

Resilience and Grit of Pre-Service Kindergarten and Elementary School Teachers

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The purpose of this article is to explain the differences in resilience and grit between pre-service kindergarten and elementary school teachers in South Korea. The participants were a total of 222 pre-service kindergarten teachers (n=101) and elementary school teachers (n=121) attending three four-year universities located in Seoul and Gyeonggi-do. Resilience and grit were measured by questionnaires for pre-service teachers. The analysis of the data included calculating the frequency and percentage of the participants, Cronbach's α , the mean, standard deviation, t-test, and multiple regression using the SPSS 20.0 program. According to the results of the research, there were significant differences in resilience and grit between kindergarten and elementary school pre-service teachers. The average score of the pre-service elementary school teachers' resilience and grit were significantly higher. In addition, differences in the analysis of the effects of resilience on grit were identified by separating groups of pre-service elementary and pre-service kindergarten teachers. Specifically, in the pre-service elementary school teachers' group, self-control and positivity (among the sub-areas of resilience) were significant to consistency of interest as a sub-area of grit. Only self-control was significant to perseverance of effort in grit. In the pre-service kindergarten teachers' group, only self-control was significant to consistency of interest in grit. Self-control and positivity were significant to perseverance of effort in grit. These results indicate that there are differences in the relationship between pre-service kindergarten teachers and elementary teachers. Therefore, it is suggested that different strategies are needed to increase the grit of pre-service teachers. The results involve implications for teacher education programs at university regarding the connection of education programs between kindergarten and elementary school.

Key words: *Resilience, Grit, Pre-service teacher, Kindergarten, Elementary school.*

Introduction

Recently, lots of universities preparing for the flood of knowledge from big data and accessible open data in the fourth industrial revolution have been emphasising the necessity to foster learners' professional capacities. They are reducing the limits of physical space in universities so that learners can share the knowledge they want anytime and anywhere. They are also developing customised platforms using AI. Through these efforts, each university is struggling to find proper ways to enhance motivation and create successful curricula for learners' majors.

Grit can be selected with the concept of explaining the professional competency of adult learners, including recent prospective teachers. This involves efforts to pursue goals in the long run and maintaining interest in majors (Duckworth and Gross, 2014). It regards perceived strengths such as positive conditions or characteristics of individual learners (Kim and Shin, 2018). In particular, from a learner's personal perspective, grit has been found to be able to reduce the risk factors that can be experienced in teaching situations, affected by various character stenographs (Kim, 2011). Given this, grit can be identified as an important internal ability to measure in a prospective teacher to predict expertise after graduation.

Duckworth (2016) explains that grit can be generally enhanced in two ways. The first is that a learner can foster grit through self-control or moderation. The second view indicates that grit can be nurtured depending on external environmental factors. On the other hand, the results (Nye et al., 2012) of 60 years of meta-analysis about interests and achievements in the job profession report that most people tend to achieve outstanding abilities when they are interested in what they do. These results suggest that it is important to clearly foster personal interests for success. Additionally, once interests have been established, they can be achieved successfully when the quantity and quality level of practice is satisfied through a deliberate exercise that achieves a desired purpose (Ericsson et al., 1993). These results suggest that psychological characteristics, such as beliefs and motivations for oneself that remain unshakable even in external environmental conditions, may have more fundamental effects.

Depending on these relationships, positive psychology allows us to predict that the characteristic of resilience can have major impacts on grit. Resilience is regarded as one of the personality traits of an individual (Reivich and Shatte, 2003) involving the ability to overcome and successfully adapt (Dyer and McGuinness, 1996). Researchers define the characteristics of resilience as mental immunity to stress or adversity (Luther et al., 2000), the ability to effectively utilise internal and external resources (Polk, 1997), or the ability to transform adversity into a mature experience (Waters and Sroufe, 1983). Resilience changes over time and is affected by the interaction of environmental factors (Rutter, 1985), so it involves personal capacities to overcome and adapt to various conditions or contexts



provided in universities. Although research on the relationship between resilience and grit is insufficient, the results (Culin et al., 2014) indicate that happiness orientation constitutes resilience significantly and impacts on grit. This suggests the necessity to examine the relationship between resilience and grit in depth.

This characteristic of grit has more implications for universities that pursue long-term goals related to majors. Duckworth (2016), who conducted research on Greet, conducted a study on students who entered West Point, such as the U.S. Military Academy. In order to enter West Point, students had to pass very strict criteria, including high school scores, excellent SAT scores, and excellent fitness. They also had to provide recommendations. However, not all students with excellent proficiency graduate, and one out of every 20 students may give up and drop out of school. Usually, students who leave school in the middle of the year quit during hard training in the summer of the first year of admission. He argued that grit was used as a decisive factor in preventing students from dropping out. As a characteristic of overcoming failures and difficulties to achieve long-term goals, grit is the driving force behind maintaining a major in universities even after graduation.

Therefore, universities that train pre-service teachers should include key points to promote grit when preparing their curricula that can be associated with teachers after graduation. This means that grit to pursue long-term goals should be a necessary competency for natural continuity before and after graduation. In this regard, previous research (Robertson-Kraft and Duckworth, 2014) suggests that the grit of beginner teachers predicts their teaching efficacy and their rate of teaching maintenance. The psychological characteristics of teachers contribute to overcoming difficulties and creating opportunities for scaffolding or self-development. This involves good self-control and not easily giving up in difficult situations. These characteristics have implications for ways to improve teachers' professionalism. Therefore, while pursuing the same goal of becoming teachers, there is a need to explore in detail the relationship between pre-service kindergarten teachers and pre-service elementary school teachers who differ in their educational environments or curricula.

However, different educational goals or philosophies, from early childhood education to higher education, can cause differences in teaching methods or content associated with majors in universities. This can have inconsistent implications for prospective teacher education programs. These differences may be more pronounced in transitional periods from early childhood to childhood, from childhood to adolescence, and from adolescence to adulthood. In this regard, Goldstein (1997) pointed out that differences between school classes at the time of transition from early childhood to childhood have caused differences between university majors, which has been a problem for quite a long time. That is, unlike pre-service early childhood teachers in training institutions that mainly learn curricula that focus on child-centred play activities, pre-service elementary school teachers' training

institutions place importance on teacher-centred education. There were also differences in major-related knowledge about early childhood education and elementary education. The words “development” and “activity” were common in early childhood education, and the words “method” and “lecture” were common in elementary education.

In this regard, they pointed out that although it is an institution that trains teachers, the differences in the way children are involved may be significantly different. Although they are pursuing the same goal of being a teacher, pre-service elementary school teachers and pre-service early childhood teachers show differences in their educational environment or curriculum and have different levels of grit and resilience as motivation for learning. Accordingly, this study examines the difference in grit between pre-adults and primary school teachers and examines how this relates to resilience as a personal strength factor.

Materials and Methods

Subjects

Participants were senior students attending three four-year universities in Seoul and Gyeonggi-do. As shown in Table 1, 101 students attending early childhood education majors at two universities and 121 students attending elementary education majors at one university were selected. The demographic backgrounds of the students were as follows: There were 20 males (9.0%) and 202 females (91.0%). Although they were all senior students, specific age differences were shown. There were 134 students aged 21 (60.4%), 61 students aged 22 (27.5%), 20 students aged 23 (9.0%), and 7 students aged 24 or older (3.2%). In particular, this research collected data from senior students who had completed the internship programs about teaching in universities.

Table 1: Backgrounds of Subjects

		Frequency (N)	Percent (%)
Gender	Male	20	9.0
	Female	202	91.9
Age	21	134	60.4
	22	61	27.5
	23	20	9.0
	Over 24	7	3.2
Grade	4	222	100

Instruments:

Resilience

The measurement for resilience was conducted using the Korean Resilience Questionnaire (KRQ-52) scale (Kim, 2011). This was supplemented by modifying the Resilience Quotient Test (RQT) developed by Reivich and Shatte (2003) for adults to suit the Korean context. This scale consisted of 53 questions in total and was divided into three sub-domain areas: self-control, interpersonal skills and positivity. The scale was a five-point Likert scale, meaning the higher the score, the greater the resilience. Cronbach's α was good, as it was found to be .80 in the area of self-control (18 items), .85 in the area of interpersonal skills (18 items), and .88 in the area of positivity (17 items). The maximum-minimum scores were 81-38 in the area of self-control, 90-49 in the area of interpersonal skills, and 85-34 in the area of positivity.

Grit

The grit of the pre-service kindergarten teachers and the pre-service elementary school teachers was measured by modifying and supplementing the instruments developed by Duckworth and Quinn (2009) according to the Korean context. This scale consisted of 12 questions in total and was divided into two sub-domain areas: consistency of interest and perseverance of effort. The scale was a five-point Likert scale, with answers ranging from strongly disagree (1 point) to strongly agree (5 points). Cronbach's α was normal, as it was found to be .73 in the area of consistency of interest (6 items) and .77 for perseverance of effort (6 items). The maximum-minimum scores were 28-6 in the area of consistency of interest and 29-9 in the area of perseverance of effort.

Procedure

I spent about five months conducting a preliminary survey, main survey and statistical processing of the questionnaire from the beginning of February to the middle of June 2019. First, I conducted content value tests of the questionnaire with two experts who majored in early childhood education about a month from February 5 to March 2, 2019. I also conducted a preliminary survey of 23 senior students at the same time. Preliminary investigation confirmed that there were no errors in the contents of the questions, and that the questionnaire measurement took about 15 minutes.

After preliminary investigation, the main survey was conducted from 4 March to 29 May 2019. I conducted the main survey of 130 senior students who had majored in early childhood education at two four-year universities in Seoul and Gyeonggi-do. I also conducted the main

survey of 148 senior students who had majored in elementary education at one four-year university located in Seoul. I excluded 54 unanswered questionnaires in collected samples.

Finally, I conducted a statistical analysis from May 30, 2019 to June 13, 2019. In this process, I analysed a total of 222 samples, excluding two consistently answered questions in one number.

Analysis of Research

The data collected to identify the effects of resilience on grit in pre-service kindergarten teachers and pre-service elementary school teachers was statistically analysed using SPSS 20.0 programs.

First, to identify the demographic backgrounds of the subjects, the frequency and percentage of variables were checked using the SPSS 20.0 program.

Second, to determine the reliability of the items used in the test, Cronbach's α was calculated. The mean, standard deviation, maximum value and minimum value were also checked to determine the overall pattern of each variable.

Third, to verify the differences in resilience and grit between pre-service kindergarten teachers and pre-service elementary school teachers, a t-test was measured.

Finally, to confirm the effects of resilience on grit, multiple regression was used in the pre-service kindergarten teachers' group and pre-service elementary school teachers' group.

Results and Discussion

Differences in the Resilience and Grit of Pre-Service Teachers

The results of the t-test for pre-service kindergarten teachers and pre-service elementary school teachers are shown in Table 2. There were significant differences in resilience and grit between pre-service kindergarten teachers and pre-service elementary school teachers.

First, there were significant differences in self-control ($t=3.22$, $df=220$, $p<.01$), interpersonal skills ($t=2.84$, $df=220$, $p<.01$), and positivity ($t=5.10$, $df=220$, $p<.001$) regarding resilience. These results show that the average scores of pre-service elementary school teachers were higher than pre-service kindergarten teachers.

Next, there were significant differences in consistency of interest ($t=4.69$, $df=220$, $p<.001$) and perseverance of effort ($t=6.01$, $df=220$, $p<.001$) regarding grit. As with the average scores of resilience, the average scores of pre-service elementary school teachers were generally higher.

Therefore, the influences on resilience and grit were analysed separately for pre-service kindergarten teachers and pre-service elementary school teachers

Table 2: Resilience and grit in kindergarten and elementary school pre-service teachers

<i>Variables</i>	<i>Kindergarten</i>	<i>Elementary</i>	<i>t(df)</i>	<i>p</i>
	<i>M(SD)</i>	<i>M(SD)</i>		
Resilience				
Self-Control	62.12(6.63)	65.34(8.03)	3.22(220)**	.002
Interpersonal Skills	68.51(7.21)	71.55(8.50)	2.84(220)**	.005
Positivity	61.83(8.22)	67.58(8.44)	5.10(220)***	.000
Grit				
Consistency of Interest	17.34(3.39)	19.71(4.03)	4.69(220)***	.000
Perseverance of Effort	19.83(3.21)	22.60(3.59)	6.01(220)***	.000

** $p<.01$, *** $p<.001$

The Effects of Resilience on Grit in Pre-Service Elementary School Teachers

As shown in Table 3, the effects of resilience on grit in the group of pre-service elementary school teachers was partly significant.

First, self-control ($\beta = .54$, $p < .001$), interpersonal skills ($\beta = .31$, $p < .01$) and positivity ($\beta = .27$, $p < .01$) in resilience had significant effects on consistency of interest in grit. This result means that the higher the resilience in the group of pre-service elementary school teachers, the higher the consistency of interest in their majors. This supports previous results indicating the higher the resilience, the higher the interests and attentions in a major (Culin et al., 2014). Furthermore, it suggests it is important to plan workshops or pre-service teacher education programs through resilience as one of the measures that can increase the level of interest for pre-service elementary school teachers.

Next, only self-control ($\beta = .34$, $p < .01$) in resilience had a significant effect on perseverance of effort in grit. This means that for pre-service elementary school teachers, the perseverance of effort can be achieved through self-determination. These results support the theory of self-determination (Deci et al., 1991) and should allow universities to develop learning methods that foster self-directed learning skills to maintain efforts.

Table 3: Resilience and grit in elementary pre-service teachers

Variables			B(SE)	β	t	p
Grit	Consistency of Interest	Resilience				
		Self-Control	.27(.05)	.54	5.53***	.000
		Interpersonal Skills	.15(.06)	.31	2.53**	.013
Perseverance of Effort		Positivity	.13(.05)	.27	2.46**	.015
		Self-Control	.15(.04)	.34	3.55**	.001
		Interpersonal Skills	.09(.05)	.20	1.68	.095
		Positivity	.08(.05)	.19	1.82	.072

** $p < .01$, *** $p < .001$

The Effects of Resilience on Grit in Pre-Service Kindergarten Teachers

The effect of pre-service kindergarten teachers' resilience on grit differed from that of pre-service elementary school teachers. Specifically, unlike the pre-service elementary school teachers, pre-service kindergarten teachers showed different significant effects in the sub-areas.

First, self-control ($\beta = .38, p < .001$) in resilience had a significant effect on consistency of interest in grit. This result means that pre-service kindergarten teachers are made through self-control to maintain interest in their majors.

Second, self-control ($\beta = .29, p < .01$) and positivity ($\beta = .30, p < .01$) in resilience had a significant effect on perseverance of effort in grit. These results mean that for pre-service kindergarten teachers, efforts to obtain a major involve the ability to think positively and simultaneously exercise self-restraint.

Finally, it is important to plan to enhance the resilience that reflects differences in majors as a way to grow the grit of pre-service elementary school teachers and pre-service kindergarten teachers.

Table 4: Resilience and grit in kindergarten pre-service teachers

<i>Variables</i>			B(SE)	β	t	p
Grit	Consistency of Interest	Resilience				
		Self-Control	.19(.05)	.38	3.89***	.000
		Interpersonal Skills	.07(.05)	.14	1.24	.219
Perseverance of Effort		Positivity	.08(.05)	.19	1.70	.093
		Self-Control	.14(.05)	.29	3.00**	.004
		Interpersonal Skills	.06(.05)	.13	1.21	.231
		Positivity	.12(.04)	.30	2.73**	.008

** $p < .01$, *** $p < .001$

Conclusion

This study conducted questionnaire measurements on 101 pre-service early childhood teachers and 121 pre-service elementary school teachers to learn about their grit and resilience. The study found that the grit and resilience of the pre-service early childhood teachers and pre-service elementary school teachers were significantly different. In addition, the resilience of pre-service early childhood teachers and pre-service elementary school teachers had a significant effect on grit, but there were differences in the details of those areas.

As the results of this study indicate, grit can be a way to enhance professionalism as a teacher, but it is assumed that it can be formed within different groups. Mostly, students who enter universities with motivation to become teachers vary in their possession of resilience required by the curriculum, atmosphere and physical environment within their major. This may even affect the formation of grit in the execution of long-term goals. The resilient students that have, in particular, aspects of individual motivation, can have a major impact on their grit to maintain long-term goals by overcoming different environmental differences. Therefore, universities that train pre-service early childhood teachers and pre-service elementary teachers need an attempt to strengthen the grit for pre-service teachers through appropriate intervention, education, and modelling that can enhance the resilience of students. To this end, it is necessary to actively utilise the workshops or programs related to majors and related to school environments to develop professionalism.

This study is valuable in that it specifically looks at the individual internal characteristics needed to foster professionalism among students in the future at universities that train pre-service teachers. It is also meaningful in that it has come up with a way to promote the



individual expertise of different teacher training institutions through differences in pre-service elementary school teachers and pre-service kindergarten teachers.

Subsequent research should allow students to look at factors of achievement through personal internal motivations. It is also expected to be necessary for them to study vocational ability when they become teachers after graduation.



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