclusion in the literature review consisted of key words such as professional development, in-service training, continuing education, adult learning, active learning, teacher education, early

childhood education, preschool teachers, pre-kindergarten teachers, early childhood teachers, educators, teachers, evidence-based practices, best practices, research-based practices, motivation, self-determination theory and motivation theory were searched.

Self-determination Theory

Self-determination theory (SDT) has been categorized as an organismic theory – one that begins with the assumption of an active, growth-oriented organism naturally inclined towards organized coherence between themselves and the social world (Deci & Ryan, 2000). Theories which rely upon an organismic structure of humans view development through a lens in which individuals internalize, elaborate, refine and integrate representations of self and the world (Deci & Ryan, 2008a). SDT relies upon the assumption that humans act upon their internal and external environments with the intent of being effective while satisfying their own needs (Deci & Ryan, 1985). It assumes that by nature people are active and self-motivated, embodying a desire to succeed simply because success is personally rewarding (Deci & Ryan, 2008a). SDT is a macro-theory of human motivation that addresses personality development, non-conscious processes, self-regulation and universal psychological needs. The theory has been applied to a wide range of life domains and also examines affect, behavior, well-being, energy and vitality, an individual's aspirations and life goals, the relationship between culture and motivation, and the impact of social environments on motivation (Deci & Ryan, 2008b).

Proponents of the theory believe that all humans have basic needs to experience autonomy, competence, and relatedness to other humans and will therefore act in a manner that will yield these results (Deci & Ryan, 1985; Deci & Ryan, 2008a; Deci & Ryan, 2008b; Tranquillo & Stecker, 2016). Autonomy is when individuals experience

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their behavior as originating from and endorsed by themselves. When people engage in activities that they find interesting, they act of their own volition and the resultant activity is seen as autonomous (Deci & Ryan, 1985; Gagné & Deci, 2005). A feeling of competence occurs when one feels as if he or she is effectively pursuing goals that will have an impact upon the environment (Deci & Ryan, 2008b, Gagné & Deci, 2005). According to SDT, individuals have an innate need to feel competent that underlies intrinsic motivation (Deci & Ryan, 1985; Gagné & Deci, 2005). Finally, a need for relatedness is essential for internalization of a behavior (Deci & Ryan, 1985; Gagné & Deci, 2005). Relatedness is experienced when one has formed and maintains emotional bonds with others (Tranquillo & Stecker, 2016). When individuals' needs to be effective in the social world (competence) and their needs to connect to others (relatedness) are satisfied, they are likely to internalize the values and social regulations that exist in their world (Gagné & Deci, 2005). Social contexts that reinforce these needs will support the inherent activity of individuals, promote optimal motivation, and yield the most positive developmental, psychological and behavioral outcomes (Deci & Ryan, 2000; Deci & Ryan, 2008a).

There are two different types of motivation - autonomous motivation and controlled motivation. Autonomous motivation is that in which one behaves of her own volition and choice, whereas controlled motivation occurs when one experiences pressure or demands from external forces, which cause behavior towards an externally chosen outcome (Deci & Ryan, 2008a). Autonomous motivation comprises intrinsic motivation (Deci & Ryan, 2008b), such as painting a picture purely for the enjoyment of the activity. Autonomous motivation also comprises the types of extrinsic motivation associated with

activities in which an individual recognizes the value of an activity and has integrated it into his sense of self (Deci & Ryan, 2008b). An example of this type of extrinsic motivation would be a long-distance runner who regularly runs for relaxation or stress-relief, while also understanding that increased physical activity is associated with health benefits. Autonomous motivation has been shown to result in greater internalization of learning with resulting change in teaching practice (Assor et al., 2009), greater conceptual understanding, longer-term persistence and increased productivity (Deci & Ryan, 2008a; Deci & Ryan, 2008b).

Controlled motivation (Deci & Ryan, 2008b) is comprised of those external regulations in which behavior is a function of reward or punishment (e.g., when an individual obeys traffic laws to avoid receiving a traffic ticket). Controlled motivation can also be comprised of introjected regulation, in which motivation is a result of shame avoidance, approval motives, and protection of ego (Deci & Ryan, 2008b) (e.g., when a runner maintains her running routine to increase the chances of winning the next competitive race). Controlled motivation has the potential to undermine long-term motivation and create individuals who perform contingent upon external motivation (Tranquillo & Stecker, 2016).

In the early years of self-determination research, researchers focused the majority of their efforts upon studying the distinction between intrinsic and extrinsic motivation (Deci & Ryan, 1985; Deci & Ryan, 2008a). Intrinsic motivation is typically autonomous and involves behaviors that are carried out wholly because the activity itself is interesting and spontaneously satisfying to the individual (Deci, 1975; Deci & Ryan, 1985; Deci & Ryan, 2008a; Gagné & Deci, 2005). Extrinsic motivation involves the completion of an

activity because it leads to a separate consequence, such as avoidance of a punishment or gain of a reward, leading to situations in which individuals take action only when the action becomes instrumental as a means to an end result (Deci & Ryan, 1985; Deci & Ryan, 2008a; Gagné & Deci, 2005).

Later efforts in SDT research delved into the intricacies of motivation and regulation. SDT emphasizes that internalization and integration of behaviors will function effectively if ambient supports are experienced to a degree that basic psychological needs are met (Deci & Ryan, 2008a). In short, people can eventually internalize and integrate to self those actions which were initially prompted and/or externally regulated (Deci & Ryan, 2008a, Gagné & Deci, 2005). If basic psychological needs are met, these conditions can occur (Assor et al., 2009). However, if these needs are not met, or efforts at meeting them are thwarted, people will be less effective at internalization and integration (Deci & Ryan, 2008a).

There are three different types of internalization through which regulations become internalized (Deci & Ryan, 2008a). The three types of internalization are introjection, identification, and integration (Deci & Ryan, 2008a; Gagné & Deci, 2005). Introjection is the least effective form of internalization and involves an individual taking in an external regulation without accepting it as his own. This external regulation controls them, creating a sense of contingent self-esteem and ego involvement in which pride is promised upon success, but guilt and blame promised upon failure (Deci & Ryan 2008a). In a sense, the introjected regulation controls the individual (Gagné & Deci, 2005).

Identification occurs when a behavior aligns with an individual's personal goals and/or identity, causing them to perceive the behavior to reflect traits of their own

personality or values and goals (Gagné & Deci, 2005). In the case of identification, the individual identifies value in the behavior and willingly accepts responsibility for self-regulation of the behavior (Deci & Ryan, 2008a). Individuals do not feel pressured or controlled to continue the behavior, therefore engaging in it with a greater sense of autonomy (Deci & Ryan, 2008a).

The final type of internalization of behavior is integration. Integration occurs when an individual has identified with a behavior to such a degree that he begins to assimilate it into his identity. Integration is the fullest type of internalization and the only type of internalization in which extrinsically motivated behaviors become self-determined, or fully autonomous (Deci & Ryan, 2008a). It is theorized that integrated regulation is the most advanced form of extrinsic motivation and shares some qualities with intrinsic motivation (Gagné & Deci, 2005). Thus, autonomous motivation comes in two different forms – intrinsic motivation and internalized extrinsic motivation (Deci & Ryan, 2008a; Gagné & Deci, 2005).

The SDT model of internalization outlines the types of regulation found within the structure, but it should not be perceived as a model of phases or stages. Individuals need not move through the types of internalization in any particular order, nor do they have to experience all stages for a behavior to become integrated (Gagné & Deci, 2005). As a continuum, SDT asserts that self-determination can exist anywhere in the range of amotivation (complete lack of self-determination) to intrinsic motivation (fully self-determined, without variation), depending upon the level of autonomy experienced (Deci & Ryan, 2008a; Gagné & Deci, 2005).

SDT provides a useful framework for examining ways in which individual and systemic factors interact to influence teachers' motivation to pursue professional development (Wagner & French, 2010). Researchers believe the theory may explain increased interest and participation in professional development amongst early childhood teachers (Wagner & French, 2010); goal orientations and transfer of training (Gegenfurtner, Könings, Kosmajac, & Gebhardt, 2016); and teacher internalization of new practices and ideas (Assor et al., 2009). Wagner and French (2010) found that when the needs for competence and relatedness are satisfied, teachers have higher levels of intrinsic motivation toward their work and professional development opportunities.

Due to the basic psychological needs of competency, autonomy, and relatedness that are essential for all individuals, research in SDT focuses on the extent to which individuals are able meet these needs within society and the lasting effects of doing so (Gagné & Deci, 2005). Organizational studies have shown that autonomy-supportive work environments and methods of managerial oversight promote basic need satisfaction, internalization of extrinsic motivation and intrinsic motivation, resulting in improved job performance, increased efficacy, persistence, positive work attitudes, organizational commitment, overall job satisfaction, and increases in psychological well-being (Gagné & Deci, 2005).

Thus, SDT may be useful in guiding educational practices and reforms that promote new ideas without suppressing the voices of educators (Assor et al., 2009). Often, external change agents such as professional development and integration of new ideas, cause teachers to experience threats to their basic psychological needs for autonomy, relatedness, and competency (Assor et al., 2009). By providing professional

development opportunities that promote autonomy and personal growth (e.g., choice of curriculum and/or teaching methods), opportunities to be creative and express himself or herself, relatedness with other educators, and competency in the teaching craft, educators may experience intrinsic motivation or integrated extrinsic motivation (Wagner & French, 2010). For teachers to internalize and/or integrate the new ideas brought forth in professional development, it is essential that supports are in place to satisfy teachers' needs throughout the process and procedures exist to facilitate learning groups and implementation structures that will allow teachers to experience new ideas and practices as valuable (Assor et al., 2009).

The underlying assumptions of effective professional development (collective participation among colleagues, inclusion of active learning opportunities, and coherence built in to the activities; Garet et al., 2001; Desimone et al., 2002; Wayne et al., 2008; Whitworth & Chiu, 2015) support the basic psychological needs of teachers: autonomy; competence and relatedness (Deci & Ryan, 2008a; Gagné & Deci, 2005; Wagner & French, 2010). Active learning professional development is particularly well-suited to provide for the basic needs of early childhood education teachers. Active learning strategies that support the need for autonomy include (but are not limited to): (a) product creation (Manzon, 2017), (b) opportunities for instructional planning and direct engagement with the curriculum (Penuel, Fishman, Yamaguchi, & Gallagher, 2007), and (c) engagement in real life scenarios with opportunities to practice new skills and self-reflect upon highly-effective strategies (Dunst, Trivette, & Hamby, 2010). Active learning strategies that are supportive of the need for competence include (but are not limited to): (a) case studies (Li & Wu, 2015), (b) obtaining feedback on teaching

practices (Garet et al., 2001), (c) opportunities for practice and self-evaluation (Bayar, 2014), and (d) provision of practice opportunities situated within real-life scenarios with follow-up self-reflection (Dunst et al., 2010). Finally, the need for relatedness is met through many active learning strategies, including but not limited to: (a) small group collaborations (Hyun, Ediger, & Lee, 2017); (b) role playing (Li & Wu, 2015); (c) modeling instructional strategies with follow-up self-reflection (Darling-Hammond & Richardson, 2009); and (d) opportunities for large group brainstorming of teaching strategies and problem-solving (Li & Wu, 2015).

Research findings indicate that early childhood educators are autonomously motivated to attend professional development that allows for collaboration when learning new teaching strategies, sharing of ideas, opportunities to practice new strategies, and choice in subject matter (Wagner & French, 2010). When early childhood teachers are autonomously motivated to attend professional development, they are more interested in their work, professional improvement overall, and experience increased interest in seeking further professional development (Wagner & French, 2010). This construct can be measured as professional development motivation. A high level of professional development motivation has been linked to positive relationships with administrators and colleagues, increases in leadership capacity and a sense of personal accomplishment (Karabenick & Conley, 2011). A relationship exists between professional development motivation and decreases in teacher burnout (Karabenick & Conley, 2011). Perhaps most important, the embodiment of a mastery approach to teaching, focusing upon individual student improvement and high expectations for all students has also been linked to professional development motivation (Karabenick & Conley, 2011).

Content in Professional Development for Early Childhood Educators

Early childhood education includes education for children aged birth through eight years old (Morrison, 2008). The National Association for the Education of Young Children (NAEYC) is a large professional organization focused on improving the education and well-being of young children. NAEYC is well recognized for its focus upon high-quality early learning, professionalism in the field of early childhood education and its collaborative relationships with other education organizations (Farley et al., 2018). NAEYC issues research-based position statements as guidance for programs and professionals in the field of early childhood education (National Association for the Education of Young Children, n.d.).

In 2010, NAEYC and NAECS-SDE (2010) issued a joint position statement addressing the United States Common Core initiative in regard to its use in planning for instructional content in early childhood. The position statement indicates that while standards are not new to early childhood education, it is increasingly necessary to remind policy makers that early childhood is a distinct period of life, valuable in itself, as well as for its potential to create a strong foundation for later education. Standards that are challenging, yet achievable and appropriate to children's development are essential to early childhood education (NAEYC & NAECS/SDE, 2010). Knowledge of children's development and learning are an important component of teaching and care should be taken to develop lessons that address these areas (NAEYC & NAECS/SDE, 2010). Thus, standards for early learning are a robust and multi-faceted set of guidelines, requiring thoughtful incorporation into the early childhood classroom and warranting professional development attention to further expand the knowledge base of educators.

Models of Professional Development for Early Childhood Educators

In order for early childhood educators to be well positioned to meet the educational needs of young children, they must possess a level of competency which allows them to meet the evolving demands of early childhood education (Cave & Mulloy, 2010; Desimone & Pak, 2017; Farley et al., 2018; Ottley, Coogle, Rahn, & Spear, 2017). Many approaches have been taken with the professional development of early childhood educators including professional learning communities, in-service workshops of varying length and individualized coaching. Sometimes a technology component is incorporated as an extension of professional development. Each style of professional development comes with its own share of strengths and weaknesses (Gomez et al., 2015). Table 1 summarizes relevant research studies relating professional development to early childhood educators.

Professional learning communities, also referred to as communities of practice, in which teachers serve dual roles as practitioners and pseudo action-researchers, have been explored (Buysse, Sparkman, & Wesley, 2003; Christ & Wang, 2013). In these communities, descriptions of successful experiences and techniques are passed down from one teacher to another, in hopes of replicating successful educational interventions. Teacher leaders typically control the content of the professional development, and the group comes together over a period of time to engage in shared inquiry (Gomez, Kagan, & Fox, 2015). This type of professional development comes with several weaknesses; quality research protocols may not be followed, interventions may be applied inconsistently, information may not be relayed in entirety and objectivity may be clouded (Buysse et al., 2003).

Single day in-service teacher training, also referred to as workshops, are a commonly utilized form of professional development. In these professional development structures, participants receive training of varying length on one specific day. The professional development may be content-, curriculum-, or theory-specific, or they may introduce teaching strategies and/or school initiatives or may cover any number of other education-related topics. The use of workshops for professional development has received criticism due to limited opportunities for follow-up and lack of provisions for feedback on observed practices (Desimone & Garet, 2015; Nitecki, 2014). However, researchers found the number of hours spent in a professional development intervention was unrelated to student achievement and that content was the major predictor of positive student outcomes (Kennedy, 1999). In a literature synthesis of United States research, all of the studies which met the credibility standards established by the What Works Clearinghouse and also showed positive relationships between professional development and improvement in student learning outcomes involved workshops, one-day in-service trainings, or summer institutes for professional development (Guskey & Yoon, 2009; Yoon, 2007). Results of additional research indicate that the number of contact hours educators spent in professional development did not have direct effects on reported outcomes, but the degree with which professional development provided educators with active learning did affect teaching practice (Ingvarson, Meiers, & Beavis, 2005). Additionally, short-term professional development that incorporates effective design features can result in positive participant outcomes, recognizing that what happens during professional development is more important than how long the professional development session lasts (Lauer, Christopher, Firpo-Triplett, & Buchting, 2014).

Multi-day workshops have also been explored. Researchers explored the effects of attendance at a three-day summer institute in which an innovative structure and constructivist qualities provided opportunities for authentic learning. Throughout the institute, presentation and direct teaching time was balanced with small group processing and practice application. Participants reported greater understanding of early learning standards, new ways of thinking, and alterations to the way they subsequently observed, assessed, and documented children's ideas, explorations, and theories as a result of their interaction with the material during the institute (Buchanan et al., 2006). The utilization of a two-day workshop to meet the needs of a school district facing a crisis situation in which teachers untrained in early childhood education were assigned to teach pre-kindergarten was also examined (Nitecki, 2014). Through an intensive 12-hour session, delivered over two days, teachers received a thorough overview of early childhood education, hands-on curricular strategies, behavior management, assessment and observation tools, and the overview of the importance of play.

Participants expressed that while they desired additional training and support for their teaching placement, they were overwhelmingly satisfied with the depth of knowledge and strategies learned through the workshop (Nitecki, 2014). While positive outcomes have been reported after multi-day workshops, limited funding and time away from home/classroom often force teachers to choose alternative professional development (Buchanan et al., 2006).

The practice of providing teachers with coaches as a means of professional development has become increasingly popular (Desimone & Pak, 2017). Coaching practices (often used interchangeably in the literature with mentoring) within early

childhood professional development have been implemented with varying degrees of success. The structure of coaching as a professional development varies greatly and may be delivered by campus administrators, professional coaches hired by local education agencies, researchers, or experienced colleagues from the local school, as a self-directed activity, or by any other individual assigned to provide coaching support (Kinzie et al., 2006; Snyder et al., 2018).

Coaching models are research-based and can be designed to reflect the five features of effective professional development: (a) content focus; (b) active learning; (c) coherence; (d) sustained duration; and (e) collective participation (Desimone & Pak, 2017). Different methods have been utilized in the delivery of coaching, including face-to-face, web-based, real-time virtual interaction, and hybrid models (Kinzie et al., 2006; Ottley et al., 2017; Snyder et al., 2018). Coaching models are a promising form of professional development, but they require adequate manpower, are costly and can be harder to access than typical short-term professional development workshops (Gomez et al., 2015; Lynch, 2017).

The efficacy of teacher coaching in early childhood classrooms has been the subject of several research studies. The use of teacher coaching during the implementation of an early literacy and phonological awareness program yielded varied results (Diamond & Powell, 2011). In this study, teachers received intense and targeted coaching in evidence-based approaches to teaching phonological awareness and word knowledge to preschoolers. Findings indicated that implementation was inconsistent across students and classrooms. Teachers were uncertain about the best strategies to use and consequently, reverted to familiar practices (Diamond & Powell, 2011).

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Additionally, real-time coaching via an electronic device placed in the ear of educators (referred to as "Bug-in-Ear" or BIE coaching) while teaching in the early childhood classroom has been implemented with some efficacy (Ottley et al., 2017). Participating teachers wore wired in-the-ear headphones connected to cell-phones and received real-time feedback on evidence-based communication strategies and interventions as they worked with students. Findings provide preliminary evidence that utilizing BIE coaching can be effective for increasing teacher use of evidence-based strategies (Ottley et al., 2017).

Of particular interest is the comparison between face-to-face coaching and remote coaching via web-based applications. In an ongoing longitudinal study of professional development including monitoring practices, web-based courses, and progress monitoring processes, researchers are exploring mechanisms of change within coaching (Crawford, Zucker, Horne, & Landry, 2016). Multiple coaching mechanisms and delivery methods were included as experimental conditions in the study. Findings indicated that there were no significant differences in classroom quality outcomes across coaching models. They have found limited success in teacher coaching alone but reported increases in teacher knowledge and implementation practices when coaching was paired with multiple components of pre-packaged curriculum, observation tools, and digital media supports (Crawford et al., 2016).

Table 1

Relevant Literature

Citation	Study design	Number of educators	Intervention characteristics	Active learning characteristics	Measured outcomes		
					Teacher change	Professional development motivation	Student outcomes
Buchanan et al. (2006)	Qualitative study, interviews conducted six months after intervention	28	Three-day residential institute delivered cohort-style PD including keynote speakers, breakout sessions, small group discussions and informal evening activities	Small group discussions	Changes in thinking and teaching practices	Not reported	Not reported
Diamond & Powell (2011)	Series of five qualitative studies	137, 10, 5, 11, 34	Small group interviews, direct instruction on hypermedia use, distance coaching with video feedback, combined distance and in-class coaching, revised distance and in-class coaching	Use of technology	Changes in teaching practices related to literacy and oral language	Not reported	Not reported

					Measured outcomes		
Citation	Study design	Number of educators	Intervention characteristics	Active learning characteristics	Teacher change	Professional development motivation	Student outcomes
Kinzie et al. (2006)	Quantitative study, CLASS (La Paro, Pianta, & Stulhman, 2004) to measure teacher and classroom quality outcomes	235	One-day workshop concentrated in areas of language, literacy and social relationships, followed by one of three versions of MyTeachingPartner PD model: materials/curriculum group, web/consultancy group	Technology integration through curriculum website and online coaching feedback	Increases in use of PD website. No changes in teaching practices	Not reported	Not reported
Landry et al. (2009)	Quantitative repeat measures study, 4 states, CIRCLE TBRS (Landry et al., 2000) to measure quality and frequency of teaching behaviors, EOWPVT (Brownell, 2000) to measure student's expressive vocabulary	65, 59, 65, 73	Professional development training through the online eCIRCLE program, some participants received mentoring within their classrooms	Individual mentoring	Increases in positive teaching behaviors, improvement in teaching quality reported across those teachers who evidenced poor or average teaching quality at beginning of study	Not reported	Increases in vocabulary, print awareness and letter knowledge

(continued)

					Measured outcomes		
Citation	Study design	Number of educators	Intervention characteristics	Active learning characteristics	Teacher change	Professional development motivation	Student outcomes
Lynch (2017)	Quantitative study, TBQ (Hindman & Wasik, 2008) to measure teacher literacy beliefs, ELLCO-PreK (Smith, Brady, & Anastasopoulos, 2008) to measure in-class practices of teachers	27	Three separate day-long professional development sessions concentrated in the area of literacy over a period of nine months	Opportunity to practice teaching strategies by asking literacy-related questions to another teacher	Increases in quality of teaching practices	Not reported	Not reported
Nitecki (2014)	Qualitative study, surveys, observations and informal interviews to measure strengths & weaknesses of training	34	Intensive, two-day workshop covering all aspects of early childhood education	Hands-on activities, make and take projects, small group work and case studies	Increases in knowledge of early childhood education and importance of prekindergarten	Not reported	Not reported
Ottley et al. (2017)	Multiple-baseline single-case study, three weeks baseline followed by data collection	4 teaching dyads	Initial ninety-min training followed by five to seven weeks of "bug-in-ear" coaching, weekly reflection sessions	Technology integration utilizing wired in-ear headphones, real-time coaching	Increases in use of evidence-based communication strategies	Not reported	Not reported

					Measured outcomes		
Citation	Study design	Number of educators	Intervention characteristics	Active learning characteristics	Teacher change	Professional development motivation	Student outcomes
Pianta et al. (2008)	Quantitative study, CLASS (Pianta et al., 2008) to measure teacher-student interactions, PALS (Invernizzi et al., 2004) to measure early literacy skills of students	113	One-day workshop, all participants received MyTeachingPartner PD website, some participants received web-only support as follow-up, some participants received consultation support as follow-up	Technology integration via professional development website and video coaching, onsite coaching	Increases in positive teacher-student interactions	Not reported	Not reported
Snyder et al. (2018)	Quantitative study, LTRS (Snyder et al., 2009) to measure quality of early intervention targets, EIOS (Snyder et al., 2009) to measure implementation of early intervention targets	36	Some participants received Tools for Teachers workshops and on-site coaching, some participants received Tools for Teachers workshops and self-coaching via a website, some teachers received "business-as-usual" training via the local education agency	Technology integration via website, onsite coaching	Increases in implementation and quality of early interventions	Not reported	Increases in occurrence of target behaviors

(continued)

Citation	Study design	Number of educators	Intervention characteristics	Active learning characteristics	Measured outcomes		
					Teacher change	Professional development motivation	Student outcomes
Wagner & French (2010)	Mixed methods study, IMI (Ryan, 1982) to measure intrinsic motivation, ECJSS (Bloom, 1989) to measure supervisor supported autonomy, qualitative interviews to measure work satisfaction and teacher changes	77	All participants received professional development built around implementation of ScienceStart! Curriculum, monthly workshops and support visits including lecture, discussion and hands on activities	Hands on activities, opportunities to practice strategies, feed-back from peers	Changes in view of students as learners, changes in view of student capabilities, adoption of inquiry-based practices	Motivation influenced the way educators experienced professional development program	Increases in science vocabulary, increases in interest to read, increased willingness to speak up in group discussions

Note. PD = professional development

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Active Learning in Professional Development

Greek (1995) defines active learning as a philosophy of education rooted in the understanding that information is most effectively internalized when students are participatory in their learning. Prince (2004) defines it as any instructional method in which the students directly engage with the process of learning. Prince (2004) goes on to note that active learning engages students in the learning process with activities that promote critical-thinking such as cooperative learning (working with others while engaging in learning activities), problem-based learning, and/or collaborative learning (forming extended relationships with others for the purpose of ongoing sharing and inquiry), in direct contrast to traditional lectures. Hence, active learning in professional development is characterized by the method of delivery, activities incorporated, and critical features situated within a learning opportunity. Active learning can take place across a variety of settings and professional development formats (e.g., workshop, conference session, or study group) (Desimone, 2009; Hyun et al., 2017). It is useful for meeting the needs of diverse populations of learners (Hyun et al., 2017; Li & Wu, 2015). Active learning also supports critical inquiry into systems of education (Glowacki-Dudka et al., 2012).

Active learning is considered an essential component for high-quality professional development (Desimone & Garet, 2015; Desimone et al., 2002; Garet et al., 2001) and has been included as a vital element in the Conceptual Framework for Effective Professional Development (Desimone & Garet, 2015). Active learning has been shown to increase learner engagement, stimulate critical thinking, and has the potential to produce positive effects in knowledge and skill acquisition for participants (Manzon, 2017;

Sheridan et al., 2009). Additionally, increased attendance, participation, and higher levels of achievement are found among adult learners who experienced active learning in the classroom (Termos, 2013). Findings also indicate that actively involved learners, combined with highly supportive trainers who facilitated the learning process, yield superior learner outcomes (Dunst et al., 2010).

Effective active learning pedagogical activities have been found to include, but are not limited to, modeling newly learned instructional strategies, then reflecting upon the experience (Darling-Hammond & Richardson, 2009; Dunst et al., 2010; Garret et al., 2001), opportunities for practice (Bayar, 2014), small group collaborations (Hyun et al., 2017), hands-on activities (Buchanan et al., 2006), and opportunities for instructional planning and direct engagement with the curriculum (Penuel et al., 2007). Utilization of technology is considered an active learning activity, as is the creation of a product (Manzon, 2017) because these activities engage the learner in problem solving and representation. Case studies or role-playing may be used in active learning, as well as large group brainstorming sessions (Li & Wu, 2015) in which learners work cooperatively to come to a solution to a problem.

In a qualitative study examining effective professional development activities in terms of the teachers' perspectives, participants expressed their satisfaction with opportunities to actively participate in their learning. The teachers indicated that they want to learn by doing things relevant to their learning and resent being forced to sit all day, listening to an instructor lecture (Bayar, 2014). Opportunities for engagement with teaching materials, problem-solving activities, and conversation with colleagues were essential to the learning process and teachers indicated that without these activities it

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would have been impossible to adequately learn the teaching strategies (Bayar, 2014). Research suggests that when learners experience fulfilling, positive experiences with professional development and skill acquisition, they have more positive attitudes toward the learning experience (Dunst et al., 2010).

<p align="center">*Professional Development Motivation*</p>

Professional development motivation has been defined as teachers' motivation to participate and engage in the learning process of professional development (Karabenick & Conley, 2014). While teacher motivation has been extensively studied, the motivation of teachers to engage in professional development (professional development motivation), a completely separate concept has received very little research attention (Karabenick & Conley, 2011; Karabenick & Conley, 2014; Schieb & Karabenick, 2011; Sheridan et al., 2009; Wagner & French, 2010). Professional development motivation remains a critical yet understudied component of teacher interventions (Karabenick & Conley, 2014).

Participants who are self-motivated to participate in professional learning are more likely to take action to initiate change in their classroom, view themselves as learners, seek additional independent learning, exhibit an interest in reading, have a positive attitude toward education, and are more likely to spend additional time in future professional learning activities (Livneh & Livneh, 1999). Professional development can fulfill a need for competence and relatedness in teachers, resulting in higher levels of intrinsic interest in their work and increased interest in professional development opportunities (Wagner & French, 2010). Wlodkowski (2003) notes that motivation is an individual's natural capacity to focus her energies on the pursuit of a goal, with

engagement in learning the observable result. Motivation to attend professional development may yield increases in an individual's participation in available professional development activities (Wagner & French 2010). Research has shown that professional development motivation is related to increases in student achievement (Wagner & French, 2010). Given the research findings, it is essential to make every effort to persuade teachers to attend professional development. Once the teachers are in attendance, it is imperative that they receive high-quality training that will encourage them continue their professional development (Boyd et al., 2003).

Conclusion

If early childhood educators are to design high-quality educational environments and teach lessons of varying complexity to a diverse and changing population, they must be equipped with the latest educational research and continued opportunities for skill improvement (Horm et al., 2013; Snyder et al., 2018). One way teachers can receive this training is through professional development workshops. Excellent professional development of early childhood teachers is considered to be a critical factor in the quality of experiences that children receive when in the classroom (Sheridan et al., 2009). Short-term professional development has been effective in the increase of teacher content knowledge and student outcomes (Guskey & Yoon, 2009; Lauer et al., 2014; Lynch, 2017). Research has shown that active learning is an essential component of effective professional development (Desimone & Garet, 2015; Guskey & Yoon, 2009) and that teachers desire voice and autonomy in determining the professional development in which they participate (Assor et al., 2009). Self-determination theory provides a framework for studying the relationship between teachers' professional development

motivation and active learning professional development. Self-determination theory has previously been used to study the relationship between motivation and learning, motivation and teaching, and motivation and professional development; however, to date no research has been conducted examining professional development motivation and active learning professional development for early childhood educators. In the current study, the following research questions are examined:

Research Question 1: How does the type of professional development (lecture vs. active learning) affect the motivation of early childhood teachers to pursue additional professional development opportunities?

Research Question 2: How does the type of professional development (lecture vs. active learning) affect the motivation of early childhood teachers to implement associated strategies within their classrooms?

CHAPTER THREE

Method

A quasi-experimental research design was used to examine the motivation of in-service early childhood teachers to pursue additional professional development opportunities and implement associated strategies in their classrooms after engaging in active learning professional development. The literature supports the need for early childhood teachers to continue their education by actively engaging in high quality professional development (Desimone & Pak, 2017; Gomez et al., 2015; Lino, 2014; Snyder et al., 2018). However, not much literature exists directly concerning the motivation of early childhood teachers to pursue additional professional learning and implement strategies learned during the professional development after active learning has been incorporated. This chapter describes the method used in the current study to examine the effect of active learning professional development on early childhood teachers' motivation to attend future professional development and implement associated strategies in their classrooms. The research questions were:

Research Question 1: How does the type of professional development (lecture vs. active learning) affect the motivation of early childhood teachers to pursue additional professional development opportunities?

Research Question 2: How does the type of professional development (lecture vs. active learning) affect the motivation of early childhood teachers to implement associated strategies within their classrooms.

Research Design

The current study was primarily quantitative; an independent groups design was used with participants assigned to one of two conditions that had been previously randomly assigned as treatment or control conditions (i.e., quasi-experimental). To address the maintenance of a main effect, a second wave of data was collected 30 days later with a sub group of participants from the first wave. To address the construct validity of the dependent variables, methodological triangulation was incorporated through focus groups. In methodological triangulation the researcher utilizes two methods of data collection within the same research design (Jick, 1979; Kimchi, Polivka, & Stevenson, 1991; Renz, Carrington, & Badger, 2018). In the current study, quantitative data was collected with a survey; and additional data was collected during focus group interviews. Qualitative statements made during focus groups were converted to quantitative data through the use of frequency counts and subsequently used to triangulate the data. Triangulation can contribute to validation of quantitative results and provide a more holistic interpretation of findings (Jick, 1979). The questions asked of the focus groups (see Appendix B for sample script) elicited data used to provide a more robust understanding of the validity of the instrument to measure professional development motivation (i.e., *Math and Science Partnership – Motivation Assessment Program II*) and provide increased confidence in the quantitative data collected (Renz et al., 2018).

Participants

Population, Participants, and Sampling Procedures

The population of interest was early childhood educators in a North Texas regional education service center (ESC). Region 10 ESC is one of 20 ESCs established in 1967 by the Texas Education Agency to provide training, technical assistance, and support services to local education agencies. The ESC that hosted the current study provides services that impact more than 810,000 K-12 students on approximately 120,000 campuses. Upwards of 55,495 educators teaching grades kindergarten through 12th grade in approximately 120 ISDs, charter schools, private school systems and early learning centers are represented as the teaching force of Region 10 ESC. These educators come from an area encompassing 10 North Texas counties. The ethnic profile represented by this North Texas teacher population is as follows: 63% White; 17% African American; 16% Hispanic; 3% Asian; 2% two or more races; 0.6% American Indian; and 0.5% Pacific Islander (Region 10 Website, n.d.). An estimated 2,347 of these educators teach within an early childhood classroom (OnDataSuite - OnPoint Staff by Program Intent, 2018).

For the purpose of the current study, early childhood educators were defined as those educators that served students aged 3 years through 7 years of age in an educational setting. Examples of where an educational setting for early childhood may have been housed included an elementary school, licensed child-care center, faith-based institution, public shelter or registered family home (Gomez et al., 2015; Weber-Mayrer, Piasta, & Pelatti, 2015). These educators may or may not have been certified teachers, and represented a wide-variety of educational backgrounds, including: (a) high school

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diploma; (b) Child Development Associate (CDA) credential; (c) some college; (d) Associate Degree; (e) Bachelors Degree; and/or (f) graduate level education (Gomez et al., 2015; Phillips, Mekos, Scarr, McCartney, & Abbott-Shim, 2000; Wagner & French, 2010; Weber-Mayrer et al., 2015). According to data compiled by the US Bureau of Labor Statistics (2017), 94% of early childhood educators are women. Annual data collected for the 2016-2017 school year indicated that between the months of July 2016 and July 2017, 846 early childhood educators attended one or more professional development trainings offered by the Early Childhood Services Department at the education service center (Region 10 Education Service - Center Early Childhood Services Department, 2017).

Purposive sampling was used to collect a sample of in-service early childhood educators attending professional development opportunities offered through the North Texas regional ESC. Approximately 850 early childhood educators register for these opportunities annually, with an estimated 20-25 educators attending each session. District, campus, and individual teacher preferences control professional development registrations; this circumstance makes it difficult to accurately predict attendance for a given date. Purposive sampling is a type of non-random sampling involving selecting the participants that are available for use (Acharya, Prakash, Saxena, & Nigam, 2013). A purposive sample, while limiting generalizability of results, was necessary since a sample was non-randomly recruited from the educators in attendance at their specific professional development sessions. In order to participate, participants had to be at least 18 years of age, an early childhood educator, and must have indicated that, to their

knowledge, they had not previously participated in a study examining the relationship between professional development sessions and professional development motivation.

Quantitative Sample Size Calculation

The researcher used G*Power, a power analysis and sample size calculating software developed by Faul, Erdfelder, Buchner, and Lang (2014), to determine an appropriate sample size. An ANOVA with two groups, a medium effect size ($\eta^2_{partial} =$ .13; Bakeman, 2005), a power of .80 and an alpha of .05 would require at least 55 participants. The sample size for this study was 143 participants during initial data collection and 30 participants in the subsequent 30-days post-professional-development data collection.

Focus Group Sample Size

The researcher sampled 4-8 study participants in each professional development session. This yielded a total sample of 33 participants. Of the focus group sample, 17 participants received active learning, and 16 participants received lecture-style professional development.

<center>*Instrumentation*</center>

The researcher measured professional development motivation and likelihood to implement evidence-based practices using the *Math and Science Partnership – Motivation Assessment Program II* (*MSP-MAP II)* developed by Karabenick and Conley (2014) in coordination with the National Science Foundation. The authors designed the *MSP-MAP II* to measure perceptions of professional development in teachers, and it specifically includes items measuring teacher motivation to implement evidence-based

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practices in their classroom, as well as teacher motivation to attend additional professional development opportunities. The *MSP-MAP II* includes 14 subscales, each of which has been normed individually and when used in coordination with the other subscales (Karabenick & Conley, 2014). The scale was designed and normed in this manner so that researchers could select individual subscales and combine them to comprise a custom scale for the needs of their specific research project (Karabenick & Conley, 2014). Construct validity was supported by a factor analysis, and reliability measures were high (e.g., $\alpha = .90$-$.92$; Karabenick & Conley, 2014).

Participants responded to survey questions using an anchored 5-point Likert-type scale with response formats ranging from 1 (*much less motivation* or *not true at all*) to 5 (*much more motivated* or *completely true*). The subscale of *Teacher Change* was administered; these items measured teachers' motivation to implement changes due to the professional development session. A second subscale, the *Active Teacher PD*, measured the degree to which the professional development incorporated active learning PD strategies. A single global item measured teacher motivation to attend further professional development (Karabenick & Conley, 2014). Administering the full 78-item survey could have resulted in large amounts of testing fatigue and mortality, which could have resulted in the loss of valuable participant data, biased the results collected, and thus ultimately resulted in a loss of internal validity (Creswell, 2013).

The global item, "how much did your participation in that PD affect your motivation to participate in PD in the future?" was used to measure the first dependent variable of motivation to pursue additional professional development opportunities. The researcher also included several researcher-created questions: (1) "How motivated are

you to select this style of PD when selecting future PD sessions you will attend; (2) How motivated are you to select a completely different style of PD when selecting future PD sessions you will attend" and (3) "How motivated are you to attend future PD sessions structured (activities/pacing/engagement level) similar to the one you just attended?" These additional items were included to help provide supporting evidence of the single global item as a measure of professional development motivation.

Although technically Likert-type scales are ordinal, they can be treated as continuous, especially when the Likert-type scale has at least five response categories (Johnson & Creech, 1983; Norman, 2010; Sullivan & Artino, 2013; Zumbo & Zimmerman, 1993). Therefore, Likert responses were analyzed as continuous data.

The *Teaching Changes* subscale of the *MSP-MAP II* was used to measure the dependent variable of motivation to implement evidence-based practices in their classrooms. To create this subscale score, the average of the relevant survey items was calculated. The survey authors reported coefficients related to the factor structure of this subscale: eigenvalue = 3.09, percent of variance accounted for = 77.2 (Karabenick & Conley, 2014). This subscale was correlated with global indicators of professional development motivation ($r = .45$), future professional development ($r = .37$), implementation of instructional practices ($r = .60$), and intent to recommend the professional development ($r = .31$; Karabenick & Conley, 2014). The subscale *Teaching Changes* has high levels of internal consistency and thus reliability ($\alpha = .90$; Karabenick & Conley, 2014).

The researcher used the *Active Teaching PD* subscale of the *MSP-MAP II* as a treatment fidelity check to measure levels of active learning professional development

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incorporated within the professional development session. This subscale consists of the average of the response to the relevant survey items. The survey authors reported coefficients related to the factor structure of this subscale: eigenvalue = 3.77, percent of variance accounted for = 75.4 (Karabenick & Conley, 2014). This subscale was correlated with global indicators of professional development motivation (r = .52), future professional development (r = .32), implementation of instructional practices (r = .44), and intent to recommend the professional development (r = .30; Karabenick & Conley, 2014). The *Active Learning* subscale also demonstrates high levels of internal consistency and thus reliability (α = .92; Karabenick & Conley, 2014).

Finally the survey asked participants to report demographic information, including age, school classification, experience, education, current certifications and professional development habits.

Focus Group Procedures

During the lunch break of each professional development session, a focus group of four to eight individuals was conducted by the researcher. Focus group data was collected about the impact of professional development delivery (active learning vs. lecture-style) on professional development motivation during the focus groups. In these directive-style groups, participants answered a set of questions designed to be neutral and open-ended (see Appendix B for script), while gathering information about perceptions of professional development motivation (Stewart & Shamdasani, 2015). Focus groups occurred in a private room, with all participants seated around a conference table and the researcher at the head of the table to moderate (Stewart & Shamdasani, 2015). The researcher began each focus group by welcoming the participants and thanking them for

their participation. A few minutes of casual conversation ensued (discussion about the quality of the pizza and temperature of the room, etc.), for the purpose of easing the transition into the focus group survey script.

The researcher used a visualization exercise and sample question about dogs to help participants relax and understand how questions asked during the focus group might evolve. During this visualization, the researcher asked everyone to close their eyes and picture a dog. The researcher then asked each participant to tell the group what they had visualized. Participants answered questions sequentially, but sometimes chimed in when another participant was answering. Answers varied from a simple description including the color and breed of a specific dog to an in-depth narrative about an individual's childhood pet and memories of the dog. The researcher then explained to the focus group that each individual approached the exercise differently, based upon their personal experiences with dogs. The focus group would be structured similarly, with individuals given the opportunity to express their opinions and describe their experience of the professional development. Participants were encouraged to answer each question in the manner most comfortable to them, with elaboration encouraged.

Following each question about professional development, participants were allowed to discuss any aspects of the workshop that they chose to bring up in the conversation. If a participant began to monopolize the conversation or discredit the opinions of others, the researcher made it clear that the experiences of all participants were to be respected and provided valuable information for the research study (Stewart & Shamdasani, 2015). In cases where a participant became overly forceful in discounting the opinions of others, or claimed themselves a self-appointed expert on professional

development, the researcher used more assertive techniques to regain control of the conversation. These techniques included avoiding eye contact with the individual and failing to acknowledge the forceful comments of the self-appointed expert, as well as immediately changing the subject after the participant finished their statement (Krueger & Casey, 2008). Participants were given ample time to discuss each question individually and as a group (Stewart & Shamdasani, 2015). The conversation of the group dictated when each question was posed, with the researcher waiting to ask each question until conversation about the prior question had tapered off. At the end of the focus group, the researcher thanked the members for their participation and contribution to research. Each participant was given a five dollar gift card to a local fast food restaurant in exchange for their time. All focus group conversation was kept completely confidential. Focus group sessions were audio recorded to ensure accuracy of transcription.

Intervention

The researcher embedded the intervention as part of the instructional design of the professional development, with approval of the department of early childhood services at the regional ESC. The professional development sessions consisted of seven and a half hours of instruction in standards-aligned, research-based, content-specific, professional development in the area of Science, Technology, Engineering and Math (STEM) as is taught in the universally designed early childhood classroom. The STEM concepts taught aligned with the *Texas Prekindergarten Guidelines*, which are the mandated Texas standards for teaching in early childhood education. Professional development was conducted under two differing conditions: lecture-style professional development and active learning professional development.

Lecture-style Professional Development Condition

The researcher delivered lecture-style professional development sessions utilizing a PowerPoint presentation to outline STEM concepts mandated for early childhood education. During these sessions, participants were given the opportunity to ask the researcher questions about the content, take notes on the concepts, and engage in limited participant-driven discussions about the concepts with other teachers at their table. Research has shown that while widely-used in the United States, lecture-style teaching is less effective at maintaining the engagement of learners (Hyun et al., 2017; Manzon, 2017) and can cause learners to feel disconnected to the material being taught (Auster & Wylie, 2006; Manzon, 2017). It was hypothesized that this condition would be associated with lower levels of professional development motivation.

Active Learning Professional Development Condition

During professional development sessions taught using the active learning condition, the researcher facilitated active learning professional development as outlined by Desimone and Garet (2015). Incorporating these features, the researcher designed professional development intended to engage participants in whole-group discussions about STEM concepts taught in early childhood and how students learn these concepts. The researcher facilitated multiple hands on activities in which teachers interacted with materials found within early childhood classrooms, designed example lessons and presented these lessons to their colleagues within the professional development session. Participants had the opportunity to discuss the content at length with the researcher and their colleagues, took notes throughout the professional development session, engaged in practice activities and teaching simulations, received feedback on the teaching

simulations, and engaged in problem-solving regarding lesson improvement. It has been noted that learners who are more actively engaged with course content and practice of strategies within peer groups learn more, develop personal accountability for their learning and are more likely to seek further educational opportunities (Hyun et al., 2017; Li & Wu, 2015; Manzon, 2017). It was hypothesized that this condition would be associated with higher levels of professional development motivation.

Treatment Fidelity

Treatment fidelity was measured in multiple ways. First, the *Active Teacher* subscale of the *MSP-MAP II* was included as a component of the research survey completed by each participant on the day of the workshop. The *Active Teacher* subscale was also included as part of the 30-day post-intervention survey. These scores were analyzed for variance and effect size across conditions.

Additionally, a research assistant was employed to measure treatment fidelity in 33% of professional development sessions included in the study. The research assistant was a doctoral candidate familiar with the research protocol, specializing in applied behavior analysis and measurement of behaviors. Operational definitions were provided to the research assistant for the purpose of clarifying active teaching components. The research assistant was blind to the type of professional development measured in each session attended. Frequency counts were recorded for each measured occurrence of an active teaching component. These operational definitions can be found in Appendix C.

Procedures

The researcher submitted the study to the Baylor University Institutional Review Board (IRB) for review. The study was conducted within the "established and/or commonly accepted educational setting" of a Texas Education Service Center, and it only involved normal education practices, such as research on effectiveness of or the comparison among instructional techniques. Due to these characteristics, the study was eligible for exemption status by the Baylor University IRB (US Department of Health and Human Services, 2017). The ESC does not regularly conduct research and thus does not have an internal IRB; therefore, the ESC agreed to abide by the determination of the Baylor University IRB. Data collection occurred during regularly scheduled professional development sessions during the summer months.

Type of professional development for each workshop was determined in advance by random assignment, in which the dates for three regularly scheduled workshops were drawn to be assigned the active learning condition. Three additional dates were randomly drawn and assigned to the lecture-style learning condition. The type of professional development to be offered during each in-service workshop was kept completely confidential to everyone other than the researcher. Participants were blind to the possibility of inclusion in a research study until the day they attended a professional development workshop.

At the beginning of each professional development session, the researcher described the research study, allowed potential participants to ask questions, and gave informed consent documents to all in attendance. The researcher assured individuals that participation was voluntary and that there would be no negative consequences if they

chose not to participate. The researcher offered potential participants a five-dollar gift card to a local coffee shop as an incentive for their participation in the study. The researcher informed participants that all responses would be anonymous and kept confidential, with responses known only to the researcher. Informed consent documents that explained participant rights and study parameters were given to participants with no signature page collected, ensuring complete confidentiality of responses. After distributing informed consent documents and answering questions, the researcher conducted the professional development session.

Before the lunch break, the researcher informed participants of an additional opportunity for participation in focus groups. Since these focus groups occurred during the lunch break, pizza and beverages were provided. An additional five-dollar Starbucks or Sonic gift card was given as an incentive for the more involved participation. During the lunch break, the researcher conducted the focus groups, using volunteer sampling to form a small group of individuals that seemed willing to speak freely. Focus group questions were read from a script and, the researcher created an audio recording of the discussion/proceedings to ensure accurate transcription.

After the lunch break, the researcher continued the professional development session. After the session was complete, the researcher left the room and the research assistant passed out surveys, instructing participants to generate a unique identification code based upon the first three letters of their mother's maiden name followed by the first letter of their favorite color. The research assistant instructed participants that if they chose to participate in the study they should print this code in the area provided at the top of the survey. If participants chose not to participate, they set the survey aside for return.

To guard against undue influence or coercion, the research assistant left the room and gave participants time to complete the surveys and return them to the front table. After five minutes, the research assistant returned to the room, collected all completed surveys, and placed them in a sealed envelope to ensure confidentiality. The researcher was not present during any survey periods.

Thirty days after each professional development session, the researcher sent a post-intervention survey (Wave 2) to focus group participants using Qualtrics online survey tool. Participants were instructed to identify themselves using the previously generated unique identification code consisting of the first three letters of the mother's maiden name and the first letter of their favorite color. This post-intervention survey was then analyzed to determine maintained effects of type of professional development received upon professional development motivation of participants.

The research assistant ensured that all paper survey responses and focus group transcripts were kept confidential, separating surveys and transcripts to ensure participant confidentiality. After the data was entered into SPSS vs. 25.0, paper survey responses and copies of transcripts were stored in a locked cabinet in the researcher's office where they will remain for three years after the completion of the study. At that time they will be destroyed by means of secure shredding and disposed of in a secure disposal receptacle. Electronic data files and audio recordings were kept on a flash drive and stored with the paper research documents in a locked cabinet. After the three-year retention period, all electronic files and audio recordings will be deleted from the flash drive and the flash drive destroyed and disposed of in a secure disposal receptacle.

Quantitative Data Analyses

First, the researcher uploaded the quantitative data to SPSS v 25.0 for management and analysis. The researcher assessed the data for missing cases and outlying values. No cases were missing more than 50% of data. The researcher assessed outliers using Tabachnick and Fidell's (2013) procedure, where the researcher creates standardized scores and then examines them for values outside of the ±3.29 standard deviations range. If a case had a standardized value greater than or less than ±3.29 standard deviations, it was considered an outlier (Tabachnick & Fidell, 2013) and was considered for removal based on extremity of outlier and amount of data available. Next, the researcher conducted descriptive statistics to describe the sample, calculating means and standard deviations for continuous variables and frequencies and percentages for categorical variables. The analyses used to answer each research question were as follows:

Research Question 1: Does the type of professional development (lecture vs. active learning) affect the motivation of early childhood teachers to pursue additional professional development opportunities?

H_o: $\mu G_1 = \mu G_2$

H_a: $\mu G_1 \neq \mu G_2$

where μG_1 = mean of the lecture group and μG_2 = the mean of the active learning group.

To answer this research question, the researcher conducted a one-way ANOVA. The one-way ANOVA is designed to determine differences in a single continuous measure between groups (Field, 2013). The continuous dependent variable was

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motivation to pursue additional professional development opportunities. The grouping independent variable used was the type of professional development (active learning vs. lecture).

Prior to the analysis, the researcher assessed the assumptions of the ANOVA. These included normality and homogeneity of variances. The researcher assessed normality of the dependent variable using skewness and kurtosis values. Kline (2015) indicates that skewness between -2.00 and +2.00 and kurtosis between -7.0 and 7.0 meet the criteria for normality. The researcher compared group variances using Levene's test to assess homogeneity of variances. The researcher evaluated all hypothesis tests at the .05 level. If the p value associated with the ANOVA was less than .05, it was indicative of significant differences in the dependent variable between groups. If that was the case, the researcher examined the means of the dependent variable to determine the nature of those significant differences. The researcher used partial eta squared ($\eta^2_{partial}$) as a measure of effect size.

Research Question 2: Does the type of professional development (lecture vs. active learning) affect the motivation of early childhood teachers to implement evidence-based practices within their classrooms?

H$_o$: $\mu G_1 = \mu G_2$

H$_a$: $\mu G_1 \neq \mu G_2$

To answer this research question, the researcher conducted a second one-way ANOVA. The continuous dependent variable used was motivation to implement evidence-based practices. The grouping independent variable was the type of professional development (active learning vs. lecture).

Prior to the analysis, the researcher assessed the assumptions of the ANOVA as described previously. If the *p* value associated with the ANOVA was less than .05, that was indicative of significant differences in the dependent variable between groups. If that was the case, the researcher examined the means of the dependent variable to determine the nature of those significant differences. The researcher used partial eta squared ($\eta^2_{partial}$) as a measure of effect size.

Thirty days post-intervention, the data set generated from the smaller subset of surveys completed by Wave 2 participants was analyzed by comparing means and standard deviations and using comparative analysis of the data pattern.

Focus Group Data Analyses

Data from the focus groups was organized and coded by the researcher using the scissor-and-sort technique (Stewart & Shamdasani, 2015) in which sections relevant to the construct of professional development motivation were grouped according to topic and issue. The researcher then analyzed focus group data using semantical content analysis in the form of designation analysis. Semantical content analysis is an analytic technique used when the researcher seeks to classify statements according to meaning, regardless of actual words used during the reference (Krippendorff, 2018). Designation analysis is a form of semantical content analysis in which the researcher counts the number of times to which a construct is referred (Krippendorff, 2018; Stewart & Shamdasani, 2015). Data from the focus groups was converted to frequency counts and reported in the study findings as evidence of the validity of the *MSP-MAP II* to measure the construct of professional development motivation.

CHAPTER FOUR

Results

The primary purpose of the current study was to examine the effect of active

learning professional development on the professional development motivation and

motivation to implement evidence-based strategies. This study also examined the

construct validity and reliability of professional development motivation. This chapter

presents justification for data organization and management for analyses, descriptive

statistics, and statistical tests of the research questions.

Missing Data and Outlier Analysis

Wave 1 of data collection included surveys from 143 participants. The researcher

assessed the data for missing cases and outliers. There were no missing cases. A total of

33 educators agreed to participate in focus groups and a second wave of data collection.

Three participants did not return the electronic survey that was sent 30 days after

professional development attendance. A total of 30 participants completed both

administrations of the survey and were included in the repeated measures analyses.

Using Tabachnick and Fidell's (2013) procedure, the researcher assessed the data

for univariate outliers. An outlier was defined as any value which falls outside the range

of +/- 3.29 standard deviations from the mean. No outliers were present in any of the

variables.

Data Organization

The primary research questions in this study were "Does the type of professional development (lecture vs. active learning) affect the motivation of early childhood teachers to pursue additional professional development opportunities?" and "Does the type of professional development (lecture vs. active learning) affect the motivation of early childhood teachers to implement evidence-based practices within their classrooms?" To determine levels of professional development motivation and motivation to implement evidence-based practices after receiving professional development, participants completed the *MSP-MAP II* survey at the conclusion of the session (Wave 1). Some participants completed a second administration of the *MSP-MAP II* 30 days after experiencing a professional development session (Wave 2). To determine lasting effects of professional development on professional development motivation and motivation to implement evidence-based practices, the researcher compared scores from the initial and subsequent administrations of the *MSP-MAP II*. Fidelity checks to ensure that the active teaching Type of Professional Development truly represented active teaching were collected as a component of the survey. The research assistant conducted additional fidelity checks during one lecture-style session and one active learning session. The researcher collected evidence of construct validity for professional development motivation during focus groups.

The researcher measured professional development motivation using a single global item, as included in the *MSP-MAP II.* This item was labeled as professional development motivation Wave 1 when used to represent data from the first administration of the research survey and Wave 2 when used to represent data from the second

administration. Supporting evidence for this global item was measured using the composite score of three researcher-created items. This variable was labeled supporting professional development motivation Wave 1 when used to represent composite score data from the first administration of the research survey and supporting professional development motivation Wave 2 when used to represent data from the second administration. These subscales were tested for reliability and correlation with the global item provided on the *MSP-MAP II.* For reliability testing purposes, the single-item measure and the researcher-created items were averaged into a single composite score. This composite was labeled PDMC.

The researcher measured motivation to implement evidence-based practices using a composite score of the *Teaching Changes* subscale of the *MSP-MAP II.* This variable was labeled motivation to implement (Wave 1) when used to represent composite score data from the initial survey administration and motivation to implement (Wave 2) when used to represent composite score data from the second administration of the survey.

The researcher measured active teaching as a composite score of the *Active Teacher PD* subscale items included in the *MSP-MAP II.* The composite score data for active teaching was labeled active teaching (Wave 1) when representing the first administration of the survey. The composite score for active teaching was labeled active teaching (Wave 2) when used to represent data collected during the second survey administration. A research assistant also conducted fidelity checks for active teaching during 33% of professional development sessions.

Professional development motivation was explored for evidence of construct validity. Evidence of reliability was explored by combining the global professional

development motivation item and the three professional development motivation items created by the researcher.

Data Management

The research study included a total of 143 participants. These 143 participants completed the initial administration of the survey (Wave 1). A total of 33 educators agreed to participate in focus groups and a second wave of data collection. Three participants did not return the electronic survey that was sent 30 days after professional development attendance. A total of 30 participants completed both administrations of the survey. This group consisted of 16 participants who attended the active learning type of professional development and 14 participants who attended lecture-style professional development.

Participants and Descriptive Statistics

Of the 143 participants, 86% of the participants taught in a public-school setting, 10% taught in a child care setting, and 4% taught in a private school setting. The majority of the educators were certified to teach (85%), while 15% were uncertified. Though achievement of a CDA was reported by 15% of participants, not all CDA holders were uncertified. Some participants held a CDA and teacher certification, while some participants held neither a CDA nor a teaching certification. Post-secondary education levels varied across participants, although the majority held a bachelor's degree (64%). See Figure 1 for a comparison of participants' education levels. More than half of the educators (57%) classified themselves as having taught for less than 10 years, while 32% of the educators classified themselves as having taught for 10-20 years. A further 11% of

participants classified themselves as having taught for more than 20 years. The age

ranges of the educators varied, with the largest grouping aged 33-37 (19%). The largest

proportion of participants indicated that they attended 21-30 hours of professional

development in 2017-2018 (34%). Almost equal amounts of participants reported varying

proportions of self-selected professional development, but the largest proportion

indicated that 100% of their professional development was self-selected (30%). Most

participants reported their students returning in August (90%). Table 2 presents the full

frequencies and percentages of these characteristics. Descriptive statistics for participants

by group can be found in Appendix D.

Table 3 presents frequencies and percentages relating to the type of professional

development participants received and session number participants attended. The

researcher taught six sessions, with mostly similar percentages of participants in each

session. Similar amounts of participants were in the active learning (55%) and lecture-

style type of professional developments (45%). Participants scored an average of 3.85

($SD = 1.25$) in professional development motivation (Wave 1), with a similar average for

Wave 2 ($M = 3.90$, $SD = 1.40$). Participants scored similarly for the supporting

professional development motivation questions (Wave 1: $M = 3.48$, $SD = 0.77$; Wave 2:

$M = 3.62$, $SD = 0.77$).

For motivation to implement, participants also scored between 3.00 and 4.00

(Wave 1: $M = 3.61$ $SD = 0.88$; Wave 2: $M = 3.77$, $SD = 0.89$). Finally, participants rated

the researcher's active teaching as an average of 3.86 ($SD = 1.06$, Wave 1) and an

average of 4.05 ($SD = 0.98$, Wave 2) across type of professional developments. Skew and

kurtosis provide evidence for the normality of the continuous variables. Kline (2015)

indicates that skew between -2.00 and +2.00 and kurtosis between -7.0 and 7.0 meet the

criteria for normality. All scales had skew and kurtosis values that indicate normal

distributions.

Table 2

Frequency of Teacher Characteristics

Variable	*n*	*%*
Hours Professional Development Attended in 2017-2018		
less than 10 hours	7	5
10-20 hours	22	15
21-30 hours	48	34
31-40 hours	39	27
41-50 hours	12	8
51-60 hours	10	7
More than 60 hours	5	4
Portion of Professional Development Self-Selected		
25%	31	22
50%	34	24
75%	35	24
100%	43	30
When Students Will Return to Begin 2018-2019 Schoolyear		
August	129	90
July	7	5
My school is in session year-round	7	5
Years Worked as Early Childhood Educator		
0-1	17	12
2-3	18	13
4-5	20	14
6-7	13	9
8-9	13	9
10-15	29	20
16-20	17	12
21-25	6	4
26-30	6	4
more than 30	4	3

Variable	n	%
Settings Taught		
Public PK 3&4	21	15
Public PPCD 3-5	49	34
Head Start 3&4	8	6
Public PK 4	25	17
Head Start 3	4	3
Public Preschool 3	9	6
Child Care 4	5	4
Head Start 4	7	5
Private PK 4	3	2
Private Preschool 3	3	2
Child Care 3&4	1	1
Child Care 3	1	1
Other	7	5
Level of Education		
High School Diploma	7	5
Some College	5	4
Associates Degree	7	5
Bachelor's Degree	91	64
Master's Degree	33	23
Child Development Associate Credential Completed		
No	121	85
Yes	22	15
Certified Teacher		
Yes	121	85
No	22	15
Age (Years)		
18-22	3	2
23-27	19	13
28-32	7	5
33-37	27	19
38-42	18	13
43-47	14	10
48-52	16	11
53-57	22	15
58-62	11	8
63-67	6	4

Note. Due to rounding errors, percentages may not equal 100%; PK – Prekindergarten, PPCD – Preschool Program for Children with Disabilities.
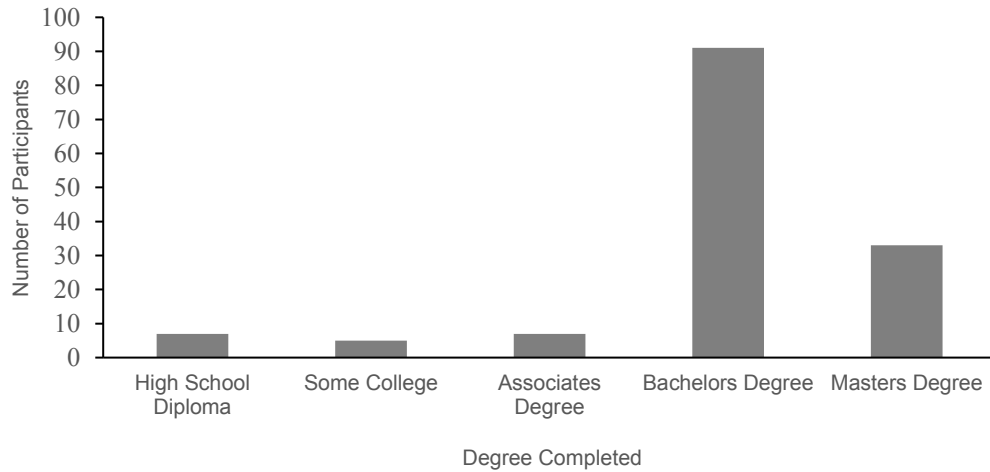
Figure 1. Education levels of participants.

Table 3

Frequency for Teaching Type of Professional Developments

Variable	*n*	*%*
Session		
1	22	15
2*	30	21
3*	23	16
4	15	10
5	28	19
6*	25	17
Type of Professional Development		
Lecture-style	65	45
Active learning	78	55

Note. Due to rounding errors, percentages may not equal 100%; *Indicates active learning session.

Data Analyses

Active Teaching Fidelity

The researcher conducted an analysis of variance (ANOVA) to determine whether participants rated the type of professional development in active teaching differently. This was conducted to ensure that the active learning type of professional development was significantly different from the lecture-style type of professional development. Prior

to the analysis, the researchers assessed the assumptions of normality and homogeneity of variances.

Skew and kurtosis values were low (see Table 4), indicating that normality could be assumed. Homogeneity of variances was not met, as evidenced by a significant Levene's test ($p < .001$). However, the ANOVA is robust against violations of this assumption in cases where group sizes are similar (ratio largest: smallest < 1.5; Stevens, 2009). The ratio of group sizes for the type of professional developments was 1.2, indicating that this criterion was met and that heterogeneity of variances will not bias the results (Stevens, 2009).

The results of the ANOVA were significant, $F(1, 141) = 59.09$, $p < .001$, indicating that there were significant differences in active teaching (Wave 1) between type of professional development styles. Those in the active learning type of professional development rated the session significantly higher in active teaching than those in the lecture-style type of professional development. Table 5 presents the full results of this analysis. The means and standard deviations are presented in Figure 2 and Table 4.

Table 4

Descriptive Statistics for Active Teaching (Wave 1) by Type of Professional Development

Type of Professional Development	M	SD	n	Sk	Kur
Lecture-style	3.22	1.17	65	0.04	-1.20
Active-learning	4.38	0.58	78	-0.92	0.61

Table 5

Active Teaching (Wave 1) by Type of Professional Development

Term	SS	df	F	p	η_p^2
Type of Professional Development	47.50	1	59.09	< .001	0.30
Residuals	113.34	141			
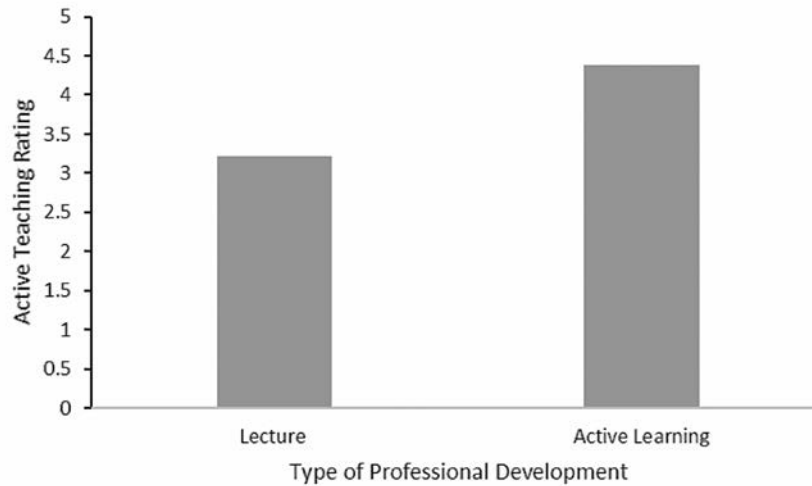
Figure 2. Active teaching (Wave 1) by type of professional development.

Active teaching fidelity was also measured by a research assistant blind to the type of professional development provided in each session. Frequency counts were tabulated for occurrences of active teaching components observed during each type of professional development. A total of 16 instances of active teaching components were observed during the lecture-style type of professional development. A total of 74 instances of active teaching components were observed during the active learning type of professional development. The frequency counts for observations by type of professional development are presented in Table 6.

Table 6

Active Teaching Fidelity

Active Teaching Component	Type of Professional Development	
	Lecture	Active
Partner discussion	0	1
Small group discussion	1	7
Large group discussion	3	5
Problem-solving activity	0	4
Opportunity for participants to plan for classroom instruction / activities	0	4
Opportunity for participants to practice instructional strategy	0	2
Opportunity for participants to present to others	0	26
Opportunity to explore new ideas about content	6	7
Demonstration of teaching technique / instruction strategy by presenter	0	10
Opportunity to explore Prekindergarten Guidelines	5	5
Opportunity to explore Early Childhood Outcomes	1	1
Opportunity to explore materials	0	2

Professional Development Motivation –Construct Validity

To provide evidence of construct validity for professional development

motivation, as defined by the *MSP-MAP II,* focus group data was collected then

organized using the Stewart and Shamdasani (2015) scissor-and-sort technique. This was

followed by a series of research analysis techniques typically used when examining

qualitative data. First, all comments from the focus groups were coded according to

which professional development session they attended and the type of professional

development of the session. Then, semantical content analysis was used to code

comments according to meaning (Krippendorf, 2018). Next, the researcher used

designation analysis to count the number of referrals to the construct of professional

development motivation. Semantical content analysis was then used to group comments

according to alignment with the *MSP-MAP II* subscale descriptors. The full *MSP-MAP II* includes the following subscales: (a) Extrinsic Contingencies, (b) Administrative Support, (c) Peer Influence, (d) Presenters, (e) Autonomy, (f) Teacher Involvement in PD Planning, (g) Coherence, (h) Content Focus, (i) Mastery, (j) Professional Networking, (k) Active Teacher PD, (l) Feedback, and (m) Implementation. Participant statements made during the focus groups were converted to frequency counts.

One positive count was assigned for each statement indicating presence of professional development motivation and one negative count was assigned for each statement indicating lack of professional development motivation following session attended. In the absence of ample professional development motivation, it was possible for a negative score to occur for a subscale. In keeping with the method for calculating professional development motivation (Karabenick et al., 2014) the scores for each subscale were combined to create aggregate professional development motivation scores (PDMS) for focus groups participating in each type of professional development of professional development.

The aggregate professional development motivation scores were analyzed for ability to discriminate between groups receiving differing type of professional developments of professional development. The ability of a scale to discriminate between groups provides evidence of construct validity (DeVellis, 2012; Messick, 1995). Aggregate focus group data indicates that groups of participants who received the active learning professional development type of professional development received higher professional development motivation scores than groups of participants who received the lecture-style professional development type of professional development. This ability to

discriminate between groups who received differing type of professional developments indicates that the *MSP-MAP II* exhibits construct validity. Discriminant analysis data is presented in Table 7.

Table 7

Discriminant Analyses of Focus Groups Data

	Frequency of Response Category		
Subscale	Active Learning	Lecture Learning	Total
Extrinsic Contingencies	5	3	8
Administrative Support	1	0	1
Peer Influence	5	0	5
Presenters	6	1	7
Autonomy	2	0	2
Teacher Involvement in PD Planning	66	53	119
Coherence	50	20	70
Content Focus	22	2	24
Mastery	34	9	43
Professional Networking	10	4	14
Feedback	7	0	7
Implementation	25	9	34
Teacher Changes	33	8	41
Active Teacher PD	25	-24	1
Total PDMS	291	85	

Note. PD = Professional development; PDMS = Professional development motivation score.

Professional Development Motivation – Reliability of Global Item and PDM Subscale

To analyze reliability or internal consistency of the single item measure and researcher-created items together, the researcher used Cronbach's alpha. The researcher interpreted the alpha coefficient as acceptable if it reached .70 or above, good if it reached .80 and above, and excellent if it reached .90 and above (George & Mallery, 2016). The items for Wave 1 and 2 both had good reliability, providing evidence that the questions were similar. Table 8 presents the results of the reliability analysis.

Table 8

Reliability for PDMC

Scale	No. of Items	α
Professional Development Motivation and Supporting Items		
Wave 1	4	0.89
Wave 2	4	0.90

Note. PDMC = Professional Development Motivation Composite

Professional Development Motivation – Correlation of Global Item and PDM Subscale

The researcher conducted a Spearman correlation analysis between professional development motivation (Wave 1) and the supporting professional development motivation measures. The researcher used Cohen's standard to evaluate the strength of the relationship, where coefficients between .10 and .29 represent a small effect size, coefficients between .30 and .49 represent a moderate effect size, and coefficients above .50 indicate a large effect size (Cohen, 1988). A Spearman correlation requires monotonicity rather than strict linearity (i.e., the relationship of the variables does not change direction; Conover & Iman, 1981). Figure 3 presents the scatterplot of the correlation between professional development motivation (Wave 1) and the supporting items. The assumption of monotonicity was met. There was a significant, large correlation between the single-item professional development motivation item and the supporting items ($r_s = 0.73$, $p < .001$). This provides evidence that the single-item professional development motivation item and the supporting items were similar.

Figure 3. Scatterplot between professional development motivation (Wave 1) and supporting professional development items.

A second Spearman correlation was run between the Wave 2 measures of these items. The assumption of monotonicity was met (see Figure 4). The relationship in this analysis was similar to the relationship in Wave 1 ($r_s = 0.81$, $p < .001$). This provides evidence that the single-item measure of professional development motivation was similar to the researcher-created items.
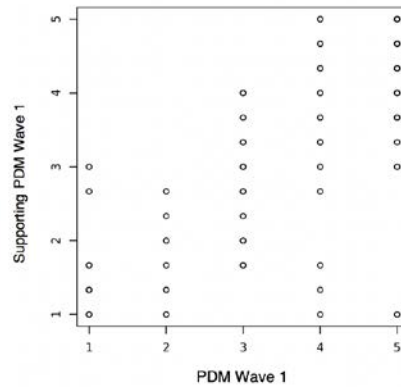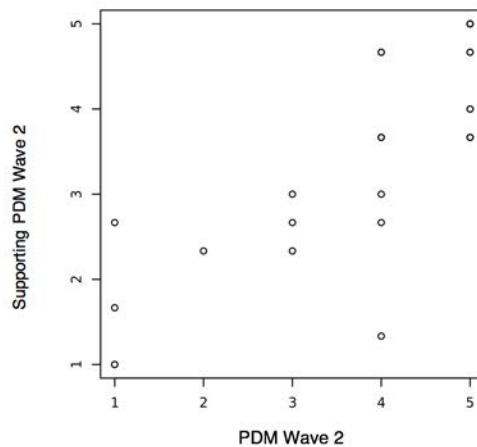

Figure 4. Scatterplot between professional development motivation (Wave 2) and supporting professional development items.

Research Question 1: Professional Development Motivation by Type of Professional Development

Research Question 1 was: Does type of professional development (lecture vs. active learning) affect the motivation of early childhood teachers to pursue additional professional development opportunities? To answer this question, the researcher conducted an ANOVA with a dependent variable of professional development motivation (Wave 1) and an independent variable of type of professional development. Skew and kurtosis levels indicated normality (see Table 9). Levene's test was significant ($p = .001$) indicating a violation of the assumption of homogeneity of variances; however, the ratio of group sizes was less than 1.5, indicating that group sizes were sufficiently similar for unequal variances to not bias the results (Stevens, 2009).

The results of the ANOVA were significant, $F(1, 141) = 38.60$, $p < .001$, indicating that there were significant differences in professional development motivation (Wave 1) between types of professional development. Participants in the active learning condition scored higher in professional development motivation than participants in the lecture-style condition. The null hypothesis for Research Question 1 may be rejected. The eta squared was 0.21, indicating that type of professional development explained approximately 21% of the variance in professional development motivation (Wave 1). Table 10 presents the full results of this analysis. Table 9 and Figure 5 presents the means and standard deviations.

Table 9

*Descriptive Statistics for Professional Development Motivation (Wave 1) by
Type of Professional Development*

Combination	M	SD	n	Sk	Kur
Lecture-style	3.22	1.28	65	-0.23	-0.95
Active-learning	4.37	0.94	78	-2.06	4.77

Table 10

Source Table for Professional Development Motivation (Wave 1) by Type of Professional Development

Term	SS	df	F	p	η_p^2
Type of Professional Development	47.41	1	38.60	< .001	0.21
Residuals	173.20	141			
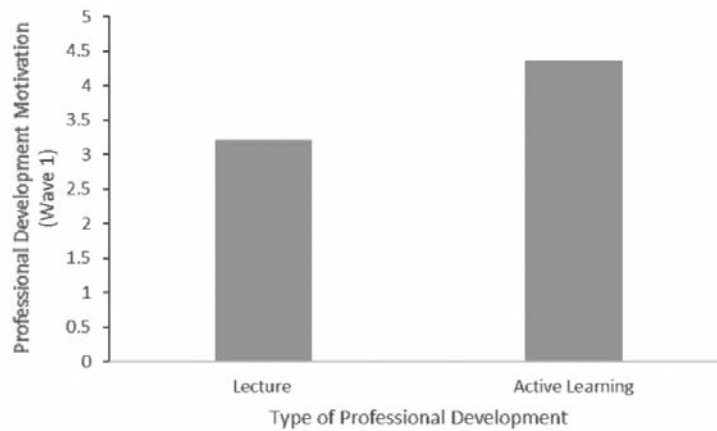
Figure 5. Mean professional development motivation (Wave 1) by type of professional development.

Motivation to Implement Evidence-based Practices

Research Question 2 was: How does type of professional development (lecture vs. active learning) affect the motivation of early childhood teachers to implement associated strategies within their classrooms? The researcher conducted an ANOVA to answer this research question. Prior to the analysis, the researcher examined the ANOVA

assumptions. Normality was met (see Table 11 for skew and kurtosis values).

Homogeneity of variances was met (Levene's test $p = .75$).

The results of the ANOVA were significant, $F(1, 141) = 10.99$, $p = .001$, indicating that there were significant differences in motivation to implement (Wave 1) among types of professional development. Those in the active learning condition scored higher in motivation to implement (Wave 1) than those in the lecture-style condition. The null hypothesis for Research Question 2 may be rejected. Table 11 and Figure 6 present the means and standard deviations. The eta squared was 0.07, indicating type of professional development explained approximately 7% of the variance in motivation to implement (Wave 1). Table 12 presents the full results of this analysis.

Table 11

Descriptive Statistics for Motivation to Implement (Wave 1) by Type of Professional Development

Combination	*M*	*SD*	*n*	*Sk*	*Kur*
Lecture-style	3.35	0.84	65	-0.12	-0.37
Active-learning	3.82	0.86	78	-0.64	-0.28

Table 12

Source Table for Motivation to Implement (Wave 1) by Type of Professional Development

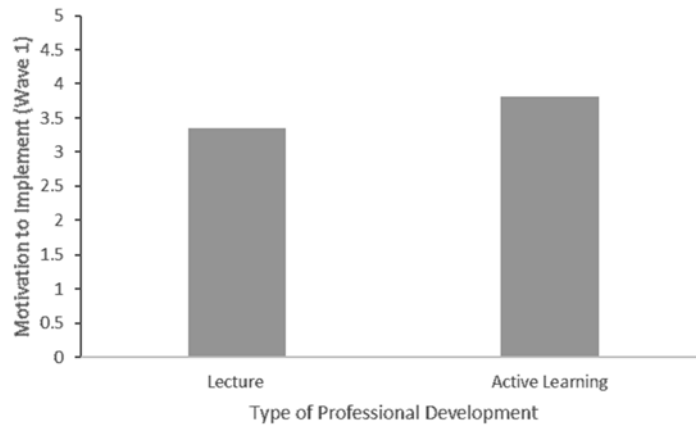| Term	*SS*	*df*	*F*	*p*	η_p^2
Type of Professional Development	7.96	1	10.99	.001	0.07
Residuals	102.11	141			

Figure 6. Mean motivation to implement (Wave 1) by type of professional development.

Maintenance of Professional Development Motivation

In Wave 2, the active learning condition consisted of 16 participants, and the lecture-style learning condition consisted of 14 participants. Due to a small sample size and differences in standard deviations, power was inadequate to conduct typical statistical analyses on the data from Wave 2. Instead, comparative analysis was conducted utilizing visual inspection of the data collected during Wave 2. The mean score for participants in the active learning group was 4.75. The mean score for participants in the lecture-style group during Wave 2 was 2.93. Figure 7 provides mean by type of professional development.

Table 13 presents the results of the means and standard deviations for professional development motivation at Wave 1 and Wave 2 by type of professional development. Analyses were conducted to determine lasting effects on professional development motivation for each type of professional development. Visual inspection of the data demonstrates the maintenance of the main effect; also shown is that participants who received active learning professional development experienced marginal increases in professional development motivation from Wave 1 to Wave 2 of data collection. Between

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Wave 1 and Wave 2, there was a slight decrease in professional development motivation among participants who received lecture-style learning. Results of this comparative analysis can be found in Figure 8.
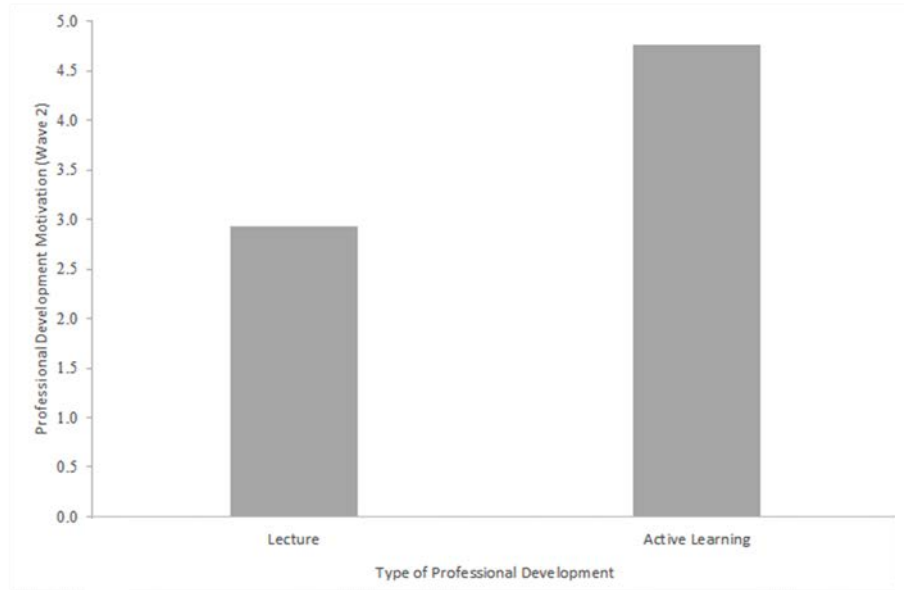
Figure 7. Mean professional development motivation (Wave 2) by type of professional development.

Table 13

Descriptive Statistics for Professional Development Motivation at Wave 1 and Wave 2 by Type of Professional Development

		Wave 1	Wave 2
Type of Professional Development	Active learning (*n* = 16)	$\bar{x}$ = 4.63 SD = 0.50	$\bar{x}$ = 4.75 SD = 0.45
	Lecture-style (*n* = 14)	$\bar{x}$ = 3.14 SD = 1.23	$\bar{x}$ = 2.93 SD = 1.49
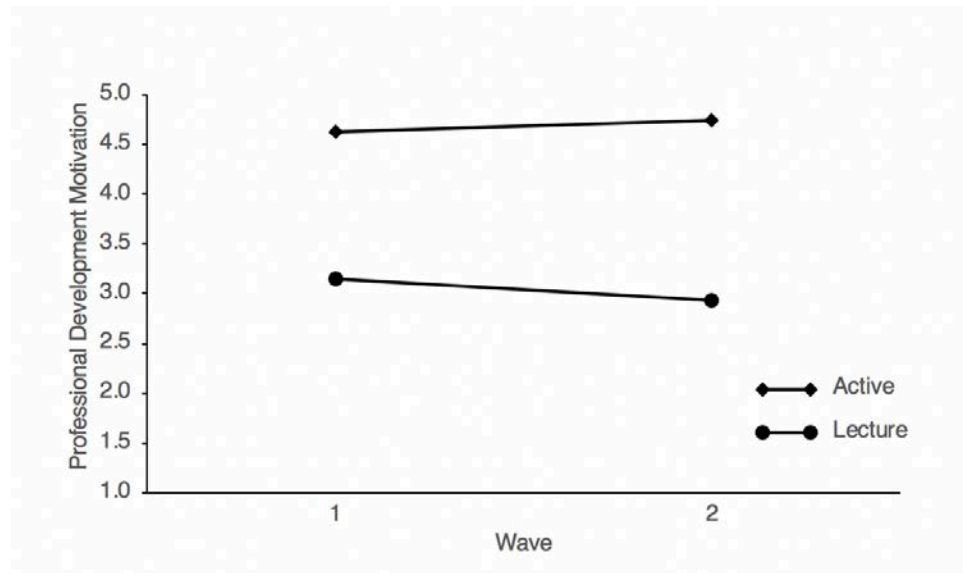
Figure 8. Mean professional development motivation at Wave 1 and Wave 2 by type of professional development.

Maintenance of Motivation to Implement Evidence-based Practices

When measuring motivation to implement evidence-based strategies in Wave 2, there were 16 participants in the active learning condition and 14 participants in the lecture-style learning condition. The small sample size and differences in standard deviations yielded low power. Since power was inadequate to conduct typical statistical analyses on the data from Wave 2, comparative analysis was again conducted utilizing visual inspection. The mean score for participants in the active learning group was 4.05. The mean score for participants in the lecture-style group during Wave 2 was 3.44. Figure 9 provides means of motivation to implement by type of professional development.

Table 14 presents the results of the descriptive statistics for motivation to implement evidence-based strategies at Wave 1 and Wave 2 by type of professional development. Visual inspection of the data was conducted to determine maintenance of motivation to implement evidence-based strategies for each type of professional

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development. Comparative analysis demonstrates the maintenance of the main effect; also shown is that participants that received active learning professional development experienced a marginal decrease in levels of professional development motivation between Wave 1 and Wave 2. Participants that received lecture-style professional development experienced slight decreases in levels of professional development motivation. The graph used in comparative analysis can be found in Figure 10.
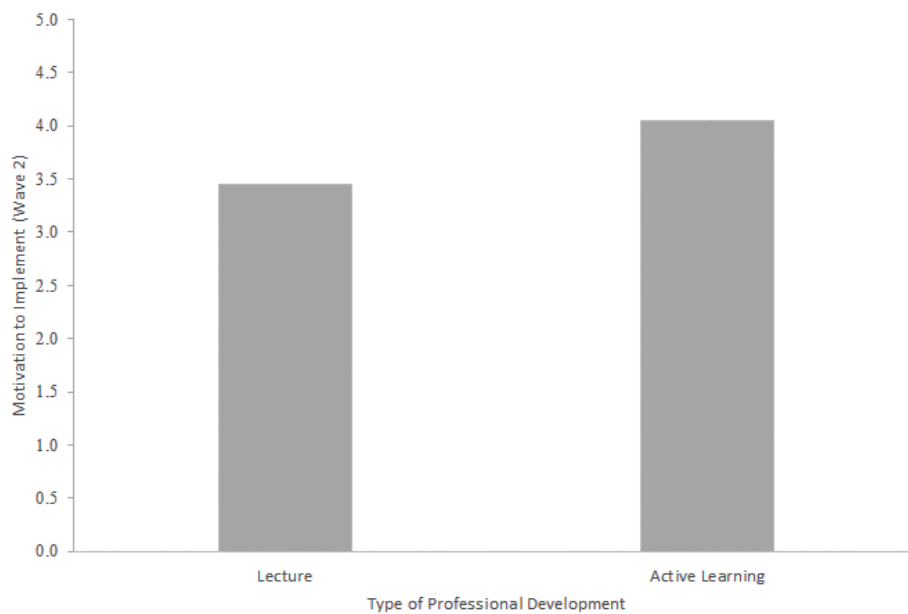
Figure 9. Mean motivation to implement (Wave 2) by type of professional development.

Table 14

Descriptive Statistics for Motivation to Implement at Wave 1 and Wave 2 by
Type of Professional Development

		Wave 1	Wave 2
Type of Professional Development	Active learning (n = 16)	$\bar{x}$ = 4.13 SD = 0.58	$\bar{x}$ = 4.05 SD = 0.71
	Lecture-style (n = 14)	$\bar{x}$ = 3.57 SD = 0.75	$\bar{x}$ = 3.44 SD = 0.99
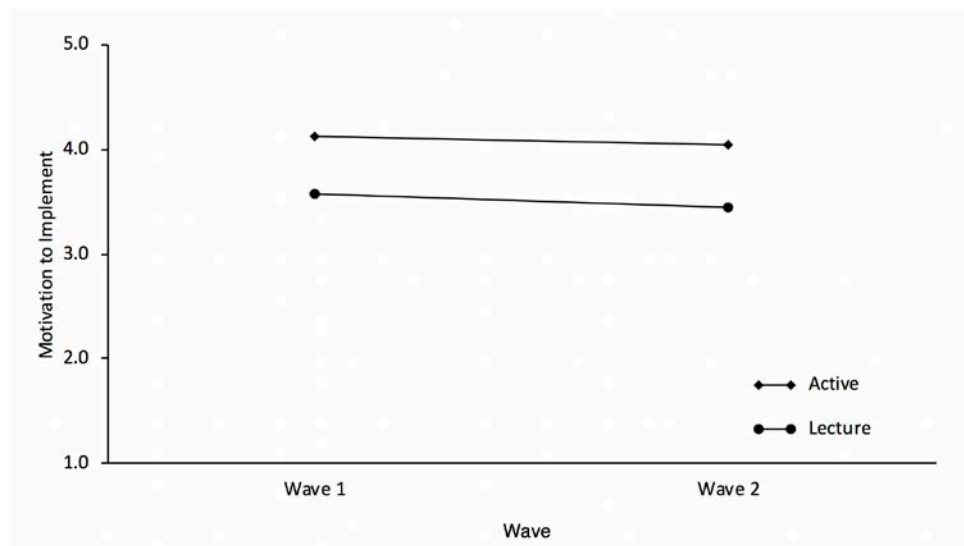
Figure 10. Mean motivation to implement at Wave 1 and Wave 2 by type of professional development.

Summary

A total of 143 early childhood educators participated in this study, with 30 of them participating in the Wave 2 data collection a month later. Fidelity testing indicated that the active-learning condition truly represented active teaching techniques. Reliability and correlational testing indicated that the single-item global measure of professional development motivation was similar to the supporting researcher-created professional development motivation items.

The results for Research Question 1 indicated that the null hypothesis can be rejected; participants in the active-learning professional development motivation session scored significantly higher in professional development motivation than those in the lecture-style condition. This pattern was also seen in participants measured a second time. The results for Research Question 2 indicated that the null hypothesis can be rejected; participants in the active-learning professional development motivation session scored significantly higher in motivation to implement evidence-based practices than those in

the lecture-style condition. Comparative analyses conducted on Wave 1 and Wave 2 data suggest the maintenance of the main effect and marginal changes on the dependent variables over time.

In the following chapter, the researcher will discuss these results within the context of the extant literature. The researcher will discuss the strengths and weaknesses of this study. The researcher will also discuss the implications of these results, as well as recommendations for future research.

CHAPTER FIVE

Discussion

The current study explored the construct of professional development motivation through the lens of SDT. SDT is an expansive framework of motivation theory that is concerned with positive developmental tendencies and social influences, differentiating types of motivation based upon origination and goals (Crawford, 2017; Deci & Ryan, 1985). Specifically, the study measured professional development motivation, motivation to implement evidence-based strategies, and active teaching by asking the following research questions:

Research Question 1: How does the type of professional development (lecture vs. active learning) affect the motivation of early childhood teachers to pursue additional professional development opportunities?

Research Question 2: How does the type of professional development (lecture vs. active learning) affect the motivation of early childhood teachers to implement associated strategies within their classrooms?

In the current study, six professional development sessions were delivered that focused upon STEM curriculum integration within the universally designed early childhood classroom. Three sessions were taught as lecture-style professional development and three sessions were taught as active learning professional development. Participants registered for and attended one 7.5-hour session. At the end of the professional development session, participants completed a survey designed to measure professional development motivation, motivation to implement evidence-based strategies,

and perceptions of the learning experience (Wave 1 of data collection). Some participants also participated in focus groups and completed a second survey, 30-days after attending professional development (Wave 2 of data collection). Focus group data was used to explore the construct validity and performance of the *MSP-MAP II*. The Wave 2 survey was used to measure maintenance of professional development motivation and motivation to implement evidence-based practices.

A total of 143 educators participated in the research study. All 143 educators were part of the initial wave of data collection. Within this study, 78 educators attended an active learning professional development session and 65 educators attended a lecture-style professional development. A total of 33 educators participated in focus groups. Of the focus group participants, 30 educators participated in a second wave of data collection by completing an electronic survey 30 days after their initial professional development experience. Wave 2 of data collection consisted of 16 educators who attended active learning professional development and 14 educators who participated in lecture-style professional development.

Overview of Findings

The primary purpose of this research study was to determine whether professional development motivation and motivation to implement evidence-based strategies were affected by the condition of professional development a participant experienced. Viewing this study through the lens of SDT, the researcher sought to determine whether components of active learning professional development yielded high levels of intrinsic motivation, expressed as professional development motivation and motivation to implement evidence-based strategies. Deci and Ryan (1985) assert that intrinsic

motivation is related to the interests and enjoyment of an individual and is situated within social contexts. Thus professional development designed to include components often considered enjoyable by adult learners (Brown & Engelhardt, 2016; Hyun et al., 2017; Wagner & French, 2010) was hypothesized to produce elevated levels of professional development motivation and motivation to implement evidence-based strategies in early childhood teachers.

Before measuring professional development motivation, it was necessary to explore the construct validity and reliability of the *MSP-MAP II* survey to determine whether it was appropriate for use in this study. The *MSP-MAP II* was developed by a research team seeking a way to measure the professional development motivation of math and science teachers (Karabenick & Conley, 2011; Karabenick & Conley, 2014). Though it was funded by the National Science Foundation and the source of extensive psychometric norming procedures, the tool was never published.

The current research study included exploration of the construct validity of the *MSP-MAP II* to measure professional development motivation. This was done through the collection of focus group data followed by a series of analysis techniques. Once it was established that the *MSP-MAP II* demonstrated construct validity, exploration of the reliability of the single global item used to measure professional development motivation was examined. After reliability was confirmed, it was determined that the *MSP-MAP II* was appropriate to use for the study purposes of measuring professional development motivation and motivation to implement evidence-based strategies.

The research study compared the intervention condition of active learning professional development to the control condition of lecture-style professional

development, seeking to determine the effects each had on the professional development motivation and motivation to implement evidence-based strategies within a group of early childhood teachers. For this reason, it was important to determine the fidelity of active learning teaching during active learning professional development sessions. Fidelity was measured by a research assistant who attended 33% of professional development sessions measured in this research study. This equates to one lecture-style professional development session and one active learning professional development session. Additionally, quantitative analysis was conducted to measure participant perceptions of active learning components included (or in the case of lecture-style sessions, excluded) in the workshop. To do this, the *Active Teacher PD* subscale of the *MSP-MAP II* (Karabenick & Conley, 2014) was included in the survey given to all study participants. The results of this analysis were significant with a large effect size, indicating that there were distinct differences in active teaching across session type. Upon establishing construct validity and the reliability of the research tool, as well as the fidelity of the intervention, the researcher was ready to address the research questions:

Research Question 1: How does the type of professional development (lecture vs. active learning) affect the motivation of early childhood teachers to pursue additional professional development opportunities?

The first question sought to determine whether participation in a professional development session could affect the intrinsic motivation of early childhood educators to attend additional professional development sessions. According to SDT, if an activity is inherently engaging and/or contains elements which make it personally valuable, individuals will experience intrinsic motivation toward it. Deci and Ryan (1985) assert

that intrinsic motivation is related to the interests and enjoyment of an individual and is situated within social contexts. Professional development has been shown to improve the teaching practices of early childhood educators (Diamond & Powell, 2011; Snyder et al., 2018) and change early childhood teachers' beliefs about children's capacity to learn (Buchanan et al., 2006). Thus professional development designed to include components often considered enjoyable by adult learners (Brown & Engelhardt, 2016; Hyun et al., 2017; Wagner & French, 2010) was hypothesized to produce elevated levels of professional development motivation and motivation to implement evidence-based strategies in early childhood teachers.

In this research study, professional development motivation was measured after the initial professional development session. This measurement gave a clear picture of how the type of professional development attended affected participants' desire to return for additional training. Thirty days after the professional development experience, the professional development motivation of a sample of participants was again measured. This gave insight into potential maintenance of the main effect of professional development on teacher professional development motivation. Potential maintenance of individual professional development motivation scores was measured by comparing responses on the Wave 1 survey to responses on the Wave 2 survey.

Wave 1 Survey Results

Analysis of Wave 1 survey data revealed significant differences in professional development motivation among the lecture condition and the active-learning condition. There was a large effect size, indicating that 21% of variance in professional development motivation scores could be explained by type of professional development

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received. The mean professional development motivation score for active learning professional development was 4.37, whereas the mean professional development motivation score for lecture-style professional development was 3.22. This indicates that participants who attended an active learning professional development session had higher levels of professional development motivation than those participants who attended a lecture-style professional development session.

Wave 2 Survey Results

Comparison of means and standard deviations were used to determine maintenance of professional development motivation. Initial analysis of data from Wave 2 suggests that professional development motivation scores from participants who received active learning continued to be higher than the scores from participants who received lecture-style professional development. In Wave 2, the mean professional development motivation score for active learning professional development was 4.75, whereas the mean professional development motivation score for lecture-style professional development was only 2.93. While there were slight differences in professional development motivation scores between Wave 1 and Wave 2, the differences were not enough to be considered significant. These results suggest that when measured 30-days after the professional development, participants who attended active learning professional development continued to report higher levels of professional development motivation than participants who attended lecture-style professional development.

Results are suggestive that the participant group that received active learning professional development experienced high levels of professional development motivation which were maintained and increased over a period of 30 days. In contrast,

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the results suggest that the participant group that received lecture-style professional development experienced lower levels of professional development motivation that decreased over a period of 30 days. Some participants in each type of professional development reported higher professional development motivation during Wave 2 than they had reported on the day of the professional development. Others in each condition reported lower professional development scores on the Wave 2 survey. This could mean several things. Participants may have changed their mind about their perception of the workshop and as a result their professional development motivation may have increased or decreased. They may have practiced some of the strategies presented in the workshop, which may have affected their professional development motivation. Teachers do not exist in a vacuum. It is also possible that between their Wave 1 and Wave 2, they could have attended another workshop which affected their professional development motivation.

Research Question 2: How does the type of professional development (lecture vs. active learning) affect the motivation of early childhood teachers to implement associated strategies within their classrooms?

The second research question sought to answer whether motivation to implement evidence-based strategies would be affected by the condition of professional development received. Motivation to implement evidence-based strategies was measured after the initial professional development session, and again 30 days after the professional development session. Maintenance of the main effect of motivation to implement evidence-based strategies was measured by comparing responses on the Wave 1 survey completed to responses on the Wave 2 survey.

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Wave 1 Survey Results

Analysis of survey data collected on the day of the professional development revealed significant differences in motivation to implement evidence-based strategies among the lecture condition and the active-learning condition. There was a small effect size indicating 7% of the variance was explained by condition of professional development attended. When a participant received active learning professional development, the mean score in motivation to implement evidence-based strategies was 3.82. The mean score for motivation to implement evidence-based strategies was 3.35 when a participant received lecture-style professional development. This indicates that participants who attended an active learning professional development session had higher levels of motivation to implement evidence-based strategies than those participants who attended a lecture-style professional development session.

Wave 2 Survey Results

Initial analysis of Wave 2 data suggests that scores in the area of motivation to implement evidence-based strategies from participants who received active learning continued to be higher than the scores from participants who received lecture-style professional development. The mean motivation to implement evidence-based strategies score for active learning professional development was 4.05, whereas the mean motivation to implement evidence-based strategies score for lecture-style professional development was only 3.44. This suggests that even after a period of 30 days, participants who received active learning professional development reported higher motivation to implement evidence-based strategies than participants who received lecture-style professional development.

Analysis of data collected in the Wave 2 surveys suggests there were no significant differences in motivation to implement evidence-based strategies between Wave 1 and Wave 2. While initial analysis indicates the main effect was maintained, both groups experienced slight decreases in motivation to implement evidence-based strategies between Wave 1 and Wave 2. When considering these results, several things must be considered. The research study occurred during the summer months, a time when most teachers are not actively teaching in the classroom. Given distance from the classroom and a reprieve from their teaching duties, participants may, in the moment, feel considerably less motivated to implement evidence-based strategies. Their perception in the moment of the survey might be different than if they were surveyed at a later date, when school has resumed. Additionally, participants may have experienced a change in teaching assignment or have moved to a different campus. This could affect their perception of duties required and in turn, their motivation to implement evidence-based strategies. Finally, school district mandates affect the scope and sequence of what an educator teaches. If the participant has been given, or perceives the expectation of, a curriculum that does not support evidence-based practices, the participant may feel less motivated to use the evidence-based strategies taught in the workshop.

Implications

The results of this research study have several implications for practice. Increased focus upon the importance of early childhood education as a foundation for all learning has resulted in an evolution of curriculum and early childhood standards. This evolution has positioned high-quality professional development as an essential component in the extension of knowledge and skills for early childhood educators (Feldman, 2010;

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Helterbran & Fennimore, 2004; Horm et al., 2013; Lino, 2014). EBPs have been linked to positive educational outcomes for young children (Odom, 2009; Walsh et al., 2012; Cook & Odom, 2013; Ledford et al., 2016; Farley et al., 2018; Snyder et al., 2011; Snyder et al., 2018). Early childhood teachers need support as they balance EBPs for all students and rigorous standards for learning, within classrooms that have become increasingly diverse (Buchanan et al., 2006; Diamond & Powell, 2011; Gabriel, 2010; Lino, 2014). This support comes through high-quality professional development that is specifically designed to be engaging, while extending early childhood teacher knowledge (Farley et al., 2018; Snyder et al., 2018). High-quality professional development that is effective should stimulate early childhood teachers to seek additional, similar professional development, in areas of potential professional growth.

Professional development motivation is an important component of education improvement in the field of early childhood education. Professional development motivation is an outward manifestation of intrinsic motivation towards professional growth as a teacher. Early childhood teachers have basic human needs for autonomy, competence, and relatedness (Deci & Ryan, 1985). All humans will act in a manner that will fulfill these basic needs (Deci & Ryan, 2008a; Deci & Ryan, 2008b; Tranquillo & Stecker, 2016). For early childhood teachers, fulfillment of these needs within the workplace lays the foundation for intrinsic motivation toward improvement of one's teaching craft. Early childhood administrators should consider these basic needs when making plans for faculty professional development. In the context of professional development, autonomy manifests when teachers are able to choose their own training (Crawford, 2017). Early childhood teachers are familiar with their personal strengths and

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weaknesses and have a clear understanding of the class composition and needs of individual students (Fitzgerald & Theilheimer, 2013). They are well-prepared to make appropriate choices regarding which professional development workshop to attend. By allowing teachers autonomy in choice of professional development, an administrator can support the needs of their teachers while improving school outcomes.

When making choices regarding their professional growth, teachers will subconsciously choose to engage in learning activities that fulfill their need for competence (Karabenick & Conley, 2011). Thus it is essential that administrators ensure a blend of content area and pedagogy-related professional development opportunities are made available to meet the competency needs of early childhood educators. Professional development that incorporates activities designed to engage in problem-solving and practice authentic instructional strategies promotes knowledge transfer (Buchanan et al., 2006; Desimone, et al., 2002) and supports teachers' need for competence (Lave, 1988). If early childhood teachers are confident in their ability to use newly learned strategies, they are more likely to attempt, and eventually master, these strategies with their students (Crawford, 2017; Karabenick & Conley, 2011; Nitecki, 2014).

A final consideration for early childhood administrators charged with planning professional development is the need for relatedness. Relatedness is an important facet of the intrinsic motivation necessary for continued professional growth (Assor et al., 2009). Early childhood teachers need to feel connected to other educators, so they can collaborate and problem-solve classroom challenges. However, many school districts have a limited number of early childhood classrooms, and these classes may be spread throughout the district. Other campuses may have several early childhood classes but

limited time for collaborative planning and problem-solving. Opportunities for small group collaboration and reflection during professional development support the need for relatedness and reinforce internalization of information (Assor et al., 2009; Wagner & French, 2010). Schools should consider the importance of professional development for their teachers and the benefits to students when teachers experience professional growth. Small changes in the way professional development is approached has the potential to greatly impact fulfillment of teacher needs and result in program improvement. The findings of this study support prior research indicating that when teacher needs for autonomy, competency, and relatedness are satisfied, professional development motivation is experienced.

The findings of this study also highlight implications for individuals who plan and facilitate professional development. Providers of professional development in early childhood might consider not only the content of their training, but also the delivery. It is well-documented that active learning increases understanding of concepts by adult participants (Dunst, 2010; Knowles, 2015; Prince, 2004). Incorporation of active teaching components such as hands-on activities, critical analysis of curriculum and materials and opportunities to present to colleagues followed by reflection and/or discussion add value to a professional development workshop and result in better participant understanding of the professional material (Garet et al., 2001; Buchanan, 2006). By providing the opportunity to engage in group problem-solving activities, providers encourage professional growth and collaboration (Knowles, 2015). Best practices in professional development indicate that active learning teaching strategies such as these improve the

outcome of professional development (Desimone & Garet, 2015; Desimone et al., 2002; Garet et al., 2001; Snyder, 2011).

Active learning strategies have been linked with improved teaching outcomes (Desimone et al., 2002; Garet et al., 2001) and are considered an essential component of high-quality professional development (Desimone & Garet, 2015; Lino, 2014; Schachter, 2015; Snyder et al., 2011). High-quality professional development improves teaching practices (Garet et al., 2001; Horm et al., 2013) and increase student outcomes (Snyder et al., 2018). High-quality professional development has been shown to change teacher beliefs, affecting the way teachers perceive students' capacity to learn and perform (Buchanan et al., 2006; Ingvarsson et al., 2005; Nitecki 2014). Teachers who believe in the unlimited potential of students may have higher expectations for them and provide them with better learning opportunities (Nitecki, 2014). Early childhood teachers who have been trained in the scope and sequence of prekindergarten, the chosen curriculum of their school, and developmentally appropriate teaching strategies are well prepared to educate young children (Buyssee et al., 2006; Schachter, 2015; Snyder et al., 2018). Therefore, it is beneficial for early childhood teachers to engage in high quality professional development.

Adult learners overwhelmingly prefer to take classes or workshops that incorporate active learning (Brown & Engelhardt, 2016; Hyun et al., 2017; Wagner & French, 2010). The inclusion of active teaching components such as hands on activities, opportunities to practice teaching strategies and receive feedback from peers, and opportunities to purposefully explore the materials and curriculum increase professional development motivation (Brown & Engelhardt, 2016; Crawford, 2017; Daniels, 2016;

Karabenick & Conley 2011). High levels of professional development motivation yield increased engagement with professional development activities (Assor et al., 2009; Karabenick & Conley, 2014), which improve teaching practices (Hochberg & Desimone, 2010; Horm et al., 2013; Lynch, 2017; Ottley et al., 2017; Pianta, La Paro, & Hamre, 2008), and improve student outcomes (Wagner & French, 2010). Therefore, trainers of early childhood educators should consider that incorporation of active teaching strategies is likely to increase professional development motivation, affect teaching practices and improve student outcomes. As an additional benefit, providing active learning professional development improves the odds that educators will seek additional professional growth opportunities.

Finally, it is imperative to recognize that the study of professional development motivation is not limited to the scope of early childhood educators. The initial findings of this study can be considered a contribution to the growing body of literature in the area of professional development motivation. The literature in this area is scarce and the majority of studies considering professional development motivation are qualitative in nature. Few quantitative studies have been conducted to measure this construct or its long-term effects on educators. Additionally, the area of SDT has not received much attention in the past decade. The study findings are an excellent starting point for further discussion regarding teacher needs, educator burnout, and school improvement.

Limitations of the Study

This study examined the professional development motivation of teachers after receiving one seven and a half hour workshop. There is evidence within the literature that when professional development is delivered over a period of time, rather than just on one

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day, its effectiveness is increased (Desimone & Garet, 2015; Guskey & Yoon, 2009; Hochberg & Desimone, 2010). The current study only included those teachers who registered for a given professional development workshop. Since the teachers willingly registered for the workshop, they may have entered the workshop with higher levels of professional development motivation and motivation to implement evidence-based strategies than if they had been assigned to the workshop by an administrator.

The study was conducted over the summer months, when teachers were not on duty in their classrooms. This could have affected their attention to the evidence-based strategies taught. The timing could also have influenced the lasting effects of professional development motivation and/or motivation to implement evidence-based strategies. Results may have been markedly different if they had been able to begin implementing evidence-based strategies in their classroom immediately after the workshop.

The content of the workshop was STEM, which was an area of focus for many school districts at the time of the research study. If the content had been less engaging, focusing for example on compliance issues, teacher motivation scores may have been different. The present study only measured the professional development motivation of teachers experiencing active learning components through the delivery of a workshop. There are many different ways in which active learning components could be delivered, including through differing methods of professional development delivery. The results would be strengthened if various delivery methods had been included.

Another limitation of the study is the limited number of teachers surveyed. The research study would have been strengthened if the overall sample size had been larger. Similarly, there was a limited sample size surveyed 30-days post-intervention.

Representing only 21% of the original sample size, there is the possibility that the results are not an accurate measurement of maintained effects in the areas of professional development motivation and motivation to implement evidence-based practices. If the sample size of the second survey administration were larger, further statistical analyses could have been conducted and/or the results of the analyses might have been affected. Additionally, the study would have been strengthened if it included early childhood teachers from other areas of the United States.

Future Research

Future studies should incorporate multiple sessions of professional development to determine how professional development motivation and motivation to implement evidence-based practices are affected. Multiple opportunities to measure teacher motivation in these areas, over the course of a series of workshops, would be a beneficial contribution to the field. Future research might explore the relationship between professional development motivation and one-day workshops of differing length. Additionally, research that studies longitudinal effects of active learning on professional development motivation would be of interest. Research that examines professional development motivation in the context of differing delivery methods would expand on this research. The lack of literature in the area of professional development motivation of early childhood educators suggests that additional research in this area is necessary. Also beneficial to the field of early childhood education would be research that specifically measures professional development motivation, teacher changes, and student outcomes, providing stronger evidence for a link between the three dimensions.

Conclusion

The literature suggests that early childhood educators benefit from high-quality professional development. When they receive high-quality professional development, their beliefs change, their teaching strategies improve, student outcomes improve, and they experience increased levels of professional development motivation. Students benefit from teachers who are highly trained and successful in their implementation of evidence-based strategies. The literature also supports the use of active teaching components within professional development. This study examined the effects of active learning professional development on early childhood educator professional development motivation and motivation to implement evidence-based strategies. Overall, the findings were positive and confirmed the hypotheses that active learning professional development would yield higher levels of professional development motivation and motivation to implement evidence-based strategies than lecture-style professional development. The research findings lay a foundation for further research to be conducted in the area of early childhood educator professional development motivation. Initial findings indicated that active teaching components proved to be a significant contributor to professional development motivation. Providers of professional development should consider this when planning professional development activities, considering whether opportunities for active learning might benefit their audience. High-quality professional development has the potential to make large impacts on student outcomes. It is essential that professional development providers find ways to engage teachers in activities that will most impact student outcomes. If these activities also increase professional

development motivation, the potential exists to solidify teacher commitment to professional growth resulting in student achievement.

APPENDICES

APPENDIX A

Sample Survey

You recently participated in a professional development session at Region 10 Education Service Center. This anonymous survey is designed to learn about your experiences in that activity and its possible impact on teaching and students. Please respond as best you can to each item. Thank you!

	Not at all true **1**	**Slightly true** **2**	**Somewhat true** **3**	**Very true** **4**	**Completely true** **5**
The PD you are attending is likely to change the curriculum content of the subject(s) you teach.	☐	☐	☐	☐	☐
The PD you are attending is likely to change how cognitively challenging your classroom activities are.	☐	☐	☐	☐	☐
The PD you are attending is likely to change the instructional methods you employ.	☐	☐	☐	☐	☐

The PD you are attending is likely to change the types or mix of assessments you use to evaluate students. ☐ ☐ ☐ ☐ ☐

The PD includes demonstrations of teaching techniques. ☐ ☐ ☐ ☐ ☐

The PD includes large or small group discussions. ☐ ☐ ☐ ☐ ☐

The PD includes lectures or presentations to colleagues. ☐ ☐ ☐ ☐ ☐

The PD includes opportunities for teachers to practice strategies. ☐ ☐ ☐ ☐ ☐

The PD includes time to explore, question, and debate new ideas about teaching your subject(s). ☐ ☐ ☐ ☐ ☐

How much did your participation in that PD affect your motivation to participate in PD in the future?   (check one)

☐ Much less motivated

☐Somewhat less motivated

☐No Change

☐Somewhat more motivated

☐Much more motivated

How motivated are you to select this style of PD when selecting future PD sessions you will attend?   (check one)

☐Much less motivated

☐Somewhat less motivated

☐No Change

☐Somewhat more motivated

☐Much more motivated

How motivated are you to select a completely different style of PD when selecting future PD sessions you will attend?   (check one)

☐Much less motivated

☐Somewhat less motivated

☐No Change

☐Somewhat more motivated

☐Much more motivated

How motivated are you to attend future PD sessions structured (activities/pacing/engagement level) similar to the one you just attended?   (check one)

☐Much less motivated

☐Somewhat less motivated

☐ No Change

☐ Somewhat more motivated

☐ Much more motivated

Approximately how many hours of professional development did you attend during the 2017-2018 school year? (check one)

☐ less than 10 hours

☐ 10 - 20 hours

☐ 21 - 30 hours

☐ 31 – 40 hours

☐ 41 – 50 hours

☐ 51 - 60 hours

☐ more than 60 hours

Approximately what portion of the professional development you attended was self-selected? (check one)

☐ 25%

☐ 50%

☐ 75%

☐ 100%

When will students return to your school to begin the 2018-2019 school year? (check one)

☐ My school is in session year-round – I will have students tomorrow

☐ July

☐ August

☐ September

As of the end of the 2017-2018 school year, how many years have you worked as an early childhood educator? (check one)

☐ 0 - 1 years

☐ 2 - 3 years

☐ 4 - 5 years

☐ 6 - 7 years

☐ 8 - 9 years

☐ 10 - 15 years

☐ 16 - 20 years

☐ 21 - 25 years

☐ 26 - 30 years

☐ more than 30 years

In which of these early childhood settings do you teach? (check one)

☐ Public School Preschool (3 year olds)

☐ Public School Prekindergarten (4 year olds)

☐ Public School Prekindergarten (3 & 4 year olds)

☐ Private School Preschool (3 year olds)

☐ Private School Prekindergarten (4 year olds)

☐ Private School Prekindergarten (3 & 4 year olds)

☐ Public School Preschool Program for Children with Disabilities (3 - 5 year olds)

☐ Private School Preschool Program for Children with Disabilities (3 - 5 year olds)

☐ Head Start (3 year olds)

☐ Head Start (4 year olds)

☐ Head Start (3 & 4 year olds)

☐ Child Care Center (3 year olds)

☐ Child Care Center (4 year olds)

☐ Child Care Center (3 & 4 year olds)

☐ Mother's Day-out Program (3 year olds)

☐ Mother's Day-out Program (4 year olds)

☐ Mother's Day-out Program (3 & 4 year olds)

☐ Other (Please list) _____

What is your highest level of education? (check one)

☐ High School Diploma

☐ Some College   Field: _____

☐ Associates degree   Field: _____

☐ Bachelor's degree   Field: _____

☐ Master's degree   Field: _____

Have you completed a Child Development Associate (CDA) Credential?

☐ Yes

☐ No

Are you a certified teacher?

☐ Yes

☐ No

What is your age?

☐ 18 – 22 years

☐ 23 - 27 years

☐ 28 – 32 years

☐ 33 – 37 years

☐ 38 – 42 years

☐ 43 – 47 years

☐ 48 – 52 years

☐ 53 – 57 years

☐ 58 – 62 years

☐ 63 – 67 years

☐ 68 years or older

APPENDIX B

Sample Focus Group Survey

Instructions to be read aloud:

Thank you for participating in this brief focus group about the professional development session you just attended. Your responses will be used with the responses of others to determine how to best meet the professional development needs of early childhood teachers in North Texas. They will also be used in a research study examining the relationship between style of professional development and motivation to attend further professional development. All responses will be kept confidential. Feel free to speak candidly while respecting the comments of others. Thanks again for participating!

1. Would you choose to attend another professional development session that contains similar activities but is aligned with a different content area listed in the Texas Pre-K Guidelines?

2. How has the professional development session you are attending today affected your desire to attend further professional development sessions beyond those required by your school/administrator?

3. Do you plan to attend another professional development session that is structured similar to the session you are attending today?

APPENDIX C

Operational Definitions for Active Teaching Components

Partner discussion: Period of time when two participants engage in purposeful conversation about the content of the professional development session. Partner discussion requires the opportunity for at least one back and forth verbal exchange between individuals.

Small group discussion: Period of time when groups of three to eight participants engage in purposeful conversation about the content of the professional development session. Small group discussion requires two or more back and forth verbal exchanges within the group.

Large group discussion: Period of time when the entire group of participants purposefully engage in discussion/conversation about the content of the professional development session. Large group discussion requires three or more public comments, not including those made by the trainer.

Problem-solving activity: Activity in which participants work through the details of a problem in an attempt to reach a solution. Problem-solving activities may occur individually, in pairs or in groups.

Opportunity for participants to plan for classroom instruction/activities: Period of time designated for participants to discuss and plan lessons and/or activities to be used within the early childhood classroom.

Opportunity for participants to practice instructional strategy: Period of time designated for participants to role play or simulate instruction of a child.

Opportunity for participants to present to others: Period of time designated for participants to showcase/present a teaching simulation or product created during the training to the entire audience or another small group of participants. May only be counted if the activity was planned and trainer driven. Spontaneous presentation of work does not count.

Opportunity to explore new ideas about content: Period of time designated for generation of participant-driven ideas related to but expanding, the content of the training. Examples might include making connections with other curricular areas, researching/exploring/discussing alternative methods of teaching or other similar activities.

Demonstration of teaching technique/instructional strategy by presenter: Presenter/trainer simulates an early childhood classroom teaching strategy by role playing with a member of the audience. This counts if the trainer presents the example/role play to the entire audience for their viewing and discussion.

Opportunity to explore Prekindergarten Guidelines: Period of time specifically designated for participants to analyze the paper copy of the Prekindergarten Guidelines booklet provided at their table. May include subsequent conversation, problem-solving, demonstration, or another active learning component.

Opportunity to explore Early Childhood Outcomes: Period of time specifically designated for participants to analyze the paper copy of the Early Childhood Outcomes booklet provided at their table. May include subsequent conversation, problem-solving, demonstration, or another active learning component.

Opportunity to explore materials: Period of time specifically designated for hands on exploration of teaching resources, manipulatives, children's books and/or toys. May be followed by other active learning components.

APPENDIX D

Participant Demographics by Group

Table D.1

Frequency of Teacher Characteristics: Active Learning Participants (Wave 1)

Variable	n	%
Hours Professional Development Attended in 2017-2018		
less than 10 hours	5	6
10-20 hours	10	13
21-30 hours	25	32
31-40 hours	21	27
41-50 hours	6	8
51-60 hours	6	8
More than 60 hours	5	6
Portion of Professional Development Self-Selected		
25%	15	19
50%	14	18
75%	21	27
100%	28	36
When Students Will Return to Begin 2018-2019 Schoolyear		
August	75	96
July	3	4
My school is in session year-round	0	0
Years Worked as Early Childhood Educator		
0-1	7	9
2-3	9	12
4-5	6	8
6-7	6	8
8-9	7	9
10-15	19	24
16-20	11	14
21-25	5	6
26-30	5	6
more than 30	3	4

Variable	n	%
Settings Taught		
Public PK 3&4	14	18
Public PPCD 3-5	25	32
Head Start 3&4	6	8
Public PK 4	15	19
Head Start 3	1	1
Public Preschool 3	4	5
Child Care 4	1	1
Head Start 4	6	8
Private PK 4	0	0
Private Preschool 3	2	3
Child Care 3&4	0	0
Child Care 3	0	0
Other	4	5
Level of Education		
High School Diploma	4	5
Some College	1	1
Associates Degree	5	6
Bachelor's Degree	50	64
Master's Degree	18	23
Child Development Associate Credential Completed		
No	67	86
Yes	11	14
Certified Teacher		
Yes	65	83
No	13	17
Age (Years)		
18-22	0	0
23-27	7	9
28-32	4	5
33-37	11	14
38-42	10	13
43-47	8	10
48-52	11	14
53-57	14	18
58-62	8	10
63-67	5	6

Note. Due to rounding errors, percentages may not equal 100%; PK – Prekindergarten, PPCD – Preschool Program for Children with Disabilities.

Table D.2

Frequency of Teacher Characteristics: Lecture-style Participants (Wave 1)

Variable	n	%
Hours Professional Development Attended in 2017-2018		
less than 10 hours	2	3
10-20 hours	12	19
21-30 hours	23	35
31-40 hours	18	28
41-50 hours	6	9
51-60 hours	4	6
More than 60 hours	0	0
Portion of Professional Development Self-Selected		
25%	16	25
50%	20	31
75%	14	22
100%	15	23
When Students Will Return to Begin 2018-2019 Schoolyear		
August	54	83
July	4	6
My school is in session year-round	7	11
Years Worked as Early Childhood Educator		
0-1	10	15
2-3	9	14
4-5	14	22
6-7	7	11
8-9	6	9
10-15	10	15
16-20	6	9
21-25	1	2
26-30	1	2
more than 30	1	2

Variable	n	%
Settings Taught		
Public PK 3&4	7	11
Public PPCD 3-5	24	37
Head Start 3&4	2	3
Public PK 4	10	15
Head Start 3	3	5
Public Preschool 3	5	8
Child Care 4	4	6
Head Start 4	1	2
Private PK 4	3	5
Private Preschool 3	1	2
Child Care 3&4	1	2
Child Care 3	1	2
Other	3	5
Level of Education		
High School Diploma	3	5
Some College	4	6
Associates Degree	2	3
Bachelor's Degree	41	63
Master's Degree	15	23
Child Development Associate Credential Completed		
No	54	83
Yes	11	17
Certified Teacher		
Yes	56	86
No	9	14
Age (Years)		
18-22	3	5
23-27	12	19
28-32	3	5
33-37	16	25
38-42	8	12
43-47	6	9
48-52	5	8
53-57	8	12
58-62	3	5
63-67	1	2

Note. Due to rounding errors, percentages may not equal 100%; PK – Prekindergarten, PPCD – Preschool Program for Children with Disabilities.

Table D.3

Frequency of Teacher Characteristics: Active Learning Participants (Wave 2)

Variable	n	%
Hours Professional Development Attended in 2017-2018		
less than 10 hours	1	6
10-20 hours	1	6
21-30 hours	5	31
31-40 hours	6	38
41-50 hours	1	6
51-60 hours	1	6
More than 60 hours	1	6
Portion of Professional Development Self-Selected		
25%	0	0
50%	3	18
75%	4	25
100%	9	56
When Students Will Return to Begin 2018-2019 Schoolyear		
August	16	100
July	0	0
My school is in session year-round	0	0
Years Worked as Early Childhood Educator		
0-1	1	6
2-3	1	6
4-5	1	6
6-7	1	6
8-9	1	6
10-15	6	38
16-20	3	19
21-25	0	0
26-30	2	13
more than 30	0	0

(continued)

Variable	n	%
Settings Taught		
Public PK 3&4	1	6
Public PPCD 3-5	6	38
Head Start 3&4	1	6
Public PK 4	3	19
Head Start 3	0	0
Public Preschool 3	1	6
Child Care 4	1	6
Head Start 4	2	13
Private PK 4	0	0
Private Preschool 3	0	0
Child Care 3&4	0	0
Child Care 3	0	0
Other	1	6
Level of Education		
High School Diploma	1	6
Some College	0	0
Associates Degree	1	6
Bachelor's Degree	8	50
Master's Degree	6	38
Child Development Associate Credential Completed		
No	14	88
Yes	2	13
Certified Teacher		
Yes	14	88
No	2	13
Age (Years)		
18-22	0	0
23-27	1	6
28-32	1	6
33-37	1	6
38-42	1	6
43-47	1	6
48-52	3	19
53-57	4	25
58-62	1	6
63-67	3	19

Note. Due to rounding errors, percentages may not equal 100%; PK – Prekindergarten, PPCD – Preschool Program for Children with Disabilities.

Table D.4

Frequency of Teacher Characteristics: Lecture-style Participants (Wave 2)

Variable	n	%
Hours Professional Development Attended in 2017-2018		
less than 10 hours	0	0
10-20 hours	3	21
21-30 hours	3	21
31-40 hours	7	50
41-50 hours	1	7
51-60 hours	0	0
More than 60 hours	0	0
Portion of Professional Development Self-Selected		
25%	2	14
50%	3	21
75%	6	43
100%	3	21
When Students Will Return to Begin 2018-2019 Schoolyear		
August	14	100
July	0	0
My school is in session year-round	0	0
Years Worked as Early Childhood Educator		
0-1	3	21
2-3	3	21
4-5	3	21
6-7	1	7
8-9	1	7
10-15	1	7
16-20	1	7
21-25	1	7
26-30	1	7
more than 30	0	0

(continued)

Variable	n	%
Settings Taught		
Public PK 3&4	3	21
Public PPCD 3-5	5	36
Head Start 3&4	0	0
Public PK 4	2	14
Head Start 3	1	7
Public Preschool 3	2	14
Child Care 4	0	0
Head Start 4	0	0
Private PK 4	0	0
Private Preschool 3	0	0
Child Care 3&4	0	0
Child Care 3	0	0
Other	1	7
Level of Education		
High School Diploma	0	0
Some College	0	0
Associates Degree	0	0
Bachelor's Degree	10	71
Master's Degree	4	29
Child Development Associate Credential Completed		
No	12	86
Yes	2	14
Certified Teacher		
Yes	14	100
No	0	0
Age (Years)		
18-22	1	7
23-27	1	7
28-32	0	0
33-37	3	21
38-42	3	21
43-47	1	7
48-52	1	7
53-57	1	7
58-62	2	14
63-67	1	7

Note. Due to rounding errors, percentages may not equal 100%; PK – Prekindergarten, PPCD – Preschool Program for Children with Disabilities.

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