

## Strength of Character for the Fusion Age “Grit”: Research Trend Analysis: Focusing on Domestic, Master's and Doctoral Dissertations

Jae Sung Kwon<sup>†</sup>

Department of Counseling, Hansei University, Korea  
[k109377@naver.com](mailto:k109377@naver.com)

### Abstract

*Grit, a concept conceived in 2007 by Duckworth and others in the United States, is based on positive psychology that focuses on growth and development through individual strengths. Recently, "Grit", which means patience and enthusiasm for long-term goals, has emerged as a key factor of personality strength. In Korea, Joo-hwan Kim (2013) was the first to conceptualize and study the subject of Grit. However, there have been no overview studies that systematically summarize the overall trends and flow in the research of Grit so far. There have been 147 research papers on Grit published so far in Korea. The purpose of this study was to conduct trend analysis on the subject of Grit by analyzing forty-three (43) master's and doctoral dissertations, thus presenting the direction of future research on Grit through careful analysis. In the studies conducted, it was found that Grit is a very significant variable linked to self-efficacy. It is also a subjective belief that can help an individual achieve his/her educational goals, and go through failure resynchronization. In addition, Grit is very significant as a practical core indicator of how fusion talent is fostered for the fourth industrial revolution. Therefore, there is a need for more in-depth research from the viewpoints of workplace learning, experiential learning, or informal learning, as well as research into Grit characteristics.*

**Keywords:** Grit, Fusion age, Academic achievement, Career preparation behavior, Self-efficacy, Resilience

## 1. INTRODUCTION

Grit (Growth, Resilience, Intrinsic Motivation, Tenacity) is a concept originally defined by psychologist Angela Duckworth and colleagues in the United States in 2007. It was defined as "perseverance and passion for long-term goals". They observed that individuals high in grit were able to maintain their determination and motivation over long periods despite experiences with failure and adversity. It is based on positive psychology that focuses on growth and development through individual strengths [1].

Positive psychology, which is the background of Grit, distances itself from pathological interest in problems and efforts to overcome them. Instead, it focuses on what makes our lives more valuable. In other

words, when positive emotions are formed within people, negative emotions disappear. Therefore, the emphasis is on promoting happiness. Positive psychologists, including Seligman & Peterson [2], have built 24 VIA (Value In Action) classification schemes on 6 virtues as personality strengths. The VIA “strength of character” is a psychological element that defines virtue based on human experience. “Strength of character” in positive psychology has practical applications, not only in the field of psychology, but also in counseling, business administration, education etc. The importance of “strength of character” cannot be overemphasized in the study of positive psychology and its application to individuals and organizations.

Among scholars, Grit has been recognized as an important concept, leading to successful outcomes in psychological development over an entire lifetime. Grit has also been proposed as one of the key competencies for healthy development in the 21st century. The US Department of Education has chosen grit as a critical factor for success in the 21st century [3]. This is coupled with a perspective that emphasizes the importance of non-intellectual ability as well as cognitive ability in academic achievement, career, and professional success. The individual's non-cognitive characteristics that lead to success are receiving attention, because they are easily changed compared to the cognitive characteristics. Individual strengths such as perseverance, effort, and tenacity have long been regarded causes for successful performance, and many research results on the positive effects of grit have been published from a similar perspective.

An enormous revolution has been taking place in industry. It is said that the Fourth Industrial Revolution is based on fusion science. An example of convergent science is STEAM (Science, Technology, Engineering, Arts, Mathematics). This change in paradigm requires us to cultivate creative human resources with multiple problem-solving abilities and convergent thinking. In particular, self-directed learning using smart devices will become increasingly popular.

Thus, the importance of self-regulating ability will greatly increase the achievement of desirable learning [4]. Self-regulation means that a learner controls his or her own learning process and uses appropriate learning processes, procedures, and strategies. Grit is quite similar to sincerity and self-control, but also influences self-regulating ability, self-regulated learning ability, and self-regulated learning efficacy [5]. As mentioned above, it has been suggested that Grit be chosen as a critical factor for success in the United States in the 21st century. In Korea, Ju-hwan Kim [6] conceptualized Grit for the first time in 2013.

## **2. RESEARCH TREND ANALYSIS**

In this study, scholarly works conducted on the subject of grit from 2013 to 2018 were analyzed. To this end, we used electronic databases such as RISS, KISS, DBpia, and the National Diet Library. The first stage involved the searching of keywords such as 'Grit', 'Fighting', and 'Personality Strength' from specialized journals including the Journal of Korean Psychological Association. The results of this search identified 147 research works from both master's and doctoral dissertations.

The 147 research works were then classified into categories which included basic items (title, publication year), presentation style (dissertations for master's and doctoral degrees, professional journals), research field (counseling, psychology, education etc.), research subjects (elementary, middle, and high school students; college students, adults and counselors), the research method used (quantitative research, qualitative research, literature research), the measurement tools.

### 2.1 By Publication Year and by Publication Type (Including journals)

Publications on domestic research on the subject of grit began in 2015, and 87.8% of all studies on Grit were conducted after 2017.

**Table 1. By publication year and by publication type (Including journals)**

Presentation type		2015	2016	2017	2018	Total
Dissertation	Master	1	1		4	6
	Ph.D.	2	5	15	15	37
	Subtotal	3	6	15	19	43
Academic journals		4	5	29	66	104
Total		7	11	44	85	147

### 2.2 Yearly Publications by Research Field

In terms of research fields, the fields of counseling and psychology accounted for 58.2% of all studies, and education accounted for 27.9%.

**Table 2. Number of papers published by research field and year**

Research Field	2015	2016	2017	2018	Total
Counseling, Psychology	2	2	9	12	25 (58.2)
Education	1	3	4	4	12 (27.9)
Others		1	2	3	6 (13.9)
Total	3	6	15	19	43 (100%)

### 2.3 Distribution by Research Subject

All studies, except for one case (on counselors), were about the general public. In terms of distribution, works based on developmental age formed the highest percentage (48.8%), as seen in 21 papers on elementary, middle, and high school students. 13 articles (30.2%) were about university students, and 8 articles (18.6%) were about adults.

**Table 3. Number of papers published by research subjects**

Elementary, Middle and High school students	University Students	Adults	Other	Total
21 (48.80)	13 (30.2)	8 (18.6)	1	43 (100%)

### 2.4 Analysis of Variables Constituting Grit

Quantitative research related to the constituent variables of Grit comprised 76.7% (33 studies). Others were on program development (4), Grit scale development (2), Grit characteristics (4), including one qualitative study on the Grit characterization of Chief Learning Officer.

**Table 4. Number of papers published by research content**

Related Variables Research				Program Development	Grit Scale Development	Grit Characteristics
Career preparation	Academic Achievement	Psychological	Subtotal			
4	11	18	33	4	2	4

The criteria used to measure the components of grit are of critical concern to scholars. Grit can be interpreted as a combination of Guts, Resilience, Initiative and Tenacity [6], as well as a combination of Growth mindset, Resilience, Intrinsic motivation, and Tenacity [7].

Duckworth et al. (2007) divided the constitutive factors of grit into two cases (i.e., 'Perseverance of effort' and 'Consistency of interest'), and developed criteria in order to measure the two. Continuous attention refers to seeking a specific goal and related interest for a long period of time, and a steady effort means persistent effort to achieve the goal. Sincerity and self-control are similar to grit. However, sincerity and self-control assist us in everyday life only through adjusting time taken to achieve a goal, while Grit is *momentum* that enables us to perform goal-oriented acts in the long term. In other words, there is a difference between “the persistence of interest in the goal” and “self-determination” [8]. Ju-hwan Kim presented a sub-component of grit. Kim believes that a person will be able to do better if he tries with his own efforts. Kim believes in growth, and resilience as overcoming difficulties. He has presented four variables of persistence that refers to constantly taking on challenges with a unwavering will, working toward the goal.

The above concepts are linked to each other in the sense that people need to have the ability to grow and to have inherent motive in order to have self-motivating power and self-regulating power with resilience and tenacity. So Grit starts with self-motivating power which has the capacity to foster great achievements.

In Korea, Grit is a concept that has not been introduced yet, so there are very few empirical studies on grit. Therefore, the study of the factors affecting Grit will help elucidate the conceptual properties of grit in theory. It is also expected that investigations will provide the basic data necessary to develop a program to improve Grit in practical terms. The analysis of the variables related to grit reported in Korean dissertations is divided into three categories: career preparation, academic achievement, and psychological well-being.

First, in a study of Grit in regard to career preparation behavior and career decision self-efficacy, Grit significantly influenced career preparation behaviors [9]. grit and career preparation behaviors showed mediating effects of achievement goal orientation [10]. In addition, grit produces a partial mediation effect as a mediator in career decision self-efficacy and career preparation behaviors [11,12].

**Table 5. Grit and career related variables**

Researcher	Independent variables	Dependent variables	Mediator variable
Young-suk Roh [9]	Grit, Career decision self-efficacy	Career preparation behavior	-
Eun-hee Hwang [10]	Social Support	Career preparation behavior	Grit
Soo-jung Kim [11]	Parents attachment	Career decision self-efficacy	Grit
Jeong-won Yoon [12]	Grit	Career preparation behavior	Achievement goal orientation

Second, Grit is reported to be a predictor of academic achievement, learning resynchronization, academic self-efficacy, and class commitment. In a study conducted by Sur-ran Lee [13], carefully planned exercises seemed to control the relationship between grit and academic achievement. Structural equation model validation has provided a mechanism whereby the goal leads to mastery of goals, carefully planned exercises, and leads to excellent academic achievement.

In a study conducted by Na-ri Jang [14], Grit was positively related to enthusiasm and perseverance, which can overcome failures, and participants tended to respond constructively to the situation of failure. In addition, Grit's mediating effect on the adolescents' academic failure tolerance was significant, and Grit increased the influence of control temperament and played a role in academic failure tolerance.

**Table 6. Grit and variables related to academic achievement**

Researcher	Independent variables	Dependent variables	Mediator variable
Su-ran Lee [13]	Grit	Academic achievement	Deliberate practice (moderating effect)
Na-ri Jang [14]	Control temperament	Academic failure tolerance	Grit
Jung-lim Lee [15]	Mindset, Grit	Academic achievement	
Sang-chun Han [16]	Grit	Academic achievement	Academic self-efficacy
Soo-jeong Lee [17]	Grit	Academic self-efficacy, Class immersion	
Jun-soo Park [18]	Attributional feedback	Academic achievement (Mindset, Grit, Self-control)	
Hye-yeon Park [19]	Parent-child communication	Self-determination motivation	Grit
Jin-hee Yoon [20]	Grit	Learning re-motivation	
Seo-jeong Lee [21]	Mindset	Academic self-efficacy	Grit
Hea-won Yang [22]	Dissatisfaction	Academic exhaustion	Grit, Stress
Jeon-guk Han [23]	Parent support	Academic achievement pressure	Grit (moderating effect)

Jung-rim Lee [15] reports that mindset and grit are related, but that mindset cannot be predicted by mindset tendency itself. Also, it is reported that mindset tendency is a very important factor in predicting grit. Sang-chun Han [16] analyzed the mediating effect of academic self-efficacy on the relationship between grit and academic achievement for college students. It was found that grit mediated academic self-efficacy and had a partial impact on academic achievement. The same is true for the study by Soo-jung Lee [17]. In the study by Jun-soo Park [18], the effects of attributional feedback were significant in grit, self-control, and academic achievement. However, the effect of attributional feedback on students with fixed mindset was not significant, and there was an interaction effect between the teacher's attribution feedback and students' grit.

Hye-yeon Park [19] found that there was a difference in the level of self-determination motivation and grit among group types according to parent-child communication and academic achievement pressure. In other words, the difference between the self-determinative and Grit levels of the children is dependent on the combination of parent-child communication level and parents' academic achievement pressure level.

In the study by Jin-hee Yoon [20], there was a difference in the effect of grit on English learning re-motivation depending on English learning achievement of college students. Seo-jeong Lee [21] reported that Grit played a role in the relationship between the growth mindset and academic self-efficacy in a study about the effect of high school student mindset on academic self-efficacy through grit.

The mediating effect and the moderating effect of grit are as follows. In the relationship between dissatisfaction with desire for autonomy on the one hand, and academic exhaustion on the other, Hea-won Yang [22] examined mediating effects of family, parents, academic environment, teachers and school-related stress (including everyday stress and friend-related stress). Grit seems to moderate the relationship between dissatisfaction with desire for competence and stress related to academic and friends, which are subordinate factors of everyday stress. On the other hand, Grit did not moderate the relationship between dissatisfaction with desire for autonomy, desire for relationship, and everyday stress.

Third, Grit has been reported to be a predictor of subjective well-being, self-regulation efficacy, emotional response to negative feedback, organizational commitment, psychological burnout, satisfaction, and habilitation behavior in adversity. In addition, Grit was found to act as a mediator or control variable of happiness, job-crafting, and psychological well-being.

**Table 7. Grit and variables related to self-regulated efficacy, resilience, organizational commitment**

Researcher	Independent variables	Dependent variables	Mediator variable
Sun-young Lee [24]	Optimism	Psychological well-being	Grit
Yoo-min Kim [25]	Parenting attitude	Psychological well - being	Grit
Jung-eun Kim [26]	Grit, Enthusiasm	Subjective well-being	
Ji-young Lee [27]	Grit	Self-regulation efficacy, Immersion	
Soo-kyung Lee [28]	Growth mindset, Fixed mindset	Grit	Resilience
In-hye Baek [30]	Grit	Psychological exhaustion	Mindfulness
Seul-bee Lee [31]	Grit	Emotional response of negative feedback	
Jae-jun Ryu [32]	Grit	Self-determinism, Growth beliefs	A Life goal
Soo-jin Cho [33]	Social support	Happiness	Grit(moderating effect)
Yang-suk Han [34]	Grit	Characteristic capability belief, Resilience, Intrinsic motivation	
Jae-yeol Lee [35]	University entrance type	Type of college life adjustment, Grit, Mindset	
Myung-hee Won [36]	Grit	Organizational commitment	Self-directed learning capability
T,Tsung Hsin [37]	Spiritual leadership	Job-crafting, Psychological empowerment	Grit(moderating effect)
Jin-young Joo [38]	Grit	Leisure persistence, leisure satisfaction	Life satisfaction
Yoeng-mee Lee [39]	Stress, Failure experience	School happiness	Grit(moderating effect)
Hee-eun Kim [40]	Grit, Stress coping style	Performance Confidence	
Hyun-seop Kwon [41]	Grit	Grit productivity	
Young-ju Ryu [42]	Grit	Reward behavior in adversity	Success experience

First, The study of grit as a predictor of psychological well-being is as follows: Sun-young Lee [24] revealed the correlation between optimism, Grit and psychological well-being, and examined the mediating effect of grit in the relationship between optimism and psychological well-being.

Grit showed a significant difference according to gender, age, final education, occupation, and position. There was no significant difference in the number of years of work. The higher the level of optimism, the higher the Grit level and psychological well-being, and the higher the passive grit level, the higher the psychological well-being. Also, Grit was found to have a significant partial mediating effect on the relationship between optimism and psychological well-being.

Yoo-min Kim [25] focused on the parenting attitude of parents, environmental factors, grit and basic psychological desire satisfaction which are personal internal factors for the improvement of early good will in adulthood. All direct and indirect pathways for positive and negative parenting attitudes, grit, basic psychological needs, and psychological well-being were statistically significant.

These results suggest that the positive rearing attitude of parents supports the development of grit characteristics and that grit maintains and promotes high psychological well-being through satisfaction with basic psychological desire, whereas negative attitude of parents reflects the opposite result. In a significant finding from international comparison of subjective well-being in the study by Jung-eun Kim [26], Korea's level of subjective well-being was steadily low despite of objective achievement levels in various fields such as economy and education.

In a group of US college students, there was a statistically significant positive correlation between persistence of interest and enthusiasm, a statistically significant negative correlation between persistence of interest, and compulsive passion. But in a group of Korean college students, there was no significant correlation between interest persistence, harmony, and compulsion passion. In both groups, the concepts of grit and enthusiasm were found to be well distinguished. However, there was a significant difference in the

predictive power of subjective well-being between the persistence of interest and enthusiasm according to cultural context and persistence of interest.

Studies on grit, self-regulated efficacy, resilience, and psychological exhaustion are as follows: According to the research conducted by Ji-young Lee [27], Grit's paths to college students' actual effort and self-regulated efficacy were statistically significant. Utilizing the relationship between grit and difficult task performance, they tried to test mediating effects of self-regulated efficacy and harmony of challenge and function, but the mediating effects of self-regulated efficacy and harmony of challenge and technique were not significant. However, it was found that through the harmony of self-regulated efficacy, challenge, and technology, the dual mediating effects to the actual effort, performance score, and enjoyment of immersion were significant.

According to a study by Soo-kyung Lee [28] analyzing mediating effects of resilience in the relationship between growth mindset, fixed mindset and grit, the correlations between the variables were statistically correlated with the results of previous studies. The higher the level of grit, the higher the fixed mindset; the lower the level of grit, the lower the fixed mindset [29].

According to a study by In-hye Baek [30], in the mediating effect of the mindfulness of the relationship between grit and psychological exhaustion of an inexperienced counselor, grit as the independent variable explained the mediating variable of mindfulness as a mediating effect, and grit significantly influenced psychological burnout. In the relationship between grit and psychological exhaustion of the novice counselor, it was assumed that mindfulness would show perfect mediation, but it showed only partial mediation effect. The degree to which mindfulness explains the relationship between grit and psychological exhaustion is significant, but it is not effective enough to offset the path directly.

In a study by Seul-bee Lee [31], the higher the grit, the less negative emotions at the time of recall, and more positive emotions are evident, which means that in spite of the negative feedback, the pattern of response from the subject will be different. Grit-high people tend to react positively over time even if they are in a negative situation.

According to Jae-jun Ryu [32], the path analysis, from variables in grit, self-determinism, and growth beliefs of elementary, middle and high school students showed that the route from self-determinism to grit is statistically significant. This implies that the intrinsic motivation raised by self-determinism has a positive effect on grit. It also shows that autonomy, a factor of basic psychological desire, has a positive effect on grit which is highly-related to intrinsic motivation.

Soo-jin Cho [33] claims that there is a high correlation among all sub-factors of happiness (self-confidence, positive emotions, and self-control), and that parents' social support perceived by middle school students has an effect on 'self-confidence' which is a sub-factor of happiness. She reports that the grit plays a role of meditating effect.

## **2.5 Grit Scale development study**

There have been two examples of research on the development and validation of the Grit Scale; one is the validation of the Korean version of the Grit Scale and the other is development and validation of the Grit Scale for adolescents. Duckworth et al. [43] developed a questionnaire for the original Grit Scale (Grit-O) in order to measure 12 questions with the new concept of grit. The questionnaire consists of two sub-factors, perseverance of effort and consistency of interest.

Since there had been no scales to measure Korean Grit, Hee-myung Kim [44] conducted a study, based on the translation of the original Grit Scale (Grit-O) developed by Duckworth et al.(2007), in order to verify reliability and validity by comparing the criterion validity of learning motivation as similar concepts and self-controllability.

Hyun-hee Lim [45] developed an academic Grit Scale for adolescents. The purpose of the study was to develop a scale of 23 items (consisting of 10 items of academic passion, 6 items of academic tenacity, and 7 items of academic interest), by comparing 1,454 middle and high school students.

### 3. CONCLUSION

The learner required by the 4th industrial revolution era must be able to play an active and creative role as the main entity of education. Learners with high self-efficacy are known to be more flexible in creative thinking compared to ones with low self-efficacy.

In previous studies, it was found that Grit is a very significant independent variable affecting academic achievement, subjective beliefs (in accomplishment, failure resynchronization, and so on), self-efficacy, and self-controllability. Therefore, there is a need for more in-depth studies on aspects such as workplace learning, experiential learning, and informal learning as well as grit characteristics. Grit should become a practical key indicator of the outstanding individuals of the 4th industrial revolution.

Grit has been reported as a significant predictor of career preparation behavior, subjective well-being, self-regulated efficacy, and attempting behavior in adversity.

Since grit is a concept that has been introduced recently, it can be seen that the factors affecting grit and the factors affected by Grit are in the process of being identified. Therefore, it is of utmost importance to develop the constitutional variables of grit more clearly, through various empirical studies such as longitudinal analysis. Furthermore, it is also desirable to study the negative experiences of grit.

Grit is beneficial in most cases, but it can sometimes fail. Grit is beneficial only when it is used effectively by proper judgment. To date, studies on grit and influence by leaders in large organizations (such as corporations) are as yet insufficient. It is important to note that Grit is an important concept leading to successful outcomes of psychological development throughout one's life. Therefore, it is necessary to further expand the social effectiveness of grit characteristics by diversifying research subjects (such as organizational leaders, counselors, specialists, and experts who may have a high impact on individuals).

Finally, there is need for more research in order to develop and test an effective scale not only for academic measurement but also for more diverse subjects.

### REFERENCES

- [1] Duckworth A. L. Peterson, C. Matthews, M.D., & Kelly, D.R., "Grit: Perseverance and passion for long-term Goals." *Journal of Personality and Social Psychology*, 92 (6), p. 1087, 2007.
- [2] Peterson, C., & Seligman, M. E., *Character strengths and Virtue*. A handbook and classification. New York, NY: Oxford University Press, 2004.
- [3] Shechtman, N., DeBarger, A. H., Dornsife, C., Rosier, S., & Yarnall, L., "Promoting grit, tenacity, and perseverance: Critical factors for success in the 21st century." *Washington, DC: US Department of Education*, 2013.
- [4] Sun-young Lee, "Educational Psychology in the Age of the 4th Industrial Revolution." *The Korea Educational Review*, 217.3. Vol. No. 1, pp. 231-260.
- [5] Young-ran Yu & Ji-won Yu & Hyun-kyung Park, "The Significance of Grit". *Journal of The Korean Society for Educational Technology Conference Catalog*, Vol. 2015 No.1, pp.116-116, 2015.
- [6] Ju-han Kim, *Grit: A study that proves potential as a skill, as a result of a grade, as a result*. Paju: Sam & Parkers, 2013.
- [7] Thaler, L. K., & Koval, R., *Grit to great*. New York: Crown Business, 2015.
- [8] Duckworth, A. L., & Gross, J. J., "Self-control and grit: Related but separable determinants of success." *Current*



- Directions in Psychological Science*, 23(5), pp. 319-325, 2014.
- [9] Young-suk Roh, *The Effects of High School Students' Grit and Career Decision-making Self-efficacy on Their Career Preparation Behavior*, MA. Thesis. The Graduate School of School of Education Yonsei University, 2016.
- [10] Eun-hee Hwang, *Influence of Social Support on Career Preparation Behaviors and the Mediating Effects of GRIT in College Students*, MA. Thesis. The Graduate School of Education Chung-Ang University, 2017.
- [11] Soo-jung Kim, *Mediation Effect of Grit between Parental Attachment and Career Decision-making Self-efficacy of High School Students*, MA. Thesis. The Graduate School of Education, Kookmin University, Seoul, Korea, 2017.
- [12] Jeong-won Yoon, *The Influence of University Students' Grit upon Career Preparation Behavior and Mediating Effect of Achievement Goal orientation*, MA. Thesis. The Graduate School of Chung-Ang University, 2017.
- [13] Su-ran Lee, *Effects of grit, deliberate practice and contingencies of self-worth on academic achievement*, MA. Thesis. The Graduate School of Yonsei University, 2015.
- [14] Na-ri Jang, *Effect of Grit on relationship between Temperamental Effortful Control and Academic Failure Tolerance*, MA. Thesis. The Graduate School Seoul National University, 2018.
- [15] Jung-lim Lee, *An Analysis of Structural Relationship among Locus of Control, Mindset, Grit, and Academic Achievement*, Ph. D. Thesis. The Graduate School of Andong National University, 2016.
- [16] Sang-chun Han, *The Mediating Effect of Academic Self-Efficacy on the Relationship between Grit and Academic Achievement of the University Students*, MA. Thesis. The Graduate School of Education Chonbuk National University, 2017.
- [17] Soo-jeong Lee, *The Effect of Students' Grit on Academic Self-efficacy and Class Engagement for Physical Education Classes*, MA. Thesis. The Graduate School of Education Dankook University, 2018.
- [18] Jun-soo Park, *Achievement according to Mindset, Grit and Self-Control Department of Education*, MA. Thesis. The Graduate School Seoul National University, 2017.
- [19] Hye-yeon Park, *Differences in Self-determined Motivation and Grit based on group clustering by Parent Child Communication and Academic achievement Pressure by parents*, MA. Thesis. The Graduate School of Education, Gyeongin National University of Education, 2018.
- [20] Jin-hee Yoon, *The Relationship Between Korean University Students' GRIT, Demotivation, Remotivation in Learning English and English Learning Achievement*, MA. Thesis. The Graduate School of Education Chung-Ang University, 2018.
- [21] Seo-jeong Lee, *The Effects of Mindsets on Academic Self-Efficacy of High School Students Mediated by Grit: Multi-Group Analysis According to Whether the Students Gave Up on Mathematics or Not Department of Education*, MA. Thesis. The Graduate School of Ewha Womans University, 2018.
- [22] Hea-won Yang, *The Effects of Middle School Student's Dissatisfied Basic Psychological Needs and Daily Stress on Academic Burnout : The Moderated Mediating Effect of the Grit*, MA. Thesis. The Graduate of Kyeongnam University, 2017.
- [23] Jeong-uk Han, *The Effects of Middle School Students' Perception of Parental Support and Academic Achievement Pressure on their Grit*, MA. Thesis. The Graduate School Gyeongnam University of Science and Technology, 2017.
- [24] Sun-young Lee, "Educational Psychology in the Age of the 4th Industrial Revolution." *The Korea Educational Review*, 217.3. Vol. No. 1, pp. 231-260.101, 2017.
- [25] Yoo-min Kim, *The relationship between Perceived Parenting Styles and Psychological Well-Being mediated by Grit and Satisfaction of Psychological Basic Needs in Early Adulthood*, MA. Thesis. The Graduate School of Ewha Womans University, 2018.
- [26] Junge-un Kim, *An Examination on the Discrimination Between Grit and Passion and on the Relationship Between Grit, Passion and Subjective Well-Being: Assessing Cross-Cultural differences through use of multiple-group analysis*. MA. Thesis. The Graduate School of Ewha Womans University, 2017.
- [27] Ji-young Lee, *The role of Self-Regulatory Efficacy and Flow in the relationship between Grit of Undergraduate students and The Difficult Anagram Task Performance*, MA. Thesis. The Graduate School of Ewha Womans University, 2017.
- [28] Soo-kyung Lee, *A study on relationship between Growth Mindset, Fixed Mindset and Grit of young adults: The*

- Mediating Effects of Resilience*, MA. Thesis. The Graduate School of Ewha Womans University, 2016.
- [29] Jung-lim Lee, *An Analysis of Structural Relationship among Locus of Control, Mindset, Grit, and Academic Achievement*, Ph. D. Thesis. The Graduate School of Andong National University, 2016.
- [30] In-hye Baek, *The Relationship between Novice Counselor's GRIT and Burnout: The Mediation Effects of Mindfulness*, MA. Thesis. The Graduate School of Catholic University, 2018.
- [31] Seul-bee Lee, *Grit as a Buffer against Negative Feedback: The Effect of Grit on Emotional Responses to Negative Feedback*, MA. Thesis. The Graduate School of Yonsei University, 2017.
- [32] Jae-jun Ryu, *Moderating Effects of Life Goal in the Relationship among Grit, Self-Determination, Growth Mindset*, MA. Thesis. Graduate School of Seoul National University of Education, 2018.
- [33] Soo-jin Cho, *An Effect of Parents' Social Support on Middle School Students' Happiness: The Moderating Effect of Grit*, MA. Thesis. The Graduate School of Education Yonsei University, 2017.
- [34] Yang-suk Han, *The Relationship Study on Grit, the Individual factors of Grit, the big-five personality factors of the Gifted Student in Elementary School*, MA. Thesis. The Graduate School of Incheon National University, 2015
- [35] Jae-yeol Lee, *A study on the Analysis Differences of College Students' College Life satisfaction, Grit and Mindset According to the College Admission, Types*, MA. Thesis. The Graduate School of Education Kyonggi University, 2017.
- [36] Myung-hee Won, *The Influence of Grit on the Organizational Commitment and The Meditating Role of Self-directed Learning Competency of The members from Public Institutions*. MA. Thesis. The Graduate School of Chung-Ang University, 2017.
- [37] Tsung Hsin, Tsang, *The Effect of Spiritual Leadership on Job Crafting: the Mediating Effect of Psychological Empowerment and Moderating Effect of Procedural Justice and Grit in the Workplace*, MA. Thesis. The Graduate School of Korea University, 2017.
- [38] Jin-young Joo, *The Effect of the Grit of public bicycle users as leisure sports on Life Satisfaction, Leisure Continuance and Leisure Satisfaction*, MA. Thesis. The Graduate School Ewha Womans University, 2018.
- [39] Yoeng-mee Lee, *The Effects of Middle School Student's Daily Stress and Failure Experience on Happiness : Moderating Effect of the Grit*, MA. Thesis. The Graduate School of Education Kyeungnam University, 2018.
- [40] Hee-eun Kim, *The Structural Relationship among Performance Self-Confidence, Mastery Goal Orientation, Grit and Stress Coping Style of University Students Majoring In Performing Arts*, Ph. D. Thesis. The Graduate School of Jeonju University, 2018.
- [41] Hyun-seop Kwon, *A Study on the Effects of GRIT by the Life Planner on Productivity : Centrally of the Mediating Effect of KASH*, MA. Thesis. The Graduate School of Hoseo University, 2018.
- [42] Young-ju Ryu, *How Grit Develops and Shows: On the Relationship with Effort-Reward Imbalance, Pre-Task Trial, And Re-Challenge in Unsolvable Task*, MA. Thesis. The Graduate School Ewha Womans University, 2018.
- [43] Duckworth, A. L., & Quinn, P. D., " Development and validation of the Short Grit Scale (GRIT-S)". *Journal of Personality Assessment*, 91 (2), pp. 166-174, 2009.
- [44] Hee-myeong Kim, *A Study on the Validation of the Korean Grit Scale*, MA. Thesis. The Graduate School of Education Gyeongin National University of Education, 2015.
- [45] Hyun-hee Lim, *The Development and Validation of Academic Grit Scale for Adolescents*, Ph. D. Thesis, The Graduate School of Gyeongsang National University, 2018.