

## Promoting Self-Regulation in Early Childhood Education: Teachers' Knowledge of Self-Regulation

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*This study used data collected from in-service early childhood teachers enrolled in a summer pre-kindergarten endorsement program hosted at a large urban university in Middle Tennessee. Data were also collected from pre-service teachers enrolled in three different courses in an Education Preparation Program, at the same institution. The independent variables included the participants' characteristics (i.e., number of years of teaching experience and amount of professional development), and the teachers' attitudes and their personal beliefs exhibited in the classroom. The dependent variable was the teachers' knowledge of self-regulation. The results suggested that the level of the teachers' knowledge of self-regulation was impacted by the number of years of teaching experience and the amount of relevant professional development/training. The level of knowledge of self-regulation, however, had no impact on teachers' attitudes and personal beliefs in the classroom.*

*Keywords:* self-regulation, early childhood education, early childhood pre-service in-service teachers, problem behavior, socio-emotional skills

The transition to formal schooling is a momentous time in the lives of young children. Yet, an increasing number of young children, particularly from low-income backgrounds begin school with significant problem behaviors (Iriogbe-Efionayi, 2018). The problem behaviors exhibited by such children create a major challenge for teachers and place the children at risk for academic failure (Graves & Howes, 2011; Jennings, 2015; Willis et al., 2015). Furthermore, the problem behaviors interfere with the teachers' attempts to assist children in learning academic content, and therefore, widening the achievement gaps between children from low socioeconomic backgrounds and their more affluent peers (Anthony, 2013).

Preschool expulsions and suspensions are on the rise, and they cause young children, particularly children in public early education settings, to lose their early educational placement or time in care, directly undermining their access to educational opportunities (Gilliam et al., 2016). Although school suspensions and/or expulsions have been shown to place young children at risk for multiple negative outcomes such as academic failure, peer rejection, and school dropout (Graves & Howes, 2011), there is a paucity of research that has investigated urban public-school early childhood teachers' knowledge of self-regulation and classroom implementation of self-regulation, to support children's academic performance. This study examined the level of the early childhood teachers' knowledge of self-regulation, and the impact of the knowledge of self-regulation on the teachers' classroom attitudes and personal beliefs.

This article is divided into the following main sections: a literature review, which includes theories of self-regulations and early childhood teachers, professional development programs to enhance self-regulation among young children, teachers' years of teaching experience, and teachers' classroom attitudes, beliefs, and the instruction of self-regulation skills. The methodology highlights the data collection and analysis, the research questions and hypotheses, the variables, and the instrumentation used in the study. Also included are the results of the study, discussion, limitations, and concluding thoughts.

## Literature Review

The increasing number of children in early education programs also increases the need for teacher quality, and teachers' capacity to build and maintain positive, high-quality learning environments that support optimal child development. Urban State-funded and Federally supported early preschool programs in the United States provide young children from disadvantaged families ample learning opportunities, and include children with varying levels of academic, social, emotional, and or behavioral needs (Bitar, 2010). These young children's participation in these programs is hindered when most of the children exhibit persistent behavioral issues, which limit their learning and academic experiences (Gilliam et al., 2016). Upshur et al., (2013) noted that:

“a lack of participation in educational services can hamper children's ability to interact appropriately with family and peers, create family stress, become stigmatized as problem children, fail to develop school readiness skills and behaviors, cause disruptions to other children's learning, socialization, and safety, and contribute to burn out and turnover for preschool teachers” (p. 29-30).

Children's development of self-regulation, an important socio-emotional skill during the early childhood years, allows for appropriate behavior management and a smooth transition to school, leading to both short-term and long-term academic success (Bodrova & Leong, 2008; Iriogbe-Efionayi, 2018; Valloton & Ayoub, 2011). The ability for young children to self-regulate in the early childhood environment is essential, as self-regulation promotes cognitive, socio-emotional developments, as well as, supports school readiness, academic performance, and lifelong learning (Bitar, 2010; Blair & Raver, 2015).

Conversely, children who exhibit socio-emotional problem behaviors that begin during their early years of life are likely to have problems of peer rejection and mental health issues, unless there are interventions to redirect the behaviors (O'Connor., 2011). Children with problem behaviors not only disrupt classroom instruction, they also tend to receive negative attention from their teachers (Money, 2015). Although many factors in a young child's environment may influence his or her behaviors positively or negatively, the role of the school environment, particularly the teacher (Murray et al., 2015), is significant to this study. Teachers play a key role in enhancing young children's socio-emotional development, yet, not many teachers are adequately trained to support children with challenging behaviors (Bitar, 2010).

The demands on young children to succeed in school require them to have the capacity to regulate their behaviors and appropriately express their emotions. Early development of self-regulation is critical for school success, as poor regulation may result in problems in behavior and school performance (Webster, 2015). Self-regulation is necessary for focusing and maintaining attention, regulating emotions, and engaging in positive social interactions with peers and teachers (Blair & Raver, 2015). Young children will benefit from teachers who understand, possess, and are able to teach and promote the development of self-regulation skills in the classroom (Iriogbe-Efionayi, 2018). Teachers can help young children understand and regulate their emotions through modeling, teaching, and using positive and appropriate emotions and behaviors to support children's learning (Bene, 2015; Florez, 2011).

### Professional Development to Enhance Self-Regulation among Early Childhood Teachers

Savina et al., (2014) attributed the lack of self-regulation among young children to poor parenting, and poor teacher-child relationships. Teachers have a considerable influence in supporting children's self-regulation skills and reducing problem behaviors in the classroom (Denham et al., 2012). As part of their responsibilities, teachers must provide a safe and

nurturing classroom environment with realistic standards to promote the social, emotional, behavioral, and academic success for children (Lamont et al., 2013). Teachers can support children's self-regulation by modeling, teaching, coaching, and reinforcing specific skills with positive behavior support strategies (Bene, 2015).

Foundational skills of self-regulatory behaviors provide a basis for young children to develop appropriate classroom behaviors and achieve academic success (Blair & Diamond, 2008). Teachers tend to draw towards children whom they perceive as more emotionally friendly, less negative, and generally more responsive to learning (Pianta et al., 2009; Raver., 2012). Children with more emotionally negative, less-regulated tendencies, tend to receive negative reactions from their teachers and perform poorly academically than their more emotionally well-regulated peers (Valiente et al., 2008; VanDerhei, 2015). Hence, the need for urban early childhood teachers to employ strategies that focus on promoting self-regulation skills among children (whether they are perceived to be more or less responsive to learning), to enhance future academic success.

Teachers have a considerable influence in supporting children's self-regulatory skills and reducing problem behaviors in the classroom (Denham et al., 2012). Yet, many pre-kindergarten teachers have minimal trainings specific to promoting children's emotional skills and least prepared to manage problem behaviors in the classrooms (Garner, 2010; Stormont., 2011; Sutherland et al., 2013). Arnold et al., (1998) reported disruptive behavior as one of the single most challenges teachers encounter in the early childhood setting. Also, according to the Center for Evidence-Based Practices (2005) and Weiland & Yoshikawa (2013), early childhood teachers indicated managing problem behavior as the main area they need training, support, and technical assistance. Many early childhood teachers are competent in the content areas but may lack the knowledge to support socio-emotional skills among young children.

Therefore, an urban early-childhood teacher's knowledge in the academic content area is as important as knowledge on how to foster socio-emotional skills in the early childhood classroom and minimize disruptive behaviors (Simon & Johnson, 2013). Professional development provides teachers specific strategies on how to transform knowledge of the content into practice to support children's learning (Muijset al., 2014). Relevant professional development training considers the needs of both teachers and students, and are therefore, tailored to meet those needs.

A lack of relevant teacher training aimed at supporting and improving children's socio-emotional skills can negatively impact classroom instruction and can also affect the teacher-child relationship (Gablinske, 2014). Specifically, urban early childhood teachers' lack of the necessary training aimed to enhance self-regulation or socio-emotional skills can have undesirable effects on the promotion of social and emotional needs of children who exhibit persistent disruptive behaviors (Hemmeter et al., 2008; Winton et al., 2015).

### **Teachers' Years of Teaching Experience**

A teacher's teaching experience may impact the quality of education provided in the classroom and the promotion of appropriate behaviors. There is an assumption that teachers with more years of teaching experience are more effective in promoting children's learning and development. However, Rice (2013) opined that more years of teaching experience does not necessarily translate into more knowledge of the acquisition of self-regulation skills. Teachers' effectiveness is at its highest during the first few years of teaching. Newly hired teachers may have little or no experience, and therefore, less effective in promoting a child's socio-emotional skills in the classroom (Rice, 2013). On the other hand, teachers with at least 20 years of

teaching experience may be effective, but not more effective than teachers with about five years of teaching experience (Clotfelter et al., 2015).

Experienced teachers use prior teaching experience to provide various learning opportunities for all children, regardless of other factors that may exist in the child's life (Webster, 2015). As the emphasis on children in pre-kindergarten and kindergarten to be ready for school intensifies, so is the need for early childhood teachers to have adequate teaching experiences in promoting and optimizing children's learning opportunities (Anthony, 2015; Florez, 2011). The expectations for prekindergarten and kindergarten children to learn to wait their turn, get along with others, listen and follow directions, as well as, develop fine motor skills continue to be replaced by academic expectations, especially since the NCLB mandate, which focuses on academic competence (Willis et al., 2015).

The current expectations for young children to be school-ready also include teachers who are capable of using developmentally appropriate practices to promote positive socio-emotional, and academic interactions in the classrooms (Baron et al., 2015; Hemmeter et al., 2008; Henniger, 2017). Young children who experience deficits in self-regulation skills can expect to have continual behavioral difficulties and an increased risk for expulsion in preschool classrooms (Gilliam, 2005; Gilliam & Shahar, 2006; Gilliam, 2008) as well as, the potential of becoming a high school dropout (Bitar, 2010; Money, 2015). Although children with behavioral issues present challenges for teachers as optimum learning experiences may be compromised by the constant need to redirect the child's negative behaviors, experienced early childhood teachers can provide strategies to minimize the negative behaviors, thereby promoting academic success (Iriogbe-Efionayi, 2018).

### **Teachers' Classroom Attitudes, Personal Beliefs, and Instruction of Self-Regulation**

Teachers' attitudes and personal beliefs about self-regulation impact their classroom instruction of self-regulation (Spruce & Bol, 2015). Urban early childhood teachers with knowledge of self-regulation and positively practice self-regulation in the classroom promote self-regulation skills in young children, which in turn, increases social and academic outcomes, and low levels of behavioral problems (Rodriguez et al., 2005). The impact of instructional practices of self-regulation can also be hindered by teachers' attitudes and beliefs that may differ from their actions in the classroom. Spruce & (2015) noted that although many teachers express high positive beliefs about children's development of self-regulation in theory, they however, regard the acquisition of such, as an unrealistic classroom practice.

The development of self-regulation in early childhood is enhanced by teachers through classroom instruction, classroom organization, and the relationships they foster with the children (Webster, 2015). In today's early childhood education and with an increased focus on developing academic competence, rather than promoting socio-emotional development, appropriate classroom instructional practices are important to support children's academic and socio-emotional skills (Alderman & MacDonald, 2015). In addition to teaching experience and professional development, teachers' attitudes and personal beliefs influence their classroom practices. Early childhood teachers who have high expectations for young children and believe in the children's ability to meet high standards, provide learner-centered opportunities for children to develop social, emotional, and cognitive skills (Greenburg et al., 2014).

However, the instructional practices of self-regulation can be hindered by teachers who have reservations about the abilities of their children to gain from strategies that support self-regulation (Perels et al., 2009). Self-regulated teachers promote self-regulation in their children. The beliefs that young children can learn and display self-regulated behaviors in the classroom can be enhanced by the types of relationships that exist between the teachers and the children

(Valiente et al., 2008). Positive teacher-child relationship promotes young children's socio-emotional and academic performances. Teachers who possess high social and emotional skills support positive relationships with their students and are more likely to be involved in employing effective classroom management practices to promote social and emotional curricula.

### **Theoretical Framework**

This study was based on the theoretical framework of Vygotsky's (1978) Socio-Cultural Theory that states that culture and language are important aspects of the human development. The socio-cultural approach to learning and development is based upon Vygotsky's concept that "human activities take place in cultural contexts, are mediated by language, and other symbol systems, and can be best understood when investigated in their historical development" (John-Steiner & Mahn, 1996, p. 191). Vygotsky opined that cognition develops through social interactions between the child and his or her environment, creating opportunities for children to understand social rules and expectations (Bodrova & Leong, 2007).

Social interactions create opportunities for children to understand social rules, roles, and expectations, which they ultimately apply to their own behaviors (Vygotsky, 1978). The socio-cultural theory supports social interaction whereby, learners depend on others more experienced than they are at the start of a task. Learners engage in a range of collaborative activities that provide the opportunity for creating multiple influences in the learner's novel approaches of understanding and participation. Through working together, the novice learner gains useful strategies and vital knowledge to internalize information learned (John-Steiner & Mahn, 1996; Vygotsky, 1978).

The socio-cultural theory emphasizes knowledge as having association with the interactions that produce it through numerous events (Green et al., 2012). A child's development cannot be separated from its social context because the environment contributes significantly to the process of making meaning within the child's mind and the construction of knowledge (Essa, 2012). The perception of the learner impacts the learning attained and allows children to achieve ownership of their learning. The classroom environment includes elements such as the physical environment, the students, and the teachers. These elements represent children's social-cultural context and should be considered when addressing children's learning and development (Baron et al., 2015). While children are usually exposed to various social contexts, this study however, focused on the aspect of the teacher's role in the early childhood environment.

### **Methodology**

#### **Participants' Sample/Characteristics**

One hundred and fifty surveys were sent out to both pre-service and in-service early childhood education teachers, along with consent forms. The study used a convenient sample based upon accessibility, geographical proximity, availability, and readiness to participate. One hundred and nine surveys were received from the aforementioned teachers. Twelve surveys were discarded for incomplete information. The remaining teacher participants (n = 97) were placed into two separate groups (see table 1). The first group consisted of in-service teachers (n = 27) who worked in the early childhood education setting in a large urban school district in Middle Tennessee and were also enrollees in a summer pre-kindergarten endorsement program at a large urban public four-year university in Middle Tennessee.

Table 1  
*Participants' Characteristics*

Variable	<i>N</i>	Percent (%)
Race/Ethnicity: Black/African American	44	45.5
Hispanic/Latino	6	6.2
White/Caucasian	44	45.5
Other	3	3.1
Total	97	100.3
Professional Development (PD)		
More than five times a year	29	29.9
More than twice, less than five	21	21.6
Twice a year	4	4.7
Once a year	4	4.7
Never	28	28.9
Total	86	89.8
Teaching Experience (TE)		
More than 10 years	23	23.3
6-10 years	10	10.3
1-5 years	33	34.0
0 years	29	29.9
Total	95	97.5

In-service teachers ( $n = 27$ ) included the summer program attendees and their prekindergarten or kindergarten colleagues. The second group included the pre-service teachers ( $n = 70$ ) enrolled in three different courses in an educator preparatory program located at the same large urban public four-year university in Middle Tennessee. Seventy-two percent of the sample ( $n = 70$ ) represented the in-service teachers, and 27.8% ( $n = 27$ ) represented the pre-service teachers. An equal number of participants of 45.4% ( $n = 44$ ) were African Americans and Caucasians. The Hispanic/Latino participants comprised of 6.2% of the sample ( $n = 6.2$ ); and the 'Other' group was 3.1% of the sample ( $n = 3$ ) (see table 1).

Table 1 also shows a total of 29.9% of the sample ( $n = 29$ ) who reported that they had PD more than five times a year, 21.6% ( $n = 21$ ) received (PD) more than twice but, less than five times. An equal number of 4.7% ( $n = 4$ ) received PD once, and twice per year, respectively. Twenty-nine percent ( $n = 28$ ) of the respondents reported they had never received PD or training. Further, one-third of the respondents 34% ( $n = 33$ ) had between one and five years of teaching experience, followed by those with zero years at 29.9% ( $n = 29$ ). More than 10 years of teaching experience accounted for 23.7% ( $n = 23$ ), and those with six to ten years' experience at 10.3% ( $n = 10$ ).

### Research Questions and Null Hypotheses

Four research questions and five null hypotheses guided this study:

1. What characteristics affect early childhood teachers' level of knowledge of self-regulation? null hypothesis ( $H_01$ ): There is no statistically significant correlation between number of years of teaching experience and teachers' knowledge of self-regulation; null hypothesis ( $H_02$ ): There is no statistically significant correlation between number of professional development/training activities completed and teachers' level of knowledge of self-regulation.

2. Does the teacher's level of knowledge of self-regulation predict the teacher's attitudes, and personal beliefs in the classroom? null hypothesis (H<sub>03</sub>): There is no statistically significant correlation between the teacher's level of knowledge of self-regulation, and teachers' attitudes and personal beliefs in the classroom.
3. Is there a significant difference in the level of knowledge of self-regulation between in-service teachers and pre-service teachers? null hypothesis (H<sub>04</sub>): There is no statistically significant difference in the level of knowledge of self-regulation between in-service teachers and pre-service teachers.
4. Is there a significance difference in classroom attitudes and personal beliefs between in-service teachers and pre-service teachers? null hypothesis (H<sub>05</sub>): There is no statistically significant difference in classroom attitudes and personal beliefs between in-service teachers and pre-service teachers.

### **Dependent and Independent Variables**

The independent variables used for Research Question 1 were (a) number of years of teaching experience, and (b) amount of professional development or training relating to self-regulation. The dependent variable used was teachers' level of knowledge of self-regulation, as measured on a continuous variable scale of 0-4, based upon data on the four-questions on the vignettes. The independent variable for Research Question 2 was the teachers' level of knowledge of self-regulation and the dependent variable was the teachers' attitudes/personal beliefs in the classroom, as measured by the 14 Likert-style questions on the Attitudes and Personal Beliefs section of the questionnaire.

The independent variable was the attitudes/personal beliefs in the classroom of the two unrelated groups, the pre-service teachers and in-service teachers. The dependent variable was the teachers' level of knowledge of self-regulation based upon the four-questions on the vignettes, for Research Question 3. Additionally, the independent variable for Research Question 4 was the teachers' level of knowledge of self-regulation and the dependent variable was the teachers' attitudes and personal beliefs based upon data on the 14 Likert-scale questions on attitudes and personal beliefs.

### **Instrumentation**

The Early Childhood Educators' Knowledge of Self-Regulation Questionnaire (ECESRQ) survey comprised of 35 questions divided over four sections.

1. Personal Information, this section had 11 questions that addressed participants' basic demographic information.
2. Education and Training, with six questions that identified teachers' training relating to self-regulation.
3. The vignettes with four scenarios and five choices for answers, based upon the literature on developmentally appropriate instruction of self-regulation (Bodrova & Leong, 2007). This section sought to identify teachers' reported instruction of self-regulation skills through scenarios that are likely to occur in the classroom (Willis et al., 2015). The vignette section (see Table 2 below) was used to measure teachers' knowledge and instruction of self-regulation in the classroom
4. The final section was the Attitudes and Personal Beliefs section which included 14 Likert-style questions and statements to identify teachers' attitudes and personal beliefs in the classroom.

Figure 1

*A sample of the vignette*

<p><b>111. Vignettes:</b> For each of the following, indicate what course of action, if any, you would take.</p>
<p>Sophia's hands. Sophia begins Maria, 4, has left her desk for a moment to sharpen her pencil. Upon her return sees that Sophia has taken the glue and scissors off her desk to use for herself. Maria quickly returns to her desk and abruptly grabs the glue and scissors from to cry.</p>
<p>In this instance, I would (select one)</p> <p><input type="checkbox"/> Not do anything and let Sophia cry; she shouldn't have taken the items anyway.</p> <p><input type="checkbox"/> Put both children in time out because they cannot share, and subsequently, talk to them about sharing, make a classroom lesson on sharing for the next day.</p> <p><input type="checkbox"/> Discuss with Maria how to use her words instead of her hands and ask her to apologize to Sophia.</p> <p><input type="checkbox"/> Discuss with both Maria and Sophia why we use our words, and how to know when they should use their words.</p> <p><input type="checkbox"/> Tell Maria she is a bad student.</p>

Teachers' responses are in the following categories: Strongly Agree (4); *Agree* (3); *Disagree* (2), and *Strongly Disagree* (1). An example of questions in this section include: "I spend a majority of my time in the classroom teaching and working on appropriate behaviors."

### Data Analysis

The data for this study were entered into a statistical software program, the Statistical Package for the Social Sciences (SPSS, 22.0) and Pearson Product Correlation ( $r$ ) test was conducted to investigate question 1) relationships between the teachers' knowledge of self-regulation and the demographic characteristics (i.e., number of years of teaching experience and amount of professional development/training relating to self-regulation; and question 2) relationships between the teachers' knowledge of self-regulation and their attitudes and personal beliefs in the classroom. The alpha level was set at (.05) with a 95% level of confidence. A  $p$ -value of less than (.05) indicates a significant correlation between the teachers' level of knowledge of self-regulation and the characteristics between the level of knowledge of self-regulation, as well as attitudes and personal beliefs, therefore a rejection of the null hypothesis. However, a  $p$ -value higher than (.05) indicates no statistically significant correlation between teachers' level of knowledge of self-regulation and characteristics, level of knowledge of self-regulation, and attitudes and personal beliefs, thus retaining the null hypothesis.

The Mann-Whitney  $U$  test is a non-parametric statistical test used to determine significant differences in mean scores of two independent groups. The Mann-Whitney  $U$  test was used to analyze data for question 3, which was, to investigate differences between in-service and pre-



service teachers' level of knowledge of self-regulation and question 4, which was to examine differences between in-service and pre-service teachers' attitudes and personal beliefs.

## Results

Research Question 1: *What characteristics affect early childhood teachers' level of knowledge of self-regulation?*

Null hypothesis (H<sub>01</sub>): *There is no statistically significant correlation between years of teaching experience and teachers' knowledge of self-regulation.*

Pearson Product Coefficient was conducted to determine the relationship between teachers' years of teaching experience and the teachers' knowledge of self-regulation (see table 3). Based upon the responses from 95 teachers about their teaching experience ( $M = 1.28$ ,  $SD = 1.15$ ) and knowledge of self-regulation ( $M = 2.3$ ,  $SD = 0.99$ ), the Pearson ( $r$ ) test revealed a statistically significant ( $p = .011$ ) weak negative correlation ( $r = -.26$ ). An indication that teaching experience impacts teachers' knowledge of self-regulation. Null hypothesis 1 was rejected.

Null hypothesis (H<sub>02</sub>): *There is no statistically significant correlation between professional development or training and teachers' knowledge of self-regulation.*

Based upon the responses from 86 teachers about their professional development or training ( $M = 2.22$ ,  $SD = 1.71$ ) and knowledge of self-regulation ( $M = 2.3$ ,  $SD = 0.99$ ), a Pearson's Product analysis showed a statistically significant ( $p = .001$ ) moderate negative correlation ( $r = -.43$ ) (See table 3). The results suggest a correlation between professional development/training and teachers' knowledge of self-regulation. Null hypothesis 2 was rejected.

Table 2

*Descriptive Statistics of Knowledge of Self-regulation and TE/PD*

Knowledge of Self-Regulation		$M = 2.3, SD = 0.99$			
Variable	$N$	$M$	$SD$	$r$	$p^*$
Teaching Experience (TE)	95	1.28	1.15	-.26	.011**
Professional Development (PD)	86	2.22	1.71	-.43	.000*

\*Correlation is significant at the 0.05 level, \*\* Correlation is significant at the 0.01 level

TE = Teachers' teaching experience, PD = Professional development

Research Question 2: *Does the teacher's level of knowledge of self-regulation predict the teacher's attitudes and personal beliefs in the classroom?* Null hypothesis (H<sub>03</sub>): *There is no statistically significant correlation between the teacher's level of knowledge of self-regulation and teachers' attitudes and personal beliefs in the classroom.*

Descriptive statistics were used to test null hypothesis 3 (see table 3). Mean and standard deviation for each item measuring attitudes and personal beliefs were calculated using SPSS 22.0. The Pearson correlation test was used to explore relationships among all the attitudes/personal beliefs and self-regulation. The teachers' level of knowledge of self-regulation served as the independent variable and the teachers' attitudes and personal beliefs as the dependent variables, measured by the 14 Likert-style questions (*Attitudes and Personal Beliefs*).

Table 3

*Descriptive Statistics for Variable*

Question	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Sig</i> *
1. I believe children need to be directed by an adult in the classroom	82	2.05	0.72	.043*
2. I spend a majority of my time in the classroom on behaviors	90	2.04	0.76	.314
3. I feel most of my students need to be externally motivation	85	2.19	0.84	.009*
4. I notice a few of my students have difficulty finishing a task	89	2.39	0.70	.585
5. I see a gap in what students might achieve/actual achievement	88	2.43	0.64	.863
6. I notice a few students have difficulty initiating task themselves	91	2.21	0.66	.519
7. I feel difficulty as a teacher from controlling behavior problem	87	2.30	0.84	.863
8. I encourage my students to gain the ability to initiate tasks	92	1.74	0.53	.873
9. I would prefer to spend more time teaching children social skills	80	2.11	0.68	.673
10. I find activities for my students to work on in groups	88	1.70	0.53	.675
11. I feel it is more important to teach social-emotional content	87	2.01	0.76	.625
12. I feel most of my students have the ability to self-motivate	88	2.27	0.66	.254
13. I am often times interrupted while teaching to address behavior	87	2.39	0.84	.988
14. I often feel significantly stressed as a teacher.	87	2.54	0.93	.587

Analysis of the 14 items in the Likert-style section of the survey (see table 3) showed that knowledge did not significantly predict teachers' attitudes and beliefs ( $p > .05$ ), except, on item one ( $M = 2.05$ ,  $SD = 0.72$ ) and item three ( $M = 2.19$ ,  $SD = 0.84$ ), which both reveal statistically significant negative weak correlations ( $r = -.219$ ,  $p = .043$ ;  $r = -.282$ ,  $p = .009$ ). Null hypothesis 3 was rejected for both items (one and three). No significance was found for item two and items four to fourteen (4 – 14, Table 4). Hence, null hypothesis 3 was retained (items 2, 4-14). Research Question 3: Is there a significant difference in the level of knowledge of self-regulation between in-service teachers and pre-service teachers? null hypothesis ( $H_0$ ): There is no statistically significant difference in the level of knowledge of self-regulation between in-service teachers and pre-service teachers.

A Mann-Whitney U test (U-test) was conducted at the .05 alpha level to test null hypothesis 5. The Mann-Whitney U-test, a non-parametric statistical test, was used to determine whether the mean rank score between two independent groups was statistically different. The independent variables used for the analysis were the two groups: the pre-service teachers and the in-service teachers. The dependent variable was the teachers' knowledge of self-regulation based upon the four-questions on the vignettes.

Table 5 displays the results of the null hypothesis testing. The results show that pre-service teachers had a higher mean rank score (63.13) than in-service teachers (42.78). Significance at the .05 level was  $p = .001$ . The results also showed a statistically significant difference in the knowledge of self-regulation between in-service teachers and pre-service teachers. Thus, null hypothesis 4 was rejected in favor of the research hypothesis.

Table 4

*Mann-Whitney U-test for In-service and Pre-service Teachers*

Group	N	Mean Rank	<i>p</i> *
In-service teachers	69	42.78	.001*
Pre-service teachers	27	63.13	

Note: \* Significance at less than .05

Research Question 4: *Is there a significance difference in classroom attitudes and personal beliefs between in-service teachers and pre-service teachers? null hypothesis (H<sub>0</sub>5): There is no statistically significant difference in classroom attitudes and personal beliefs between in-service teachers and pre-service teachers.* The Mann-Whitney U-test was conducted to determine significance in classroom attitudes and personal beliefs between in-service teachers and pre-service teachers.

Table 5

*Mann-Whitney U Statistics for Teachers' Attitudes/Belief*

Variable	Group	<i>n</i>	Mean Rank	<i>p</i> *
1. I believe that children need to be directed by an adult in the classroom	In-service	55	46.65	.002*
	Pre-service	27	31.00	
2. I spend a majority of my time in the classroom	In-service	63	42.43	.062
	Pre-service	27	52.67	
3. I feel most of my students need to be externally motivated.	In-service	59	47.59	.006*
	Pre-service	26	32.58	
4. I often notice that a few of my students have difficulty finishing a task they have just begun.	In-service	62	43.72	.436
	Pre-service	27	47.94	
5. I see a gap in what my students might be able to achieve and their actual achievement	In-service	62	41.65	.071
	Pre-service	26	51.31	
6. I often notice a few of my students having difficulty initiating a task on their own	In-service	65	48.94	.056
	Pre-service	26	38.65	
7. I feel the majority of difficulty I experience as a teacher arises from controlling behavior problems	In-service	66	41.41	.109
	Pre-service	26	50.42	
8. I encourage my students to gain the ability to start tasks by themselves.	In-service	53	46.80	.835
	Pre-service	27	45.73	
9. I would prefer to spend more time in my classroom teaching my children social skills	In-service	53	41.29	.623
	Pre-service	27	38.94	
10. I find activities for my students to work on in groups.	In-service	63	45.62	.438
	Pre-service	25	41.68	
11. I feel it is more important to teach early childhood students social-emotional content than academic content.	In-service	60	42.15	.248
	Pre-service	27	48.11	
12. I feel most of my students have the ability to motivate themselves, without my guidance.	In-service	62	41.32	.042*
	Pre-service	26	52.08	

13. I am often times interrupted while teaching a lesson to address behavior.	In-service	62	40.31	.022*
	Pre-service	25	53.14	
14. I often feel significantly stressed as a result of my job as a teacher.	In-service	61	38.43	.001*
	Pre-service	26	57.08	

\*Significance at the .05 level

There were significant differences in classroom attitudes and personal beliefs between in-service teachers and pre-service teachers on items 1, 3, 12, 13, and 14. For item #1 ( $U = 459.00$ ,  $z = -3.069$ ,  $p = .002$ ) and item #3 ( $U = 496.00$ ,  $z = -2.744$ ,  $p = .006$ ). Mean Ranks were significantly higher for the in-service teachers than for the pre-service teachers. For item #12 ( $U = 609.00$ ,  $z = -2.035$ ,  $p = .042$ ), item #13 ( $U = 546.50$ ,  $z = -2.282$ ,  $p = .022$ ), and item #14 ( $U = 453.00$ ,  $z = -3.310$ ,  $p = .001$ ). Mean Ranks were significantly higher for the pre-service teachers than for the in-service teachers. Null hypothesis 5 was rejected for the above item #s (1, 3, 12, 13, & 14) that there is a significant difference in classroom attitudes and personal beliefs between the in-service teachers and the pre-service teachers with regards to the above items. Results showed no statistically significant differences for the remaining item #s (2, and 3-11). Therefore, the null hypothesis was retained.

### Discussion

A review of the literature revealed that although many young children, particularly children from low-income backgrounds, display socio-emotional difficulties, only a few early childhood teachers receive appropriate training to managing behavior problems in the classroom. Teaching experience (Rice, 2013; Webster, 2015) and professional development or trainings (Muijs et al., 2014; Winton et al., 2015) were identified as impacting teachers' level of knowledge of self-regulation. The relationships were negative however, possibly due to combining and analyzing the data for both groups of teachers, one group with teaching experiences/professional development trainings and the other group with no teaching experience/professional development training. Almost half of the participants indicated they spend most of the instruction time working on appropriate behaviors and more than 38% of the participants felt the majority of the difficulty they experience as teachers arise from managing problem behaviors.

More than 50% of the participants opined that children can self-motivate, while more than 36% stated that children need to be externally motivated. Hence, teachers' use of external classroom management practices that offer immediate but, short-lived solutions. This inconsistency implies that teachers' beliefs differ from what is implemented in the classroom. Further, the discrepancy points to the need to address public school early childhood teachers' lack of self-regulation knowledge and the provision of relevant self-regulation trainings to support children's development of self-regulation skills.

According to Vygotsky's socio-cultural theory, a child's development cannot be separated from its social context because the environment contributes significantly to the process of making meaning within the child's mind and the construction of knowledge. The early childhood teacher plays a vital role in supporting children's learning and development by fostering positive classroom interactions, as well as, modeling self-regulatory skills.

### Limitations of this Study

This study was limited by the convenient small sample size of 97, which included early childhood in-service teachers from a large urban public-school district in Middle Tennessee and

teacher candidates enrolled in three courses in teacher preparatory programs in a large urban public four-year university in Middle Tennessee. The unequal number of participants (i.e., 70 in-service teachers and 27 pre-service teachers) may also have constituted a limitation. The participants' self-report responses may have affected objectivity of the survey instrument. Additionally, the pre-service teachers/participants may have felt compelled to complete the questionnaire because of the extra credit they received from their instructors.

### **Conclusion**

Self-regulation promotes academic success. Early childhood teachers enhance the development of self-regulation among young children. More research is needed to explore the role of urban public-school early childhood teachers in supporting self-regulated behaviors among children, particularly children from low-income backgrounds. This study provides an insight into teachers' knowledge and practice of self-regulation. The results suggested that a teacher's lack of knowledge of self-regulation leads to the implementation of external management techniques in the classroom, regardless of the reported beliefs in young children's ability to self-monitor their behaviors. The results also showed that teachers' understanding of self-regulation impacted teachers' classroom attitudes and beliefs. Furthermore, the results revealed a positive link between the teachers' level of knowledge of self-regulation, the years of teaching experience, and the amount of relevant professional development or training.

### **Recommendations for Future Research**

The following recommendations were made for future research: The study should be replicated to include a qualitative aspect, with interviews, classroom observation, and a focus group to obtain in-depth ideas and opinions about self-regulation from participants. Data for this study was limited to quantitative responses, where teachers could not include personal thoughts or opinions. In addition, future studies should include more participants, specifically, an equal number of pre-service teachers and in-service teachers to obtain a more realistic outcome. There was an uneven number of participants' groups in this study (i.e., the in-service teachers almost tripled the number of the pre-service teachers). This factor may have affected the overall data collected and analyzed for this study. Furthermore, the study should be replicated, but with only teacher candidates in the final year to assess whether the teacher education coursework adequately prepares and provides pre-service teachers with theoretical and practical strategies to support children's development of self-regulation.

Also, future studies should be conducted to include special education teachers, as research reveals that classroom management courses or intervention courses are offered mainly as components of the special education content. A study that includes early childhood general education teachers and special education teachers could provide knowledge of whether some teachers have an advantage over some other teachers in that they are more prepared to deal with problem behaviors and therefore more successful as teachers.

### **Recommendations for Future Practice**

The overarching purpose of this study was to examine early childhood teachers' knowledge of self-regulation. Teachers with self-regulation skills promote same among young children. Results of this study revealed significant relationships between years of teaching experience, professional development, level of education of the teachers, and the teachers' knowledge of self-regulation. The results of this study also showed that the in-service teachers had a better understanding of self-regulation than the pre-service teachers.

While the results were significant, there is a limit to the extent of which firm conclusions can be drawn. For one thing, the data collected were self-reported. There was no way to ascertain whether what the teachers reported were what they practice in the classroom. Also, the responses from the pre-service teachers were based upon assumed classroom practice. Nevertheless, future practice should include classroom observations of how teachers' model and teach children self-regulation skills in an attempt to reduce behavioral issues and support academic excellence. Dealing with children who exhibit problem behaviors in the classroom can be minimized by teachers who do not only understand the concept of self-regulation but, are also equipped with the tools to deal effectively with difficult situations.

Based upon the study's conceptual framework, the teacher is a significant component of the classroom environment and influences children's learning and development. Poor teacher-child relationships can negatively affect children's learning and school success. Teachers need to support children's self-regulation by modeling, teaching, coaching, and reinforcing specific skills within a warm and caring classroom setting. In addition, teachers should promote affirmative relationships with children armed with positive behavior support strategies. Implementing curricula that assists children in regulating emotions and managing impulses are crucial to maintaining an engaging environment. Effective teachers promote learning environments that sustain the attention of students, and maximize instruction time, instead of controlling behavior most of the time.

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