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The Effects of Early Childhood Teachers' Professional Development and Grit on Their Teacher-Child Interactions

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Abstract

The purpose of the study was to examine the effects of early childhood teachers' professional development and Grit on their teacher-child interactions. The subjects were 363 early childhood teachers working at kindergartens or childcare centers of South Korea. We used self-reporting survey questionnaires to measure the major variables and utilized the SPSS 28.0 Program to analyze the collected data. Cronbach's alphas were calculated and the descriptive statistical analyses were conducted. To investigate the research questions, Pearson's correlation analysis and multiple regression analysis were done. As results, the higher early childhood teachers' professional development and Grit were, the higher their teacher-child interactions were. Early childhood teachers' professional development and Grit were found to have positive effects on their teacher-child interactions, which showed that professional development and Grit would predict the quality of interactions between teacher and young children. Based on these results, we suggest the importance of early childhood teachers' professional development and Grit so that they practice excellent interactions with young children in order to support development and learning through play.

Keywords: Early Childhood Teachers, Teacher-Child Interactions, Professional Development, Grit

1. INTRODUCTION

The major characteristics of 2019 Revised Nuri Curriculum, the nation-wide curriculum of South Korea, are child-centered and play-centered. In order for early childhood teachers to plan and to operate the Nuri Curriculum well, their roles of observing and supporting young children's play in various contexts are required [1]. Among the various roles of teachers, high-quality interactions between teachers and young children are major variables that affect children's development, play commitment, and learning through play [2]. Therefore, teacher-child interaction is an important factor in determining the success of early childhood curriculum.

Early childhood teachers' professional development has been studied as a variable affecting their teacher-child interactions [3]. Baek and Cho defined teachers' professional development as a variable in which a teacher possesses knowledge, teaching, and learning skills, understands one's developmental characteristics, and develops an attitude toward others [4]. Early childhood teachers' professional development encompasses various aspects of thinking level, cognitive process, and self-concept. Three sub-factors that compose early childhood teachers' professional development are knowledge and skills, self-understanding, and ecological context [4].

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According to the results of previous studies, the higher early childhood teachers' professional development, the more active and desirable their interactions with young children [5-7]. In addition, it was found that early childhood teachers' efforts to understand their professional development and to increase their professional knowledge and expertise improved their level of teacher-child interactions [8, 9]. These findings provide evidence that early childhood teachers' professional development is an important factor to enhance the quality of teacher-child interactions.

On the other hand, research related to the teacher-child interactions has focused on various internal variables of early childhood teachers, and one of variables that have recently attracted attention is Grit. Grit is the new psychological concept suggested by Angela Duckworth of the University of Pennsylvania. She received a doctoral degree in psychology under advice of Martin Seligman, the founder of positive psychology. According to Duckworth and her colleagues, Grit is defined personality traits that strive to achieve [10]. Two sub-factors of Grit are 'continuous interest' and 'steady effort.' 'Continuous interest' refers to the consistency of maintaining interest without losing interest while achieving long-term goals, and 'steady effort' refers to the degree to which one continuously strives to achieve one's goal by enduring disabilities and difficulties [10].

After Duckworth published her first book on Grit in 2016, it has become widely known to the public and academically studied in various fields. The first Korean study on Grit in the field of early childhood education was conducted in 2017 by Lee, Tak, and Lee [11]. They investigated and categorized the Grit of pre-service early childhood teachers. In 2019, the first Korean study on in-service early childhood teachers' Grit was conducted by Jang and Kim [12]. Jang and Kim revealed that early childhood teachers' Grit influenced their intention to turnover [12]. After that, a few studies on the relation between Grit and teacher-child interactions has found that the higher the Grit level of early childhood teachers, the more active their interactions with young children take place [13, 14]. Furthermore, teachers with a high Grit level can increase the level of interactions by using more positive strategies when interacting with young children [15-17]. Therefore, we speculate that teachers with higher levels of Grit would practice qualitative interactions with young children during operating the curriculum.

Based on the results of the previous studies, we focused on the importance of early childhood teachers' teacher-child interactions and studied the related variables. The purpose of the study was to examine the relations between early childhood teachers' professional development, Grit, and teacher-child interactions, and to investigate the effects of professional development and Grit on teacher-child interactions. The research results would provide academic information for the development of teacher education programs. The research questions are as follows.

Research Question 1. What are the correlations between early childhood teachers' professional development, Grit, and teacher-child interactions?

Research Question 2. What are the effects of early childhood teachers' professional development and Grit on their teacher-child interactions?

2. RESEARCH METHODS

2.1 Subjects

The subjects of this study were 363 early childhood teachers who worked at kindergartens and childcare centers in Metropolitan area of South Korea. A simple random sampling technique was used to include the subjects. The subjects' background information are as follows. 94.8% ($n = 344$) were females and 5.2% ($n = 19$) were males. In terms of the ages, 5.0% ($n = 18$) were under 25 years old, 27.3% ($n = 99$) were 25-29 years old, 35.3% ($n = 129$) were 30-35 years old, 16.8% ($n = 61$) were 36-40 years old, and 13.5% ($n = 49$) were over 40 years old. As for the educational levels, 2.2% ($n = 8$) graduated from high school or teacher training centers, 27.3% ($n = 99$) graduated from a 2-3 year college, 36.9% ($n = 134$) graduated from a 4 year college, and 33.6% ($n = 122$) graduated from graduate schools. 54.8% ($n = 199$) worked at kindergartens and 45.2% ($n = 164$) worked at childcare centers as room teachers for 3-5 years olds. In teaching experiences as early childhood teachers, 11.0% ($n = 40$) worked for under 3 years, 23.4% ($n = 85$) worked for 3-4 years, 18.4% ($n = 67$) worked for 4-5 years, 14.6% ($n = 53$) worked for 5-6 years, 10.8% ($n = 39$) worked for 6-7 years, 7.2% ($n = 26$) worked for 7-8 years, 4.6% ($n = 17$) worked for 8-9 years, and 2.9% ($n = 11$) worked for 9-10 years.

= 67) worked for 5~6 years, 19.6% ($n = 71$) worked for 7~9 years, 19.6% ($n = 71$) worked for 10~14 years, and 8.0% ($n = 29$) worked over 15 years.

2.2 Instruments

All items were scored on a 5-point Likert scale ranging from 1 (totally disagree) to 5 (totally agree).

Teacher-Child Interactions (TCI). We used a 30-item scale developed by Lee [18]. The scale consists of three sub-scales: Verbal interactions (10 items), behavioral interactions (10 items), and emotional interactions (10 items) [18]. A sample item is “I demonstrate for children first rather than instructing them.” Cronbach’s alphas were .93 for emotional interactions, .87 for verbal interactions, .83 for behavioral interactions, .79 for the total.

Professional Development (PD). We used a 55-item scale developed by Baik and Cho [4]. The scale consists of 3 sub-scales: Knowledge and skills (27 items), self-understanding (13 items), and ecological context (15 items). A sample item is “I understand young children’s interests and needs.” Cronbach’s alphas were .96 for knowledge and skills, .94 for self-understanding, .89 for ecological context, and .89 for the total.

Grit. We used the Korean version of the Grit-O [10, 18]. Grit-O was originally developed by Duckworth et al. and translated into Korean by Lee [10, 19]. The scale consists of 12 items and 2 sub-factors: Consistency of interests (6 items) and perseverance of effort (6 items) [10, 18, 19]. A sample item is “I have achieved a goal that took years of work.” Cronbach’s alphas were .80 for consistency of interests, .85 for perseverance of effort, and .78 for the total.

2.3 Data Collection Procedure

The study was conducted by distributing and collecting questionnaires from early childhood teachers working in kindergartens and childcare centers in the metropolitan area in South Korea from December 25, 2023, to January 11, 2024. The research subjects were selected through random sampling to ensure a diverse representation of the types of early childhood education institutions and the age groups they are responsible for. After obtaining cooperation from principals of early childhood education institutions, we explained the purpose and intent of the study, and then obtained consent from the subjects. The questionnaires were distributed either paper or online (Google Forms). A total of 371 questionnaires were collected. After excluding eight questionnaires with missing responses, 363 questionnaires were used as the data for analyses.

2.4. Statistical Analysis

The data were analyzed using SPSS 28.0. First, descriptive statistical analyses of frequencies and percentages were conducted to understand the general characteristics of the research subjects. Second, Cronbach’s alpha coefficients were calculated to verify the reliability of the scales used in the study. Third, descriptive statistical analyses of means and standard deviations were conducted to examine the trends in early childhood teachers’ professional development, Grit, and teacher-child interactions. Fourth, Pearson’s correlation analysis was performed to investigate the correlations between professional development, Grit, and teacher-child interactions. Finally, multiple regression analysis was conducted to analyze the effects of early childhood teachers’ professional development and Grit on their teacher-child interactions.

3. RESULTS AND DISCUSSION

Before data analysis was conducted, data screening was performed to investigate the missing values, outliers, and normality. Since the skewness values varied from $-.33$ to $.16$ and the kurtosis values from $-.36$ to $-.22$, we assumed there was no issue on normality of the data (Table 1). As seen on Table 1, the subjects showed a relatively high level of professional development ($M = 4.15$, $SD = .41$), a moderate level of Grit ($M = 3.53$, $SD = .54$), and a relatively high level of teacher-child interactions ($M = 4.26$, $SD = .38$)

Table 1. Descriptive statistics and correlations between major variables (N = 363)

Variables	①	②	③
① Professional development			
② Grit	.44**	-	
③ Teacher-child interactions	.78**	.46**	-
M (SD)	4.15 (.41)	3.53 (.54)	4.26 (.38)
Skewness	-.33	.16	-.19
Kurtoses	-.34	-.36	-.22

** $p < .01$

For the first research question, Pearson's correlation analysis was conducted. As shown in Table 1, early childhood teachers' teacher-child interactions had a statistically significant positive correlation with professional development ($r = .78, p < .01$) and Grit ($r = .46, p < .01$). Early Childhood Teachers' professional development also showed a statistically significant positive correlation with teacher-child interactions ($r = .44, p < .01$). These results support the previous studies [5-7, 13, 14, 19-24]. Specifically, the finding that early childhood teachers with higher levels of professional development exhibited higher levels of teacher-child interactions supports the results of previous studies conducted on early childhood teachers [5-7] and childcare center teachers [20-22]. In addition, the finding that early childhood teachers with higher Grit levels exhibited higher levels of teacher-child interactions supports the results of previous studies conducted on early childhood teachers [13, 14] and childcare teachers [23-25]. This indicates that when early childhood teachers perceive a high level of teacher professionalism and their Grit, it positively influences their teaching methods by establishing their identity as teachers and enables them to flexibly handle various problems and situations arising in their work. These procedure, eventually, would enhance the level and quality of teacher-child interactions. Therefore, we suggest the need to provide related programs and training opportunities for early childhood teachers in order to enhance professional development and Grit.

For the second research question, the analysis of multiple regression was conducted. Since *VIF* (1.27) and tolerance (.78) were within acceptable limits, we assumed there was no issue of multicollinearity. In order to examine the effects of early childhood teachers' professional development and Grit on their teacher-child interactions, professional development and Grit were input as the independent variables and teacher-child interactions as the dependent variable in multiple regression analysis.

Table 2. Effects professional development and Grit on teacher-child interactions (N=363)

Variables	Teacher-child interactions			
	<i>B</i>	<i>S.E.</i>	β	<i>t</i>
(Constant)	1.28	.14		2.24*
Professional development	.67	.03	.77	19.63***
Grit	.07	.06	.65	1.99*

$F = 289.93^{***}$ ($R^2 = .62, Adj. R^2 = .62$)

* $p < .05$, *** $p < .001$

As shown in Table 2, early childhood teachers' professional development and Grit had a statistically significantly positive effect on teacher-child interactions ($F = 289.93, p < .001$). Both professional development ($t = 19.63, p < .001$) and Grit ($t = 1.99, p < .05$) had a statistically significantly positive effect on teacher-child interactions. In terms of the relative influence on the teacher-child interactions, professional development (β

= .77) had a greater influence than Grit ($\beta = .65$). These variables were found to explain 61.5% ($Adj. R^2 = .62$) of teacher-child interactions. Although there have been no previous studies that simultaneously investigated the influence of early childhood teachers' professional development and Grit on teacher-child interactions, the results of this study are in line with the results of previous studies that examined the influence of each factor separately. First, our results support the findings of previous studies that reported a positive influence of teachers' professional development on teacher-child interactions of early childhood teachers [8, 9, 26-28] and childcare center teachers [29-30]. Secondly, the results of this study are consistent with previous studies that reported a positive influence of early childhood teachers' Grit on teacher-child interactions [15, 16, 31]. This indicates that early childhood teachers' professional development and Grit are variables that enhance the quality of teacher-child interactions. Therefore, it is necessary to actively develop relevant education and systematic training programs, and it is desirable to provide teacher professionalism and Grit development programs through various avenues such as pre-service education for prospective teachers at universities or in-service training for in-service teachers.

Finally, it is noteworthy that the perception of teacher professionalism has a greater influence on teacher-child interactions than Grit. This can be interpreted as indicating that the perception of teacher professionalism, which is closely related to the teacher's actual field such as the teacher's role and job performance, has more influence on the level of teacher-child interactions than Grit, which is a personal internal characteristic. Although there was somewhat difference in the degrees of impact, both teacher professionalism perception and Grit were found to be important factors that enhance the level of teacher-child interactions. This suggests the need for the development of systematic training programs that can simultaneously develop teacher professionalism perception and Grit.

4. CONCLUSION

The purpose of the study was to examine the effects of early childhood teachers' professional development and Grit on their teacher-child interactions. The self-report questionnaires were used to measure the major variables with subjects of 363 early childhood teachers. The collected data were analyzed using Pearson's correlation analysis and multiple regression. We conclude that early childhood teachers with higher level of professional development and Grit have a higher level of teacher-child interactions. Early childhood teachers' professional development and Grit, moreover, are verified as the predictor variables for the quality of teacher-child interactions. Even though professional development shows the larger effects than Grit on teacher-child interactions, they both have statistically significant positive effects. Based on these results, we suggest the importance of early childhood teachers' professional development and Grit so that they practice excellent interactions with young children in order to support development and learning through play.

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