Examining the influence of early childhood educators' professional development on the quality and effectiveness of supporting young children with challenging behavior

Huan-Ching Chang

A thesis

submitted in partial fulfillment of the

requirements for the degree of

Master of Education

University of Washington

2017

Committee:

Kathleen Artman Meeker

Carly Roberts

Program Authorized to Offer Degree:

College of Education

University of Washington

Abstract

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Huan-Ching Chang

Chair of the Supervisory Committee:

Dr. Kathleen Artman Meeker

College of Education

Social-emotional competence is crucial to young children's quality of life. In children's early learning years, educators play an important role in supporting the social-emotional development of young children and providing children with safe, warm and positive learning environments. Yet, due to children's individual needs both academically and behaviorally, educators in early childhood settings may need different professional learning opportunities as supportive resources to meet the needs of an individual child. The purpose of this study was to examine the relation between educators' professional development (PD), educators' characteristics (demographics and emotional regulation rating) and the use of evidence-based practices when supporting young children who exhibit challenging behavior. In this study, 48 early childhood educators were

being observed using the Teaching Pyramid Observation Tool (TPOT; Fox, Hemmeter, & Snyder, 2014) and measured by a Teacher Survey.

Findings from the present correlational study offer promising associations between interesting variables. Though the results were restricted to small sample size, we have preliminary data to use in future studies to develop an effective professional development system as a strong support for future in-service educators.

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ACKNOWLEDGEMENTS

First and foremost, I would like to thank my committee, Dr. Kathleen Artman Meeker and Dr. Carly Roberts. I am sincerely thankful for all your incredible supports and assistance throughout the whole process. Thank you Dr. Meeker and Dr. Roberts for giving me tons of encouragement and spending countless hours reading and discussing with me on my thesis. I appreciate all the feedback you gave me and all the times you spent with me to work on my work. Without your supports and guidance, I won't be able to learn how to write a thesis from the beginning to the end. In addition, I would like to thank all the participants that were willing to help us with our research study. With your participations, I am able to work on my work. Lastly, I would like to thank my family, teachers and friends who were being so supportive during my studies. Thank you all for your comfort and encouragement!

Chapter 1. INTRODUCTION

1.1 The Importance of Children's Social Emotional Competence

Social-emotional competence is crucial to young children's quality of life. Fox and her colleagues (2011) regarded social-emotional competence as a multidimensional construct that includes constellations of skills associated with self-regulation, self-concept, self-efficacy, and prosocial behavior toward adults and peers. As a child interacts with others, social competence begins to develop early and continue to evolve throughout one's life. Over time, children learn the appropriate behaviors to use to accomplish their own social goals (Brown et al. 1986; Odom et al. 2008; Whalon et al.2015). As they develop social-emotional competence, children are able to develop (a) positive relationships with others and (b) navigate the environments they encounter. This serves as an essential foundation for young children's success in schools and communities. Researchers and practitioners have identified essential, natural practices for promoting social-emotional competence in children's early years. In early childhood classrooms, children build social-emotional competence through daily nurturing interactions with their peers, teachers and families.

Social-emotional competence is anchored in child development, and it is important to consider the wide variations in typical development during the first five years of life. Some children are learning to navigate complex social interactions, while other children are in the early stage of learning to build social relationships with others (Fox et al., 2011). Although there is an expected range of social-emotional competence in the early years, there are children whose behavior is more severe or persistent than typically expected. Children may experience difficulty interacting with teachers and peers as they enter educational settings. Specifically, Brown and Conroy (2011) found that children who experience social-emotional difficulties tend to have

negative interactions such as verbal or physical aggression with peers, oppositional defiant behaviors with adults, and social isolation from others. Powell, Dunlap, and Fox (2006) defined challenging behavior as "any repeated pattern of behavior, or perception of behavior that interferes with or is at risk of interfering with optimal learning or engagement in pro-social interactions with peers and adults (p. 26)." Hence, behaviors such as physical or verbal aggression, non-compliance behavior, refusing to follow directions, property disruption or tantrums can be identified as challenging behavior. According to Hemmeter and colleagues (2015), challenging behavior exhibited by young children has increased in prevalence and become a serious factor interfering with social-emotional development. Moreover, studies have shown that serious and persistent challenging behavior in early childhood is associated with subsequent problems in socialization, school adjustment, school success, and educational and vocational adaptation in adolescence and adulthood (Campbell 1995; Dodge, 1993; Reid, 1993). Challenging behavior has been identified by many early childhood educators as one of the major concerns they have when delivering instruction. In addition, one of the most challenging concerns among in-service educators relates to supporting children with the most significant social, emotional and behavioral needs, while also providing a developmentally appropriate and supportive environment for those children who need extra support (Fettig & Artman-Meeker 2016; Fox et al., 2011). As a result, early childhood educators who have children with challenging behavior are prone to spend much of their time addressing the behaviors of a few children rather than supporting the development and learning of the other children.

1.2 Teacher Stress and Confidence

Educators play a crucial role in creating learning environments and providing instruction that can meet each individual child's needs. Research has investigated the educator level factors related to

higher quality classrooms and improved child outcomes. Recent research indicates that educator stress may be key among these factors. For example, Jeon and colleagues (2016) identified teacher stress as one of the key indicator influencing educators' abilities to develop positive learning environments and provide high quality support for children who exhibit challenging behaviors. Additionally, Jennings and Greenberg (2009) pointed out that early childhood educators experiencing high levels of job-related stress may contribute to lower quality environments and instruction. Similarly, Kyriacou (2001) discussed the importance of valuing the concerns of individual educators and described the indicators leading to educators' stress (i.e., time pressure and work load, poor working conditions). In addition, researchers have pointed out that teacher burnout resulted from increased workload (Chan & Hui, 1995). Furthermore, Ransford and colleagues (2009) highlighted a psychological experience. Early childhood educators who experience higher levels of stress are highly likely to have emotional burnouts. The occurrence of emotional burnouts could jeopardize the classroom environments and use of evidence-based practices.

Apart from teacher stress, another psychological factor associated with the implementation of high quality in early childhood classrooms is teacher confidence or efficacy (Ransford et al., 2009). According to Guskey and Passaro (1994, P.4), teacher confidence or efficacy has been identified as "teachers' belief or conviction that they can influence how well students learn, even those who may be difficult or unmotivated." In other words, teacher confidence or efficacy is highly associated with educators' use of evidence-based practices and classroom management to support challenging behavior in young children.

1.3 Professional Development Support as a Crucial Support for Educators

One way to help ensure early childhood teachers receive the support they need to meet children's needs and an access to education systems and resources is through targeted professional development (PD). Professional development is critical throughout educators' entire careers and has been identified as an efficient way of enhancing educators' knowledge, skills and capability to provide high-quality early learning experiences for young children. Educators may encounter different challenges every day and have to make instructional decisions every day in order to provide students with the most supportive learning environments. This process may be stressful for even the most experienced and educated teacher. Substantial evidence has shown that both formal and informal professional learning experiences make a difference to educators themselves but also to young children's learning outcomes and future lives (Fox et al., 2011; Landry et al., 2011; Hall et al., 2010; Artman-Meeker et al., 2015).

There are a variety of ways that educators are able to develop as professionals. Traditional forms of training, such as workshops or conferences can be effective at increasing educators' awareness of intervention practices. Yet, there is a growing recognition that these forms of professional development (PD) are insufficient if the goal is to influence educators' sustained use of evidence-based intervention practices. Moreover, research also suggests that PD is more likely to achieve desired outcomes when it is targeted to a focused set of practices; matches learner, program, or organization needs; and uses empirically supported or promising instructional and learning strategies (Garet et al., 2001). Additionally, Ransford et al. (2009) concluded that educators' psychological experiences and personal characteristics are highly correlated to their instructional-decision making and perspectives towards professional development.

However, due to children's individual needs both academically and behaviorally, educators in early childhood settings may need different professional learning opportunities to help them to meet the needs of individual children. Professionals from various disciplines have expressed alarm regarding the implications of serious challenging behaviors exhibited by young children (Shonkoff & Phillips, 2000). Furthermore, increasing evidence suggests that an effective approach to addressing challenging behavior is the adoption of a model that focuses on promoting social- emotional development, providing support for children's appropriate behavior, and preventing challenging behavior (Sugai et al. 2000). Such interventions are complex and require extensive supports to implement with fidelity. This has implications for educators' PD.

While a growing body of research has examined the implications of educators' professional development on supporting social-emotional development of young children, little is known about how educators' professional learning experiences influence their use of effective behavior support strategies for young children. The purpose of this study is to examine the relation between educators' PD, educators' personal characteristics (demographics and emotional regulation rating) and the use of evidence-based practices especially when supporting young children who exhibit challenging behavior. Specifically, this study addresses the following research questions.

1.4 Educators' Role in Supporting Children's' Social Emotional Competence

In order to fully support the social-emotional development of young children, educators need to leverage best practices and provide children with safe, warm and positive learning environments. One well known approach, the *Teaching Pyramid Model*, identifies a set of essential strategies.

To develop children's social-emotional competence and address challenging behavior, the *Teaching Pyramid Model* (Fox, Dunlap, Hemmeter, Joseph, & Strain, 2003; Hemmeter, Ostrosky, & Fox, 2006) serves as a systematic framework to support educators. The *Teaching Pyramid Model* is a multitiered framework designed as a promotion, prevention, and intervention framework to organize and guide decision making about the implementation of practices that have been demonstrated to support the social, emotional, and behavioral development of young children (Fox, Carta, Stain, Dunlap, & Hemmeter, 2010). This pyramid framework includes three levels of practices to address the needs of all children, including children with severe and persistent challenging behavior: (1) universal promotion practices appropriate for all children, (2) secondary preventive interventions for children who might benefit from targeted social-emotional supports, and (3) tertiary individualized interventions for children with significant social skill deficits or persistent challenging behavior (Snyder et al., 2011).

The *Teaching Pyramid* framework is well-defined and includes a researched and validated implementation fidelity measure, the Teaching Pyramid Observation Tool (TPOT; Fox, Hemmeter, & Snyder, 2014). The TPOT is an instrument designed to measure practitioners' implementation of teaching and behavior support practices associated with the *Pyramid Model*. Its goal is to assess educators' implementation of universal and targeted *Pyramid Model* practices and educators' capacity to implement tertiary practices. With the use of the *Teaching Pyramid Model* as a measurement system, educators' role in supporting children's social-emotional competence can be clearly identified providing educators with a better understanding on how and what they can do to create a supportive learning environments. Moreover, Fox and her colleagues (2003) concluded in their research study that the examination of teacher behavior

and the use of evidence-based practices can be the most effective solution to prevent challenging behavior in young children.

1.5 Research Questions

Research Question 1: How do in-service early childhood educators' characteristics (demographics and emotional regulation rating) influence their use of evidence-based practices when supporting young children who exhibit challenging behavior?

Research Question 2: Is there a relation between in-service early childhood educators' confidence, job-related stress and the use of evidence-based positive behavior support practices as measured by the Teaching Pyramid Observation Tool (TPOT)?

Research Question 3: What are early childhood educators' perspectives on their professional development experiences?

Chapter 2. METHOD

2.1 Participants & Setting(s)

The study included 48 early childhood educators randomly selected from early childhood programs across the state of Washington. Centers were identified by reviewing the state registry of licensed childcare programs and childcare directories developed for local families. Directors were contacted via email as well as follow-up phone calls to provide an opportunity for the directors to ask any questions regarding participation in the study. Directors gave permission to contact educators and teachers volunteered to participate. All participating educators worked in classrooms that serve children between 3 to 5 years old. Of all the 48 participants, only one participant was male; the other 47 participants were female. Demographic data from the Teacher

Survey are presented in Table 1. Educators' years of working experiences in the field of early childhood education ranged from 3 years to 46 years with an average of 15.04 years (SD =10.26). Of the educators that agreed to participate in the study, 15% of them had received a degree in Early Childhood Special Education/Early Intervention (n = 4 of 26).

Table 1: Demographic Data of the Teacher Survey

I.	Survey Item 4: Educators' years of working experiences in the field of early childhood special education (N=26)	
	M(range)	SD
	15.04(3-46)	10.26
II.	Survey Item 2: Whether or not educators' received a degree in Early Childhood Special Education/Early Intervention(N=26)	
	Yes	No
	4	22

2.2 DESIGN

This correlational study employed quantitative survey methodology and direct classroom observation. The study consisted of observations in early childhood classrooms serving children ages 3-5, structured interviews with educators, and quantitative surveys. The participants' characteristics, professional development opportunities and effective implementation of evidence-based positive behavior support practices were evaluated by using the Teaching Pyramid Observation Tool (TPOT ; Hemmeter, Snyder, & Fox, 2014) and a teacher-response survey (Jeon, & Buettner , 2016)

2.3 MEASURES

2.3.1 *The Teaching Pyramid Observation Tool (TPOT)*

The Teaching Pyramid Observation Tool (TPOT; Fox, Hemmeter, & Snyder, 2014) was used as the primary source of classroom-level data in this study. The TPOT is an instrument designed to measure practitioners' implementation of teaching and behavior support practices associated with the *Pyramid Model*. Its goal is to assess educators' implementation of universal and targeted Pyramid model practices and educators' capacity to implement tertiary practices. The TPOT consists of observation-and interview-informed judgment-based rating scales. The TPOT has three parts organized as subscales. Subscale 1 has 14 key teaching practice items derived from the *Pyramid Model* frame work. Observable indicators are organized under each key practices. The 14 key practices items are 1) schedules, routines and activities; 2) transitions between activities; 3) supportive conversations; 4) promoting children's engagement ; 5) providing directions; 6) collaborative teaming; 7) teacher behavior expectations ; 8) teaching social skills and emotional competencies; 9) teaching friendship skills; 10) teaching children to express emotions; 11) teaching problem solving; 12) interventions for children with persistent challenging behavior; 13) connecting with families; 14) supporting family use of *Pyramid Model* practices. Subscale 2 of the TPOT includes 17 red flags which are indicators of poor structural and interactional quality in the classroom environment that impede the implementation of *Pyramid Model* practices. Subscale 3 of an item focused on using effective strategies to respond to challenging behavior. (TPOT; Fox, Hemmeter, & Snyder, 2014)

2.3.2 *Teacher Survey*

The teacher-response survey was adapted from the Study of Preschool Teachers (Jeon, & Buettner, 2016). It contained 38 items that address teacher's professional background and experiences, professional development preference and job attitude index and readiness for educational change index. Of the 38 items in the Teacher Survey, 13 items used a 5-point scale as a measurement system; two items used a 4-point scale as a measurement system; one item used a 6-point scale as a measurement system; one item used a 7-point scale as a measurement system; and the remaining items had Yes/No check boxes for participants to mark. Sample items included, "I feel confident that I have the skills to help prepare children in my class to be successful in kindergarten", or "If a child in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him/her quickly", for the confidence subscale, and "A lack of professional development opportunities" for the job-related stress subscale. The survey is available in Appendix A.

2.4 PROCEDURES

2.4.1 *Observer Training*

The Teaching Pyramid Observation Tool (TPOT) for Preschool Classrooms Research Edition was used as a classroom observation instrument to conduct the study. The graduate student researcher (author) participated in a one-day TPOT training workshop held by a TPOT approved trainer. The training included a comprehensive review of the complete manual of Teaching Pyramid Observation Tool (TPOT) Research Edition, review of scoring methods and procedures to use when conducting the observation and interview, as well as training on each of the items and the scoring guidance for associated indicators. The researcher practiced observing and

scoring items using short video clips around 14 key practices items. While practicing on scoring items using short videos, the trainer and the researcher (author) did video-coding independently first, and then discussed each items to ensure that agreement was made. After attending the workshop, the researcher completed the training by scoring a 2-hour videotaped TPOT and subsequent interview. The research staff's score on the full-length videotaped TPOT was compared to the master trained observer/coder to determine if the minimum of 80% agreement on key practice indicators and red flag was reached. On demonstrating agreement with the master trained observer/coder, the researcher was qualified as a reliable coder. In addition to using videotapes to assess agreement with consensus scores, the researcher completed two 2-hr classroom observations in preschool classrooms with the master trained observer/coder to reach minimum of 80% agreement on key practice indicators and red flag before administering the TPOT independently.

2.4.2 *Recruitment*

The study participants included a convenience sample of 48 preschool classroom educators who were randomly selected from centers that were identified by reviewing the state registry of licensed childcare programs and childcare directories developed for local families across the state of Washington. Once selected, invitation emails were sent to program directors to seek permission to conduct the study in each center and to contact educators. Moreover, the researcher reached out to the program directors by phone to provide an opportunity for them to ask any questions regarding participation in the study. The recruitment took place for approximately 6 months. As an incentive for recruitment, directors were entered in a monthly raffle for a $25 gift card to a coffee chain.

Once directors provided permission to contact educators, observations were scheduled and the informed consent process was conducted with each teacher. Only the researcher was present during the consent process, and no information was shared with the director. As an incentive for recruitment, educators were given a $10 gift card to a coffee chain after the classroom observation was complete.

2.4.3 *TPOT Observation*

All observation sessions were conducted by the researcher (author) in each early childhood classroom. Each classroom was observed once with the TPOT during a 2hr observation, and this was followed by a 20min teacher interview. As per TPOT administration procedures, the duration of observation was always a minimum of 2 hours. During the 2hr observation, teacher-directed activities (e.g., large-group circle, small-group instruction), child-directed activities (e.g., center time, free play), and the transitions that occur between activities were observed. In addition, the classroom observation mainly focused on lead teacher's behavior, but the behaviors of all adults in the classroom was considered when scoring. After the 2hr classroom observation, a 15-20 minute structured interview with the teacher was conducted using the questions provided for certain key practice items and challenging behavior indicators. The interview was conducted when teachers were not responsible for children.

2.4.4 *Administration*

Each educator who had a TPOT observation completed was asked to respond to a survey. The Teacher Survey took 15-20 minutes to complete and was provided to the educator at the end of the TPOT interview. Once educators were done with the surveys, they were asked to mail the survey back. The educators were provided with the survey and a postage-paid envelope

addressed to the faculty researcher. Educators were informed that they could skip any item. In addition, the researcher made follow-up phone calls to track the completion of the Teacher Survey. 48 surveys were administered to educators who participated in this project. The response rate was 58% (n = 28 of 48).

2.5 Data Analysis Plan

2.5.1 *Data quality*

The researcher scored each TPOT observation and interview on the same day as the observation. After scoring, the data collection forms and notes were scanned and stored digitally on a shared research drive. In addition to scanning the data protocols and sorting them into files, the data were entered into a TPOT scoring spreadsheet created by the research staff using Microsoft Excel. In the TPOT scoring spreadsheet, participants' ID, center ID, observer ID, dates of observation and the raw scores of each item for each participants were included. Moreover, the researcher checked-in weekly with the Faculty Researcher to report on TPOT observations and schedules.

Once data were entered, descriptive statistics were calculated with the support of a consultant at the UW Center for Social Science Research. The data were assessed to ensure they met the assumptions necessary for each statistical analysis (variability, normal distribution, etc.)

2.5.2 *Data Analysis Plan*

All analyses were conducted using IBM SPSS Statistics software. Data analyses are presented by research question. Detailed information about variables and the scoring systems can be referred to Table 2.

Research question 1: *How do in-service early childhood educators' characteristics (demographics and emotional regulation rating) influence their use of evidence-based practices when supporting young children who exhibit challenging behavior?*

Correlational analyses were conducted to explore the relation between educators' demographics and emotional regulation rating from the Teacher Survey and their use of behavior support practices. Demographics were drawn from Teacher Survey data item 2 (whether or not educators' received a degree in Early Childhood Special Education/Early Intervention), item 4 (educators' years of working experiences in the field of early childhood education and/or special education); emotional regulation rating was drawn from item 27 (educators' self-reflection/opinions of themselves). To calculate behavior support practices, reverse red flag scores were calculated. The red flags associated with challenging behavior were included (TPOT Red Flag items 16, 18, 20, 21, 31). The five behavior support indicators can be scored as Yes (=0) or No (=1); to be scored Yes, the red flag should signify a problematic practice in need of immediate attention. In these specific indicators, a score of Yes indicates harsh or controlling behavior management practices. A higher red flag score (i.e., more "No" scores) is desirable and reflects more use of effective behavior support practices. Therefore, throughout this paper, the behavior support practices will be described as "reverse red flag scores".

First, cross-tabulation test was conducted to explore the relation between educators' degree in Early Childhood Special Education/Early Intervention (survey item 2) and the use of evidence-based practices to respond to challenging behavior (reverse red flag scores). Second, linear regression was conducted to explore the relation between educators' years of working experiences in the field of early childhood education (survey item 4) and educators' use of effective strategies to respond to challenging behavior (reverse red flag scores). Third, linear

regression was conducted to explore the relation between educators' self-reflection/opinions of themselves (survey item 27) and the use of evidence-based practices to respond to challenging behavior (reverse red flag scores). The correlation coefficient was used to determine if there was a significant relation between educators' characteristics both on demographics and self-reflection and their use of evidence-based practices when supporting young children who exhibit challenging behavior.

Research question 2: *Is there a relation between in-service early childhood educators' confidence, job-related stress and the use of evidence-based positive behavior support practices as measured by the Teaching Pyramid Observation Tool (TPOT)?*

Composite confidence and job-related stress scores were calculated by importing item 13 and 15 from the Teacher Survey. After adding up each score in item 13 and item 15, correlation were run with TPOT scores. The correlation between item 13 and the correlation between item 15 was done separately.

To quantify educators' confidence, an average confidence score was calculated from survey item 13. To do so, educators' ratings on items 13a-13k were summed and divided by the total number items (n = 11). All items were scored on a scale of 1 to 5, with a score of 5 reflecting higher levels of confidence. The possible average confidence score would be between score 1 to score 5.

To quantify educators' job-related stress, an average stress score was calculated from survey item 15. To do so, educators' ratings on items 15a- 15i were summed and divided by the total number items (n = 9). All items were scored on a scale of 1 to 5, with a score of 5 reflecting higher levels of job-related stress. The possible average job-related stress score would be

between score 1 to score 5. The lower job-related stress score was preferable which indicated less stress.

To calculate total TPOT score, the scores for each item including the 14 key practices subscales (Item 1-14) were calculated. The TPOT summary score was summed up by adding the number of indicators scored Yes (1 point), No (0 point) and N/O under a coding system. The total possible TPOT score is 114.

Research question 3: *What are early childhood educators' perspectives on their professional development experiences?*

Descriptive statistics for mean, standard deviation, and range on educators' professional development score were calculated. To do so, item 7, 8 and 9 were imported from the Teacher Survey data and used to describe the three items together as professional development indicators. To calculate the overall professional development score, the scores in Teacher Survey item 7, 8 and 9 were summed. Arbitrary point values were assigned to responses. For item 7, educators' professional development score was calculated on Yes for 5 point, No for 1 point. Item 8 includes a key question and a subscale question; for the key question, Yes was scored as 5 points, No was scored as 1 point; for the subscale question, the scale was scored 1 point for completely useless, 2 point for somewhat useless, 3 points for neutral, 4 points for somewhat useful and 5 points for extremely useful. For item 9, item 9a-9e were summed. All items were scored on a scale of 1 to 5, with a score of 5 reflecting higher levels of agreement. The higher professional development score was preferable indicating more positive experiences around professional development. The total possible professional development score was 40 points.

Table 2: Description of educators' characteristics indicators

I. Educators' demographics		
Item Number	*Description*	*Scoring*
Teacher Survey Item 2	Item 2 asks educators' if they have a degree in early childhood special education. Educators' can either mark *Yes* or *No* on the checkbox. The question goes as follows, "If you have a college or graduate degree (e.g., Association, Bachelor's, Master's, Ed.D., Ph.D.), have you received a degree in Early Childhood Special Education/Early Intervention?"	A Yes/No question check box to mark -*Yes (=5)* or *No (=1).*
Teacher Survey Item 4	Item 4 asks educators' years of working experiences in the field of early childhood education and/or special education. Educators can fill out the number of year(s) they have. The question goes as follows, "How many years have you worked in the field of early childhood education and/or special education."	Fill out the number of year(s).
Teacher Survey Item 27	Item 27 aims at evaluating educators' self-reflection/opinions on themselves regarding to how they deal with their own emotions. 19 statements are included with a scoring of 5-point scale Educators are asked to circle the number that best describes their opinion of what is generally true for them.	5-point scale is used as a measurement system (Where 1=*" Never/Rarely True"* and 5=" *Very often or always true*"). 19 statements are included, 7 of them are positive statements; 12 of them are negative statements. With the 12 negative statements, scores were reversed. The total score is 95. Item 27 is calculated by average score on 19 items.
II. Behavior Support Indicators (reverse red flag scores) (Calculated by adding scores for five red flag items. Maximum score is 5.)		
Item Number	*Description*	*Scoring*
Red Flag 16	"Transitions are more often chaotic than not."	The five behavior support indicators can be

Red Flag 18	"During group activities, many children are not engaged."	scored as *Yes (=0)* or *No (=1)*; to be scored *Yes*, the red flag should signify a problematic practice in need of immediate attention. The maximum score is 5. The score is reversely coded. A higher red flag score is desirable.
Red Flag 20	"Children are reprimanded for engaging in disruptive or problem behavior (frequent use of "no," "stop," "don't")."	
Red Flag 21	"Children are threatened with an impending negative consequence that will occur if disruptive or problem behavior persists."	
Red Flag 31	"Teacher restrains a child when engaging in problem behavior or secludes the child in an area separate from the classroom where the child cannot see the activities of the classroom. "	
III. Teacher confidence (Calculated by average score on 11 items)		
Item Number	*Description*	*Scoring*
Teacher Survey Item 13	Item 13 evaluates educators' confidence. 11 questions/statements are included (i.e. I feel confident that I have the skills to help prepare children in my class to be successful in kindergarten) with a scoring of 5-point scale. Educators' were asked their opinion about teaching children by circle how much they agree or disagree with each of the 11 statements.	5-point scale is used as a measurement system (Where 1=*" Strongly Disagree"* and 5=" *Strongly Agree*"). The total score is 55. This item is calculated by average score on 11 items.
IV. Teachers' job-related stress (Calculated by average score on 9 items)		
Item Number	*Description*	*Scoring*
Teacher Survey Item 15	Item 15 evaluates educators' job-related stress. 9 situational questions are included (i.e. relationships with co-workers/parents) with a scoring of 5-point scale (Where 1=*" No stress"* and 5=" A *Great Deal of Stress*"). Educators' were asked to rate the extent to the 9 situations that are stressful for them as a preschool teacher.	5-point scale is used as a measurement system (Where 1=*" No stress"* and 5=" A *Great Deal of Stress*"). The total score is 45. This item is calculated by average score on 9 items.

V. Professional development (Calculated by adding scores for three items and 1 subscale item within item 8. Maximum score is 40.)		
Item Number	*Description*	*Scoring*
Teacher Survey Item 7	The question goes as follows, "Have you participated in professional development during the previous school year (including the summer)?" Educators can either mark *Yes* or *No* on the checkbox.	A Yes/No question check box to mark -*Yes (=5)* or *No (=1).*
Teacher Survey Item 8	The primary question goes as follows, "Are you regularly given feedback from internal or external observers through any kind of classroom observation?" Educators can either mark *Yes* or *No* on the checkbox. The subscale question goes as follows, "If Yes, How useful are the regular observations and feedback for improving your practice as a teacher?" Educators can mark on the checkbox (i.e. completely useless, somewhat useless, neutral, somewhat useful, extremely useful) that best describes their feelings mark.	The primary question: A Yes/No question check box to mark -*Yes (=5)* or *No (=1).* The subscale question: Five check boxes are provided to mark including completely useless (=1), somewhat useless (=2), neutral (=3), somewhat useful (=4), extremely useful (=5).
Teacher Survey Item 9	5 statements are included (i.e. In general, my experience with professional development activities has been positive) with a scoring of 5-point scale).	5-point scale is used as a measurement system (Where 1=*" Strongly Disagree"* and 5=" *Strongly Agree*". The total score is 25.

Chapter 3. RESULTS

A total of 48 educators participated in this study. The 48 participants were evaluated using the Teaching Pyramid Observation Tool (TPOT). The highest total possible score on the TPOT is 114. As shown in Figure 1, the frequency distribution indicates that the Mean of overall TPOT

scores in this sample was is 53.65 (SD = 11.34). Each participant's overall TPOT score are shown in the scatterplot in Figure 2.

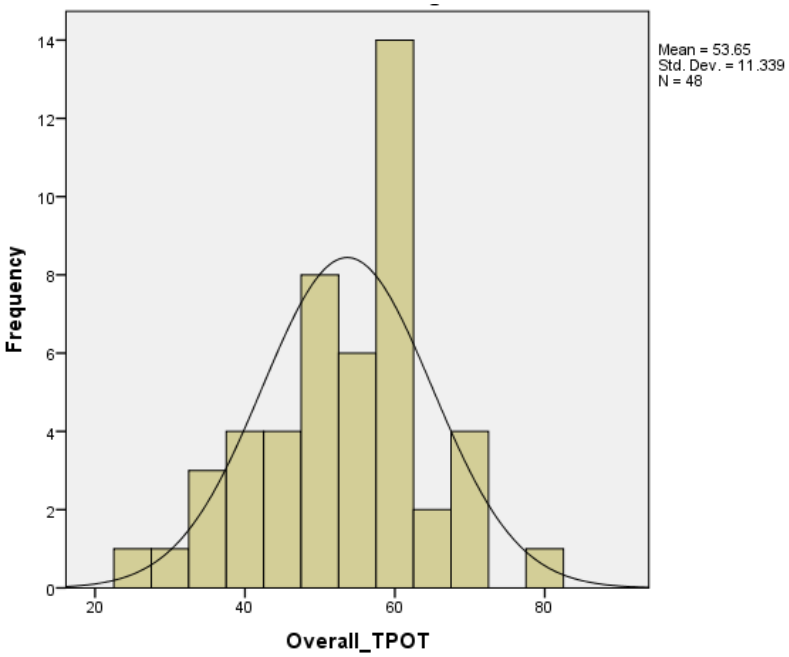

Figure 1. Each Participant's Overall TPOT Score

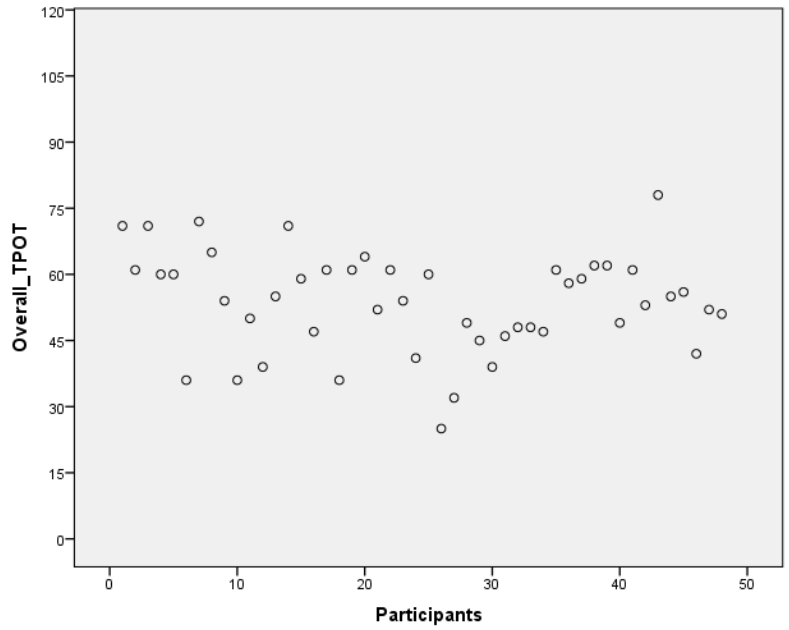

Figure 2. Each Participant's Overall TPOT Score

3.1 Research Question 1

The first research question relates to the influence of early childhood educators' characteristics (demographics and emotional regulation rating) on their use of evidence-based practices when supporting young children who exhibit challenging behavior. Data from the Teacher Survey and the challenging behavior indicators adopted from red flags were used to evaluate the correlations between these variables (see Table 1). The total number of items included from the Teacher Survey was 26.

First, a cross-tabulation test was run across two variables: educators' with or without a degree in early childhood special education/early intervention (Survey item 2) and the total behavior support indicators (reverse red flag scores). Higher red flag score indicates educators' use of higher quality practices, while lower red flag score indicates educators' use of harsh or controlling strategies to manage children's behavior. As shown in the cross-tabulation table (Table 3), 15% of the educators with a degree in early childhood special education/early intervention have the highest behavior support score(5) indicating higher quality practices; 58% of the educators that don't have a degree in early childhood special education/early intervention have the highest behavior support score(5) indicating higher quality practices; 3% of the educators that don't have a degree in early childhood special education/early intervention have only 3 behavior support score indicating lower quality practices. Although the sample size from Teacher Survey is small (n=26), educators with degrees in early childhood education would be more likely to use high quality practices (i.e. no educators with degrees in early childhood special education had behavior support scores less than 5).

Table 3: Behavior Support Indicators (reverse red flag scores) against Survey Item 2 (educators' degree)

	Survey Item 2		Total Count
	Yes	No	
Behavior Support Indicators (red flag reverse scores)			
Score 3	0	1	1
Score 4	0	6	6
Score 5	4	15	19
Total Count	4	22	26

Second, simple linear regression was used to model the relation between two variables (see Table 4): educators' years of working experiences in the field of early childhood education (Survey item 4) and the behavior support indicators (reverse red flag scores). The association between educator experience and behavior support indicators was weak but positive (β= .068) and not statistically significant (p = .747). A standardized beta coefficient compares the strength of the effect of each individual independent variable to the dependent variable. The higher the absolute value of the beta coefficient, the stronger the effect. This indicates that educators with more experiences are less likely to use punitive or controlling practices inconsistent with the Pyramid Model. Results should be interpreted with caution given the small sample size from the Teacher Survey (n=26). Yet, a promising positive correlation between the two variables exists.

Table 4: Association with the Behavior Support Indicators (reverse red flag scores)

Measure	Estimate	Std. Error	Beta	T value	P value
Survey Item 4					
Intercept (Constant)	4.624	.206		22.434	.000
Survey Item 4	.004	.011	.068	.326	.747

Third, a simple regression was used to model the association between educators' self-reflection (Survey item 27) and behavior support indicators (red flag reverse scores). Data are presented in a scatter plot (Figure 3). Scatter plots points were gathered toward the top of Figure 3 implying that most of the participants scored 5 for the behavior support indicators (red flag reverse scores) indicating higher quality practices. With the negative correlation shown on Figure 3, participants who have higher scores on the behavior support indicators tend to have lower scores on their self-reflection/opinions of themselves.

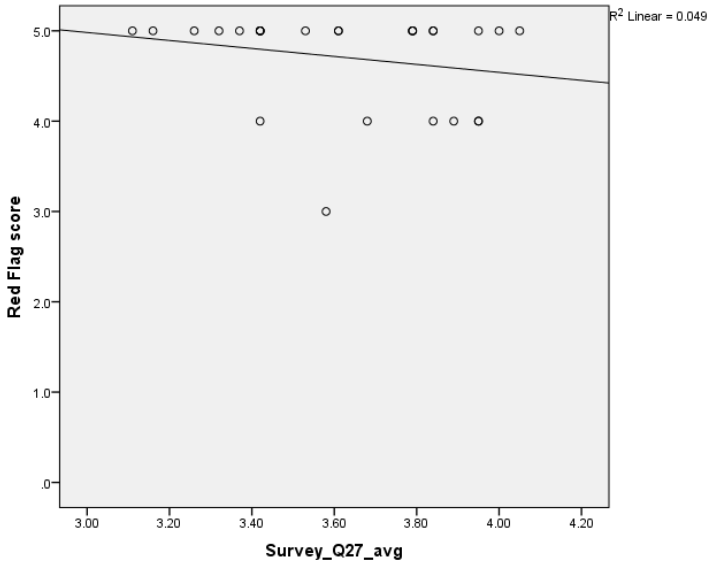

Figure 3. Survey Item 27 and the Behavior Support Indicators (reverse red flag scores)

3.2 Research Question 2

The second research question related to early childhood educators' confidence, job-related stress and the use of evidence-based positive behavior support practices as measured by the Teaching Pyramid Observation Tool (TPOT). Data from Teacher Survey item 13 (confidence score) and Teacher Survey item 15(stress score) and the overall TPOT score were used to evaluate the relation between these variables. First, to test the relation between educators'

confidence score and the overall TPOT score, I ran a simple regression. As shown in Table 5, the difference between the two variables is .023 which suggests there is positive association between confidence score (Survey item 13) and the overall TPOT score. Second, to test the relation between educators' stress score and the overall TPOT score, I ran a simple regression. As shown in Table 5, there is no discernible association between confidence score and the overall TPOT score. Though no discernible association was detected, Figure 4 suggests a promising negative correlation between stress score and the overall TPOT score. In other words, lower average stress scores may be associated with higher overall TPOT scores, although the association is not statistically significant.

Table 5: Association with the Overall TPOT score

Measure	Estimate	Std. Error	T value	P value
Confidence Score				
Intercept (Constant)	-2.974	23.280	-.128	.899
Confident average Score	12.461	5.119	2.434	.023
Stress Score				
Intercept (Constant)	54.923	10.214	5.377	.000
Stress average score	-7.42	5.043	-.147	.884

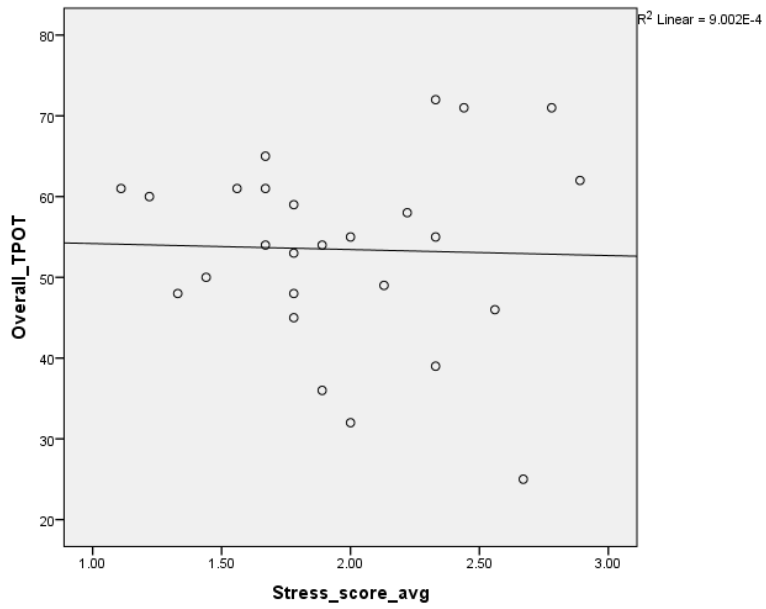

Figure 4. Survey Item 15(stress scores) and the Overall TPOT Score

3.3 RESEARCH QUESTION 3

The third research question relates to early childhood educators' perspectives on their professional development experiences. Data from Teacher Survey item 7, item 8, and item 9 (see Table 2) were used to evaluate educators' professional development experiences. Opportunities to participate in professional development trainings, feedback from any kind of classroom observation and statements associated with educators' perspectives on their own experiences of professional development learning opportunities are regarded as professional development indicators. The three survey items were added together to represent professional development indicators. The higher professional development score is more preferable indicating that the teacher has more positive experiences with professional learning. As shown in table 6, participants' (n = 26) mean professional development score was 32.04 (SD = 7.49; Range: 13-40). In addition, the frequency distribution histogram in figure 5 shows that 54% of the educators (n=14 of 26) scored higher than the mean score. This implies that over half of the participants were satisfied with their professional learning experiences and agreed that professional development was somehow useful.

Table 6: Professional Development Indicators

	N	Minimum	Maximum	Mean	Std. Deviation
Professional Development Score	26	13	40	32.04	7.50

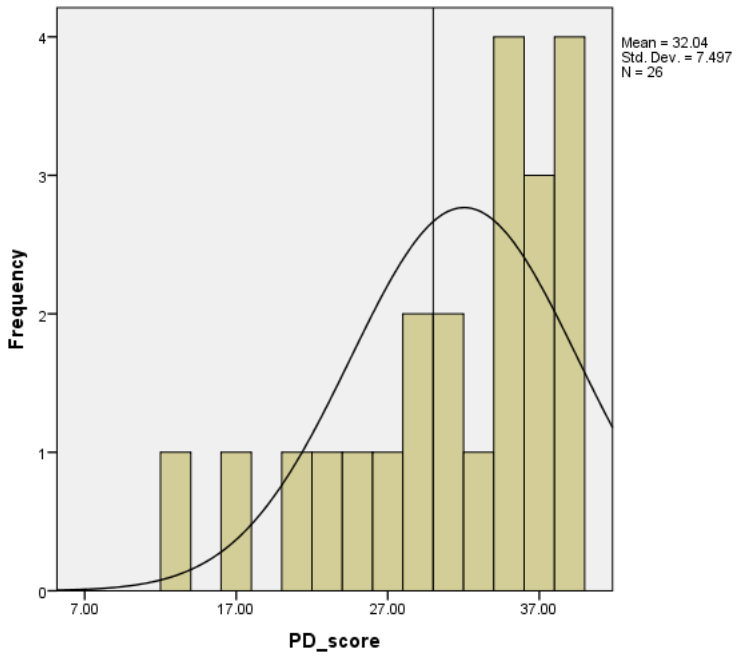

Figure 5. Professional Development Indicators

Chapter 4. DISCUSSION

The purpose of this study was to examine the relation between educators' professional development (PD), educators' characteristics and the use of evidence-based practices when supporting young children who exhibit challenging behavior. First, correlational analyses were conducted to explore the relation between educators' demographics (see Table 2) from the Teacher Survey and their use of behavior support practices. The results showed that educators with degrees in early childhood education would be more likely to use high quality practices. Educators with more experience were less likely to use punitive or controlling practices inconsistent with the *Pyramid Model*. In addition, educators with higher scores on the behavior support indicators tended to have lower score on their self-reflection/opinions of themselves. However, these results should be interpreted with caution given the small sample size from the

Teacher Survey (n=26). Second, as shown in Table 4, a positive association between early childhood educators' confidence and the overall TPOT score exists; while no discernible association was detected between early childhood educators' stress and the overall TPOT score. Yet, a promising negative correlation between stress score and the overall TPOT score exists indicating lower average stress scores be associated with higher overall TPOT scores. Third, educators reported generally positive experiences with professional learning. This means that over half of the educators were satisfied with their professional learning experiences and agreed that professional development was somehow useful.

Findings from the descriptive analysis (Figure 1) showed that the mean TPOT score in this sample was 53.65 (SD = 11.34; range: 35-78). These findings are consistent with other samples using the TPOT. For example, Snyder and her colleagues (2013) did a pilot study to describe the use of TPOT as a fidelity instrument. In their study, a total of 50 educators were included. Each educator was observed and measured on three occasions (n=50). The mean of the total TPOT scores at each of the three measurement occasions were 65.1 (SD = 15.24), 61.2 (SD = 16.1), and 58.6 (SD = 16.1). Across the 50 classrooms, total TPOT scores ranged from 35 to 106. There are some similarities and differences between the two studies. First, the total number of participants were approximately the same (n=48 in the present study; n=50 in Snyder et al.) Second, all the educators participated in the studies were preschool educators. Yet, in Snyder et al. (2013), 74% of the educators were in Head Start classrooms, 8% were in inclusive early childhood special education classrooms. In the current study, educators served in licensed early childhood classrooms. These findings are consistent with the current study which indicate that the measurement of present study was reliable.

One interesting finding was detected in educators' characteristics and demographics. Table 3 described that the association between educators' working experiences and the behavior support indicators (reverse red flag scores) was weak and not statistically significant ($p = .747$). Yet, a promising positive correlation still existed between the two variables ($\beta = 0.068$). The data indicated that educators with more years of working experiences in the field of early childhood education maybe less likely to use punitive or controlling practices inconsistent with the Pyramid Model. The result is similar to the conclusion that Ransford et al. (2009) brought up, indicating that educators' psychological experiences and personal characteristics are highly correlated to their instructional-decision making and perspectives towards professional development. More specifically, in Jeon et al. (2016), the authors revealed that educators' experiences in the field of early childhood education can be regarded as a distinctive factor indicating that educators' with more experiences were more effective in their instructions. However, given the small sample size from Teacher Survey ($n=26$), one cannot conclude that educators' years of working experiences can positively influences their use of evidence-based practices consistent with the *Pyramid Model*. It is highly recommended that more participants be included in future studies to validate the assumption.

Another interesting finding is that a promising negative correlation between stress score and the overall TPOT score exists. This infers that lower average stress scores may be associated with higher overall TPOT scores. This means that educators who felt less stress in their work environments were more likely to use evidence-based positive behavior support practices as measured by the TPOT than were educators who found their jobs more stressful. This finding is consistent with several studies aimed at examining the impact of job-related stress on the use of positive instructional strategies. For example, Friedman-Krauss and her colleagues (2014) pointed

out that higher levels of job-related stress were associated with higher levels of educator reported child behavior problems resulting in problematic instruction and classroom management. Jeon et al. also indicated that a lack of positive job attitudes (i.e., job related stress) may negatively influence educators' use of high-quality practices to provide promising learning environments for children. It is notable that job-related stress has been prevalent in many early childhood classrooms and the occurrence of educator burnout is high (Kyriacou C., 2001; Chan and Hui, 1995). Because the current study only provided preliminary data, it would be helpful to do further investigation on educators' job-related stress to identify the key factors associated with educators' use of higher quality practices.

4.1 LIMITATIONS

There were three limitations to this study. The first limitation relates to the sample size. This research study included 48 participants with only 26 participants responding to the Teacher Survey (response rate= 54%). The results only offer promising associations and no significant differences were detected. The second limitation is the low response rate and selection bias from the Teacher Survey. The self-refection indicators from the Teacher Survey relied on educators' self-report. Therefore, it is possible that educators who returned the survey tended to be more comfortable with reflection than the larger sample. Additionally, it is possible that educators with higher TPOT score were more confident in their teaching as well as classroom management; as a result, they were willing to respond to the Teacher Survey. This study evaluated the relation between educators' professional development (PD), educators' characteristics and the use of evidence-based practices when supporting young children who exhibit challenging behavior. Data were collected from 48 early childhood educators randomly selected from early childhood programs across the state of Washington. The findings are promising, but the small sample size

and low response rate limited the interpretation of this study. It is recommended that future study should include larger samples to evaluate the significant differences between educators' professional development (PD), educators' characteristics and educators' use of evidence-based practices.

4.2 IMPLICATIONS FOR RESEARCH AND PRACTICES

This study holds several important implications for research and practice. This study relied on relatively simple statistical analyses. Moreover, intuitive methods were used to identify indicators of interests including educators' characteristics, behavior support indicators, educators' job-related stress, educators' confidence and professional development indicators. In the future, more sophisticated techniques may be used to identify latent constructs within the measures. Latent constructs are variables that are not directly observed but are rather inferred from other variables that can be directly observed. In such situations, factor analysis can be applied to describe variability among observed, correlated variables in terms of a potentially lower number of unobserved variables (Gibson, 1959).

There are several implications for practice, as well. First, trainers, coaches, and PD providers should use their knowledge of teacher stress to influence the design of professional learning activities. Specific interventions may be warranted to decrease educator stress and increase their professional competence and confidence. It is also possible that educators' own perspectives on their professional learning may be used to shape their future professional experiences.

4.3 CONCLUSION

In conclusion, this study provides preliminary data on the association between educators' characteristics and behavior support strategies. Even though the results were restricted due to small sample size and selection bias, promising associations were detected between interesting variables. The data indicated that educators with degrees in early childhood education or with more years of working experiences were more likely to use high quality practices. It can also be inferred that educators' confidence can positively influence the use of teaching practices consistent with the Pyramid Model. In addition, it is interesting to know that a promising negative correlation between stress score and the overall TPOT score exists indicating lower average stress scores may be associated with higher overall TPOT scores. This is the first study to date that examines the associations between educators' characteristics and behavior support strategies in early childhood. This is a critical step in nurturing and responsive education and care for young children, and is critical in reducing the disproportionate expulsion of preschool-aged children from childcare and preschool. Through systematically examining the relation between educators' characteristics and the use teaching practices educators make when supporting young children who exhibit challenging behavior, we have preliminary data to use in future studies to develop an effective professional development system as a strong support for future in-service educators.

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APPENDIX A

Teacher Survey: adapted from the Study of Preschool Teachers (Jeon, & Buettner, 2016)		
Item Number	Statements/Questions	Scoring
#2	If you have a college or graduate degree (e.g. Associate, Bachelor's, Master's, Ed.D., Ph.D.), have you received a degree in Early Childhood Special Education/ Early Intervention?	☐ Yes ☐ No
#4	How many years have you worked in the field of early childhood and/or special education?	_____year(s)
#7	Have you participated in professional development during the previous school year (including the summer)?	☐ Yes ☐ No
#8	Are you regularly given feedback from internal or external observers though any kind of classroom observation?	☐ Yes ☐ No
	If yes, How useful are the regular observations and feedback for improving your practice as a teacher?	☐ Completely useless ☐ Somewhat useless ☐ Neutral ☐ Somewhat useful ☐ Extremely useless
#9	9-a. In general, my experience with professional development activities has been positive.	• 5-point scale 1= Strongly Disagree 2 3 4 5= Strongly Agree
	9-b. In general, professional development activities have been useful for increasing my teaching efficiencies.	
	9-c. In general, college education or professional development activities prepared me for the reality of teaching children.	
	9-d. My workplace provides enough resources and support for me to participate in professional development activities.	
	9-e. Professional development activities are really available and accessible to me.	
#13	13-a.I can get children to follow classroom rules	• 5-point scale 1= Strongly Disagree 2
	13-b.I can control disruptive behavior in the Classroom.	

	13-c.I can prevent problem behavior on the playground.	3 4 5= Strongly Agree
	13-d. My role as a teacher is to facilitate children's own inquiry.	
	13-e.Children learn best by finding solutions to problems on their own.	
	13-f.Children should be allowed to think of solutions to practical problems themselves before the teacher shows them how they are solved.	
	13-g.Thinking and reasoning processes are more important than specific curriculum content.	
	13-h.I feel confident that I have the skills to help prepare children in my class to be successful in kindergarten.	
	13-i. If a child in my class does not remember information I gave in a previous lesson, I would know how to increase his/her memory in the next lesson.	
	13-j. If a child in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him/her quickly.	
	13-k.If I try hard, I can get through to even the most difficult or unmotivated children.	
#15	15-a.Children's challenging behaviors.	• 5-point scale 1= No stress 2 3 4 5= A Great Deal of Stress
	15-b.Classroom organization (e.g., chaotic environment, keeping routines).	
	15-c.My instructional ability.	
	15-d.Relationships with parents (e.g., a lack of attainment, assessments).	
	15-e. Relationships with co-workers.	
	15-f. Relationships with a director or principal	
	15-g. Program-level requirements (e.g., educational attainment, assessments).	
	15-h.A lack of professional development opportunities.	
	15-i.Workding conditions (e.g., compensation, benefits, facilities).	
#27	27-a. I'm good at finding the words to describe my feelings	• 5-point scale

	27-b. I can easily put my beliefs, opinions, and expectations into words.	1= Never/ Rarely True 2=Rarely True 3= Some-times True 4= Often True 5= Very often or always true
	27-c. I watch my feelings without getting carried away by them.	
	27-d. I tell myself that I shouldn't be feeling the way I'm feeling.	
	27-e. It's hard for me to find the words to describe what I'm thinking.	
	27-g. I make judgements about whether my thoughts are good or bad.	
	27-h. I find it difficult to stay focused on what's happening in the present moment	
	27-i. When I have distressing thoughts or images, I don't let myself be carried away by them.	
	27-k. When I feel something in my body, it's hard for me to find the right words to describe it.	
	27-l. It seems I am "running on automatic" without much awareness of what I'm doing.	
	27-m. When I have distressing thoughts or images, I feel calm soon after.	
	27-n. I tell myself I shouldn't be thinking the way I'm thinking.	
	27-p. Even when I'm feeling terribly upset, I can find a way to put it into words.	
	27-q. I rush through activities without being really attentive to them.	
	27-s. I think some of my emotions are bad or inappropriate and I shouldn't feel them.	
	27-u. When I have distressing thoughts or images, I just notice them and let them go.	
	27-v. I do jobs or tasks automatically without being aware of what I'm doing.	
	27-w. I find myself doing thoughts without paying attention.	
	27-x. I disapprove myself when I have illogical ideas.	