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The Mediating Effect of Early Childhood Teachers' Professional Development in the Relationship Between Intrapersonal Intelligence and Teacher-Child Interactions

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Abstract

The purpose of the study was to examine the mediating effect of early childhood teachers' professional development in the relationship between intrapersonal intelligence and teacher-child interactions. We conducted a cross-sectional study with 324 early childhood teachers working at kindergartens and child-care centers in South Korea. The empirical data using survey questionnaires were collected by administering the Adult Introspective Intelligence Scale, the Professional Development Scale for Early Childhood Teachers, and the Teacher-child Interactions Scale. SPSS and Hayes' PROCESS macro weres utilized. The results showed the statistically positive correlations between the major variable and the mediating effect of early childhood teachers' professional development in the relationship between intrapersonal intelligence and teacher-child interactions.

Keywords: *Early Childhood Teachers, Teacher-Child Interactions, Professional Developmrent, Intrapersonal Intelligence*

1. INTRODUCTION

As the numbers of working women and dual-earner couples have increased, the way of parenting has changed from home caring to institute caring. This societal shift has led to increase the amount of time that young children spend in institutions like kindergarten and daycare centers, and the quality of teacher-child interactions has become crucial in early childhood education. Early childhood teachers are responsible for daily routines of young children at kindergartens or daycare centers as educators as well as caregivers. They provide a variety of educational activities for young children and influence their social, emotional, cognitive, and language development [1]. Moreover, teacher-child interactions become a framework for young children

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to understand others in early social relationships [2]. Therefore, this study focuses on the importance of teacher-child interactions and examines the variables related to it.

One of the variables that influence teacher-child interactions is the early childhood teachers' intrapersonal intelligence. Intrapersonal intelligence is one of the eight intelligences proposed by Gardner's theory of multiple intelligences [3]. It refers to the ability of human beings to look at themselves, to understand themselves, to know their feelings, thoughts, desires and fears, and their own talents, and to establish a correct identity through self-reflection [4]. Intrapersonal intelligence enables humans to reflect on their inner lives and to gain psychological maturity [5]. The results of previous research indicated that early childhood teachers with a higher level of intrapersonal intelligence showed a higher level in their teacher-child interactions [4, 6]. Although only a couple of studies have examined the relationship between intrapersonal intelligence and teacher-child interactions, we would infer that early childhood teachers' intrapersonal intelligence affects their interactions with young children.

In addition, early childhood teachers' professional development is also a variable that affects teacher-child interactions. Early childhood teachers' professional development encompasses a variety of aspects of teacher development including thinking levels, the cognitive processes, beliefs underlying their behaviors, and their self-concept as teachers. Since early childhood teachers are required to be specialized in terms of practical knowledge and application in daily interactions in classroom, their professionalism plays a key role to interact with young children as educators and caregivers in appropriate ways [1, 7]. The previous research revealed that a high level of professional development in teaching led to the quality of childcare and education [2, 8]. The correlations between early childhood teachers' professional development and the quality of teacher-child interactions were also reported [1, 9-10].

On the other hand, intrapersonal intelligence is a variable that affects professional development. It was reported that kindergarten teachers' self-reflective intelligence was positively related to their professional development [11]. This result suggests that the higher the intrapersonal intelligence of early childhood teachers, the more it affects professional development. Moreover, the study with daycare teachers' as the subjects showed that professional development had a mediating effect on the relationship between intrapersonal intelligence and teacher-child interactions [12]. It would be inferred that early childhood teachers' intrapersonal intelligence affects teacher-child interactions through professional development as a mediator. Thus, in this study, we focused on the importance of early childhood teachers' teacher-child interactions and verified the mediating effects of professional development between intrapersonal intelligence and teacher-child interactions. For the purpose, we set two research questions.

Research question 1. Are there correlations between early childhood teachers' professional development, intrapersonal intelligence, and teacher-child interactions?

Research question 2. Is there an mediating effect of early childhood teachers' professional development in the relationship between intrapersonal intelligence and teacher-child interactions?

2. RESEARCH METHODS

2.1 Subjects

The subjects were 324 early childhood teachers in South Korea. We used a simple random sampling technique. As for the background information of the sample, 54.6% ($n = 177$) were single and 45.3% ($n = 147$) were married. In terms of their teaching experiences, 84.6% ($n = 274$) worked under 10 years, 14.2% ($n = 46$) worked 11-20 years, and 1.2% ($n = 4$) worked over 21 years. In terms of the ages of the participants, 18.8% ($n = 47$) were under 25, 27.2% ($n = 68$) were 25-29 years old, 29.6% ($n = 74$) were 30-39 years old, and 24.4% ($n = 61$) were over 40 years old. As for the educational levels, 4.3% ($n = 14$) graduated from high school or

training centers, 25.9% ($n=84$) graduated from a 2-3 year college, 62.3% ($n = 202$) graduated from a 4 year college, and 7.4% ($n = 24$) graduated from graduate schools.

2.2 Measures

Intrapersonal Intelligence. We measured Intrapersonal Intelligence using the Intrapersonal Intelligence (II) Scale for Adults, developed and validated by An and Oh [1] and revised for early childhood teachers by Choe [13]. The scale consists of 35 items including four sub-scales: self-reflection (6 items), self-understanding (9 items), self-regulation and emotional use (15 items), and self-planning (8 items). The questionnaires were rated on a 5-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. Cronbach's α in this study were .82 for self-reflection, .89 for self-understanding, .67 for self-regulation and emotional use, .91 for self-planning, and .91 for the total.

Teacher-child interactions. We measured Teacher-Child Interactions (TCI) using The Scale of Teacher-Child Interactions of Early Childhood Teachers, which was developed and validated by Lee [14]. The scale consists of 30 items including three sub-scales: emotional interactions (10 items), verbal interactions (10 items), and behavioral interactions (10 items). The questionnaires were rated on a 5-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The higher the score was, the higher the level of a teachers' teacher-child interaction was. Cronbach's α in this study were .93 for emotional interactions, .90 for verbal interactions, .88 for behavioral interactions, and .97 for the total.

Professional Development. We measured the Professional Development (PD) using The Scale of the Professional Development of Early Childhood Teachers, which was developed and validated by Baik and Cho [15]. The scale consists of 55 items including three sub-scales: knowledge and skills (27 items), self-understanding (13 items), and ecological context (15 items). The questionnaires were rated on a 5-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. Cronbach's α in this study were .94 for knowledge and skills, .92 for self-understanding, .86 for ecological context, and .96 for the total.

2.3 Statistical Approach

Statistical analyses were performed using the SPSS version 28.0. Three hundred twenty four cases with complete data on all three measures were included in the analysis. We calculated the mean and standard deviations for continuous variables and frequencies and percentages for categorical variables. Cronbach's α was calculated to verify the reliabilities of measures. Following Hayes [16] guidelines, we conducted SPSS PROCESS macro for testing hypotheses on the mediation effects. The mediating effect of perceived professional development was tested in five steps: (i) direct effect of mediator (professional development) on teacher-child interactions, (ii) direct effect of predictor (intrapersonal intelligence) on mediator (professional development), (iii) total effect of predictor (intrapersonal intelligence) on teacher-child interactions, (iv) direct effect of predictor (intrapersonal intelligence) on teacher-child interactions with inclusion of mediator (professional development), and (v) using SPSS PROCESS macro, a 5000-sample bootstrap procedure was used to estimate bias-corrected 95% confidence intervals (CIs) to test the significance of indirect effect of the relationships. If CIs do not contain 0, indirect relationships are significant, indicating significant mediating effect [16]. As mentioned by Hayes [16], this bootstrapping procedure overcomes the limitations of the approaches highlighted by Baron and Kenny [17] and Sobel [18], yielding results that are more accurate and less affected by sample size [16]. Full mediation is presented when the beta weight is reduced and the p -value is not significant, while partial mediation is presented when the beta weight is reduced but the p -value is significant [17].

3. RESULTS

Before data analysis was conducted, data screening was performed to investigate the missing values, outliers, normality, and common method variance [19-20]. As shown in Table 1, since the skewness values varied from -.43 to .07 and the kurtosis values from 2.05 to 1.42, we assumed the normality of data. According to Sekaran and Bougie [21], mean values of equal or less than 2.99 are low, 3 to 3.99 are moderate, and mean values greater than 4 are deemed high in the case of five-point Likert scale. Based on Table 1, the subjects of the study showed a moderate level of intrapersonal intelligence ($M = 4.01$, $SD = .47$), a low level of professional development ($M = 3.87$, $SD = .45$), and a high level of teacher-child interactions ($M = 4.06$, $SD = .47$).

Table 1. Descriptive statistics and correlations between major variables ($N = 324$)

Variables	②	②	③
① Intrapersonal intelligence			
② Professional development	.63**	-	
③ Teacher-child interaction	.63**	.76**	-
<i>M(SD)</i>	4.01(.47)	3.87(.45)	4.06(.47)
<i>Skewness</i>	-.43	.07	-.51
<i>Kurtoses</i>	1.42	1.68	2.05

** $p < .01$

For the first research question, Pearson's correlation analysis was conducted. As shown in Table 1, early childhood teachers' intrapersonal intelligence had a statistically significant positive correlation with professional development ($r = .63$, $p < .01$) and with teacher-child interactions ($r = .63$, $p < .01$). Early Childhood Teachers' professional development also showed a statistically significant positive correlation with teacher-child interactions ($r = .76$, $p < .01$). These results support results of the previous studies that have shown a positive relationship between two variables [9, 13].

Table 2. Results of PROCESS macro testing mediating effect of professional development in the relation between intrapersonal intelligence and teacher-child interactions

Relations	Effects	S.E.	<i>t</i>	LLCI	ULCI
Direct effect	.25	.05	5.41***	.16	.34
Indirect effect	.39	.06		.28	.52
Total effect	.64	.04	14.38***	.55	.73

*** $p < .001$

For the second research question, the PROCESS macro was utilized to verify the mediating effect of early childhood teachers' professional development in the relationship between their intrapersonal intelligence and teacher-child interactions. As shown in Table 2, early childhood teachers' professional development demonstrated the statistically significant direct effect on teacher-child interactions. In order to verify the statistical significance of the mediating effect of professional development in the relationship between intrapersonal intelligence and teacher-child interactions, bootstrapping with 5,000 of re-extracted samples was performed. The results showed that the mediating effect coefficient was .39 along with the lower and upper limits of the confidence interval of the mediating effect coefficient were .28 and 0.52, respectively. As pointed

out by Preacher and Hayes [22], since zero is not included in this section, the mediating effect of professional development is found to be statistically significant. These results support the result of the previous study that used daycare teachers as the subject [14]. This indicates that the effect of early childhood teachers' intrapersonal intelligence on teacher-child interactions is mediated by their professional development.

4. CONCLUSION

The purpose of the study has two folds. One is to examine the correlations between early childhood teachers' intrapersonal intelligence, professional development, and teacher-child interactions. The other is to verify the the mediating effect of early childhood teachers' professional development in the relationship between intrapersonal intelligence and teacher-child interactions. The results showed statically significant positive correlations between major variables. In addition, the effect of early childhood teachers' intrapersonal intelligence on teacher-child interactions was mediated by their professional development. Based on these results, we suggest the importance of early childhood teachers' intrapersonal intelligence as not only a direct but also an indirect factor affecting teacher-child interactions. We also aruge that early childhood teachers' professional development would be enhanced through teacher workshops or trainings dealing with intrapersonal intelligence, which in turn affect the qualith of their interactions with young children.

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