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The Mediating Effect of Grit in the Relationship between Calling and Academic Achievement and Career Stress

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Abstract

In this paper, we show the career path of college students from the perspective of positive psychology. Specifically we conducted the study to investigate a role of grit in the relationship between college students' occupational calling and academic achievement and career stress. 151 college students participated in this study and they completed the Korean version of the Calling and Vocational Questionnaire, Grit Scale, and Career Stress Scale. To assess their academic achievement, participants agreed to obtain their GPA from online system. The results of this study showed that occupational calling had a positive correlation with academic achievement and negatively correlated with career stress. In addition, it was confirmed that grit mediated the relationship between calling and academic achievement and career stress. Based on these results, the positive effects of occupational calling of college students, implications of this study, and suggestions for future research are discussed.

Keywords: College Students, Occupational Calling, Grit, Academic Achievement, Career Stress

1. INTRODUCTION

As people's interest in work increases, research on calling and career in various disciplines ranging from career and counseling psychology to industrial and organizational psychology, and business administration has been conducted. Occupational calling means a sense of purpose in which one experiences internal satisfaction or fullness through one's work and job, and considers that the positive effects of one's devotion can affect not only the individual but also the society in which he or she belongs [1]. In the early stages of the study, occupational calling was understood as a concept of strong Christian color, only in the narrow sense of being called of God [1]. However, as interest in concepts such as career and occupational psychology, industrial and organizational psychology, and business administration has increased in earnest, it is being used as a concept independent of religion [2].

Occupational calling has been found to have a positive relationship with work and life-related variables including meaning of work, job satisfaction, job commitment, and life satisfaction [3]. This result is not just for people in any particular occupation, but also similar for people in different occupations, including college students, zookeepers, clergy, firefighters, teachers, musicians, counselors, nurses, and social workers [4].

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The college period is a time to prepare for a school-to-work transition from the school scene to the practical issues associated with careers, what they need to do in the future, and what they are called to. This is the most intimate time for college students. In the previous studies on calling of college students, the college students' career decision self-efficacy [5] and major satisfaction were found to predict positive career development. In addition, calling of college students has been reported to have a significant effect on their life satisfaction. Most studies mention the mediating effect through various variables in addition to the direct effect between two variables [6]. More specifically, this study examines the role of grit as a mediator that mediates the relationship between calling, academic achievement, and career stress.

Newly proposed by Duckworth, Peterson, Matthews, and Kelly (2007) [7], the grit is a distinction from sincerity, it is passion and perseverance for long-term goals. Duckworth [7] has argued that in order to cultivate grit, he must have a high degree of purpose, which is closely related to calling mentioned in the work of Wrzesniewski and colleagues [8]. Purpose of people with high level of grit is different from that of ordinary people, and that they have higher-level goals, including prosocial motives. A study by Von Culin, Tsukayama, and Duckworth [9], who examined this relationship, found that grit pursues meaning and engagement rather than pleasure in the process of pursuing happiness. Those who have high level of grit are meant to be closer to prosocial goals that seek meaning rather than to selfish self-goal goals. In addition, a recent study showed that grit mediates the relationship between prosocial motivation and life satisfaction [10]. Researchers also showed that grit has a positive effect on organizational citizenship behavior (OCB) [11]. This suggests that those who are well-established who value pro-social motives and the meaning of work are also likely to have high level of grit, a strong motivation to achieve their planned goals.

Highly conscientious students will also have high level of grit and ultimately high performance. First of all, previous studies related to academic achievement showed that factors such as cognitive ability [12], personality [13], and learning attitude [14] are important. Meaning that cognitive ability is not the only factor affecting academic performance, but also individual's disposition, such as individual effort and attitude toward learning, is also a major factor in predicting academic achievement.

Occupational calling suggests that work or academic performance can be improved by acting as a motivating force to achieve the goal [15]. Indeed, in the study of Woitowicz and Domene [16], calling has shown significant incremental validity in predicting academic motivation while controlling GPA, SES and gender. Duffy et al. [17] also argued that there is a significant positive correlation between calling and academic achievement, in which career decision-making self-efficacy plays a mediating role.

In this study, we focused on the role of grit because it could establish a meaningful relationship between calling and academic achievement. Existing studies related to grit have been found to predict significantly the performance of various subjects such as students, teachers, soldiers, and office workers [7, 18]. Highly educated students have a clear sense of purpose, meaning what they are trying to do now, accompanied by a high level of grit, the motivation and driving force for their hard work.

Duckworth and his colleagues [7] mention grit is related to deliberate practice, which means that those who have high level of grit is precisely aware of his current state and the lack of effort to improve his or her ability to achieve high performance. In a study of Americans, grit best predicted whether or not to complete training for US Army academy students by controlling other individual variables [7]. Grit was found to have significant additional predictive validity in predicting academic achievement after controlling the big five factors [18]. Students with high level of calling are expected to have higher levels of grit and lower their career stress. Hee-Rak Park [19] defines career stress as a stress that an individual can experience due to lack of career-related resources, which suggests that career ambiguity, pressure on career employment, and lack of information on career increase career stress. Like the role ambiguity among the work-related stresses of workers [20], when college students have no clear idea about what they want to do in the future and are ambiguous, they may experience a high level of career stress. College students who have high calling will have low career stress due to ambiguity because their career path is clear.

More specifically, from the perspective of Lazarus and Folkamn [21], who argued that stress depends on how stress is assessed and interpreted, university students practice primary appraisal and secondary appraisal of the career selection process. First, career decision-making is an emotional evaluation, evaluating whether a career decision is positive or negative in relation to one's happiness. Highly conscientious students will feel

positive emotions in this process as they make sense of what their calling is and decide their careers to choose for pro-social purposes. Secondary assessment is the assessment of the resources available to cope with stress. Secondary stages in the career decision-making process of college students are related to the resources needed to determine careers. As mentioned above, students with a high sense of calling have sufficient passion and persistence, that is, high level of grit, so that psychological resources in the career preparation process are sufficient. Hirschi [22] found that people with high level of calling tend to be more immersed in their careers through long periods of self-search.

In the case of a high level of calling for students ahead of their career decisions, they will experience positive affirmations as their career paths are clear, their goals are clear, and their psychological resources, enthusiasm and perseverance according to their career decisions. Their level of grit is also high, so they will not evaluate the career decision process as a stressful event. In the same vein, previous studies showed that college students who had a high level of calling had high career decision-making self-efficacy [5] and mature career attitudes [23], self-resilience showed a high level of career preparation behavior [24]. This study aims to deepen understanding of students' calling and grit by examining the mediating role of grit in the relationship between calling and academic achievement and relationship between calling and career stress.

2. RESEARCH METHOD

2.1. Participants and Procedure

This study was conducted with 151 students currently in college. Of the collected questionnaires, only 136 copies were used as the final analysis data, excluding 15 questionnaires that responded unfaithfully or did not agree with the use of personal information (e.g., GPA). The average age of the participants was 22.47 years (SD = 1.832), of which 53% were male. The majors of participating college students were business administration majors (32.6%), followed by psychology (14.1%) and mechanical engineering (8.9%). Psychological variables such as calling, grit, and career stress were measured during the semester through the questionnaire and participants' GPAs were obtained from online system after receiving their consent.

2.2. Research Tools

2.2.1. Calling

In this study, the Korean version of the Calling and Vocation Questionnaire (CVQ-K) was used. The CVQ-K questionnaire consists of three sub-factors, transcendent summons, purposeful work, and prosocial orientation, and a total of 12 questions with four questions for each sub-factor. As suggested by the original scale, the questionnaire was composed of a Likert 4-point scale of 1 point (do not agree at all) and 4 points (completely agree). The higher the score indicates the higher the level of awareness of the individual's perceived calling. The internal consistency (Cronbach's α) in this study were .78, .77, and .71, transcendent summons, purposeful work, and prosocial orientation, respectively.

2.2.2. Grit

We used the Original Grit Scale (Grit-O) devised by Duckworth, Peterson, Matthews and Kelly [7]. The scale consists of a total of 12 questions, consisting of 6 questions of interest and 6 questions of perseverance (e.g. "I have overcome frustration to conquer important challenges.", "My interests change from year to year."). After translating the 12 questions written in English into Korean, and the bilingual users back translated the Korean questions into English. Then the bilingual users compared the original and Korean versions of the scale. As suggested by the original scale, the questionnaire was composed of 5-point Likert scale, 1-point (not at all) and a 5-point (strongly agree). Higher scores indicate high level of grit. Internal consistency in previous studies ranged from .73 to .83 and in this study, it was .75.

2.2.3. Career Stress

Hee-Rak Park's Career Stress Inventory (CSI) was used to measure the career stress of university students. The scale consists of 25 questions and consists of 5 sub-factors (career ambiguity, pressure on employment, lack of information, external conflict, and internal conflict). The survey was conducted on the 5-point Likert scale, and the responses to the questions were 1-point from "No at all" and 5-point "Strongly Agree." Higher scores mean higher perceived stress on career. In a previous study of college students, the Cronbach's alpha of the scale was .91, and in this study, it was .92.

2.3. Statistical Analysis

The collected data were analyzed using SPSS 24.0 and Mplus 7.4. First, the internal consistency was calculated to analyze the reliability of the measurements, and the mean and standard deviation of the variables in this study were analyzed. Next, the relationship between the key variables was identified through Pearson correlation analysis. Finally, structural equation model analysis was performed to verify the hypothesis of the research model set up in this study. In order to verify the goodness of fit of the research model, χ^2 (chi-square), CFI (comparative fit index), TLI (Tucker-Lewis index), root mean square of approximation (RMSEA), and SRMR (standardized root mean square residual) index were used. Based on the previous studies, interpreting χ^2 only has a problem that responds very sensitively to the number of cases. Therefore, we used the goodness-of-fit indices such as CFI, TLI, RMSEA, and SRMR, which consider the simplicity of the model. In the case of CFI and TLI, .90 and above, and .08 and above were considered acceptable fit, and in the case of RMSEA, .05 and below were very fit, and .05 to .08 were appropriate.

3. RESULTS

The descriptive statistics of calling, grit, and career stress are presented in Table 1. The total scores of each factor and the mean, standard deviation, skewness, and kurtosis of sub-factors were calculated using the SPSS program. As a result, it was confirmed that the measured variables had a normal distribution, since the skewness of all variables did not exceed ± 2 and kurtosis did not exceed ± 7 [25].

Table 1. Descriptive Statistics

variables	mean	SD	kurtosis	skewness
calling	33.37	6.61	-.17	-.31
transcendent summons	10.47	2.96	-.27	-.39
purposeful work	11.92	2.54	-.29	-.25
prosocial orientation	10.98	2.51	-.39	.02
grit	39.96	5.76	-.44	.19
interest	19.05	3.42	-.53	.95
perseverance	20.91	3.99	-.27	-.32
career stress	70.29	17.42	.02	-.09
career ambiguity	14.17	5.18	.09	-1.02
pressure on employment	16.30	4.65	-.23	-.48

lack of information	14.93	5.03	-.10	-.74
external conflict	10.77	3.79	.71	.09
internal conflict	14.11	4.44	.01	-.53
academic achievement	3.42	.46	-.44	-.20

The correlation analysis results of the key variables are presented in Table 2. The results of the analysis showed that there was a positive correlation between calling and grit ($r = .296, p < .01$) and academic achievement ($r = .232, p < .01$). Calling and career stress ($r = -.311, p < .01$) was negatively correlated. Grit was also found to have a positive relationship with academic achievement ($r = .332, p < .01$) and a negative relationship with career stress ($r = -.311, p < .01$). Finally, there was no significant correlation between academic achievement and career stress ($-.037, n.s.$).

Table 2. Correlation Analysis

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. calling	1												
2. transcendent summons	.835**	1											
3. purposeful work	.789**	.440**	1										
4. prosocial orientation	.846**	.571**	.546**	1									
5. grit	.296**	.214*	.281**	.242**	1								
6. interest	.125	.088	.129	.095	.733**	1							
7. perseverance	.320**	.234**	.294**	.27**	.813**	.20*	1						
8. career stress	-.311**	-.214*	-.35**	-.21*	-.31**	-.25**	-.23**	1					
9. career ambiguity	-.353**	-.24**	-.40**	-.24**	-.27**	-.17*	-.24**	.844**	1				
10. pressure on employment	-.328**	-.311**	-.24**	-.25**	-.164	-.19*	-.077	.70**	.525**	1			
11. lack of information	-.258**	-.148	-.30**	-.19*	-.27**	-.165	-.24**	.813**	.577**	.484**	1		
12. external conflict	-.198*	-.113	-.26**	-.123	-.28**	-.22*	-.22**	.654**	.456**	.290**	.429**	1	
13. internal conflict	-.01	.029	-.083	.037	-.19*	-.22**	-.084	.729**	.551**	.289**	.510**	.393**	1
14. academic achievement	.232**	.158	.232**	.187*	.332**	.196*	.312**	-.037	.003	.093	-.123	-.123	.00

Before conducting the structural equation model analysis, confirmatory factor analysis of the measurement model confirmed whether the potential variables were adequately identified at the level of the measurement variables. As a result of confirming the goodness-of-fit index of the measurement model through the confirmatory factor analysis, all of them were found to satisfy the criterion indicating good fitness ($\chi^2 (42, 135)$

= 68.449, $p = .005$, CFI = .927, TLI = .902, RMSEA = .07, SRMR = .077). Based on these results, it was judged that the measured variables of the analytical data used in this study were adequately identifying potential variables.

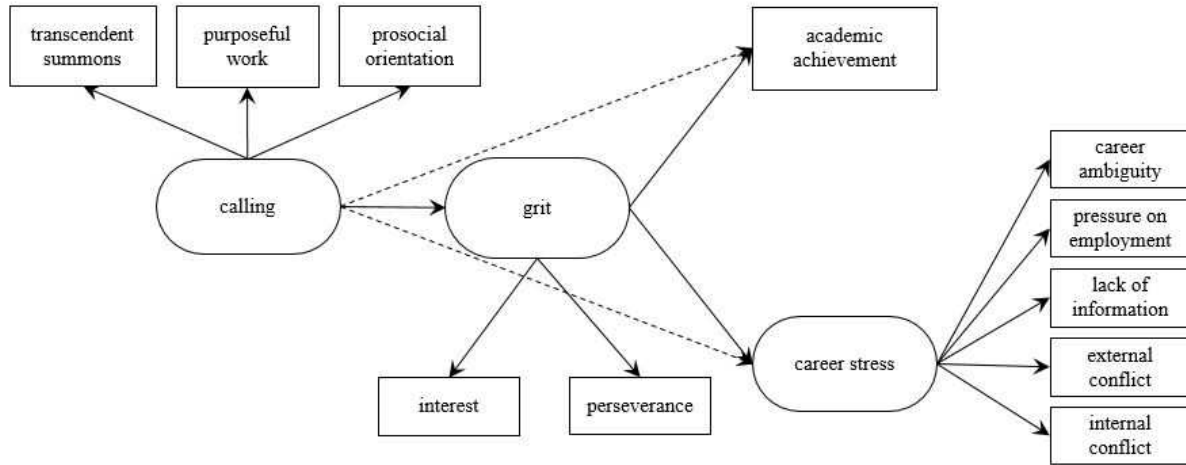


Figure 1. Research Model

Next, as a result of confirming the goodness-of-fit index of the research model, the model goodness-fit level was compared with the goodness-of-fit model based on the existing studies (TLI = .907, RMSEA = .069, SRMR = .064). However, the direct paths of calling and academic achievement ($\beta = -.099$, $p = .694$) and calling and career stress ($\beta = -.126$, $p = .584$) were not statistically significant. In previous studies examining the relationship between calling and job performance, calling has been shown to have a positive effect on job performance through mediating occupational self-efficacy rather than directly affecting job performance [31]. The findings of this study also suggest that students' calling can indirectly reduce career stress through grit and achieve high academic achievement, rather than directly affecting academic achievement and career stress. Therefore, excluding the direct paths of calling, academic achievement and career stress, the simpler model was set as an alternative model and investigated. As a result, the fit of the alternative model was also shown to be good, and there was no significant difference compared to the fit of the partial mediation model ($\chi^2(41, 135)=64.894$, $p=.01$, CFI=.937, TLI=.915, RMSEA=.066, SRMR=.065). Finally, the complete mediation model was adopted as the final model in consideration of model fit index and simplicity. The path coefficients in the complete mediation model adopted as the final model are presented in Table 3.

Table 3. Path Coefficients

path	direct effect			indirect effect		
	β	SE	p	β	SE	p
calling → grit	.591	.106	.000			
grit → academic achievement	.516	.109	.000			
grit → career stress	-.599	.119	.000			
calling → grit → academic achievement				.305	.074	.000
calling → grit → career stress				-.354	.090	.000

4. DISCUSSION

The purpose of this study was to examine the mediating effect of grit on the relationship between calling, academic achievement, career stress among college students. As a result, the higher calling of college students, the higher the grit was, which leads to high academic achievement. The significance of this study is that it was extended from the concept of predicting only variables related to workers such as job satisfaction [26] and job performance [27]. In addition, the calling shows a negative relationship with the career stress of college students, and it was confirmed that grit plays a mediating role even in this relationship. Students with high level of calling are approaching with their meaning and pro-social motives in relation to what they want to do in the future. This can be seen to lower their career stress. In other words, students with high level of calling can be interpreted as experiencing high academic achievement and low career stress through high level grit.

The result that students with high sense of calling show high academic achievement in their studies indicates that calling is not only predictive of subjective job satisfaction, meaning of life, or satisfaction of life but also objective performance. This means that if you want to do something that helps others with a sense of purpose in what you want to do, the outcome can also be positive. People who have a sense of calling have a grit that pushes them with a long term goal, so the outcome can be positive.

Although there are various contributions of this study, it is impossible to overcome the limitations. The first limitation is that academic achievement is measured only by GPA. It is meaningful that academic achievement is collected through objective data rather than self-reporting method, but there is a limitation that academic achievement was not collected by various methods other than the grading. Looking at previous studies related to academic achievement, it can be seen that many studies have used scores to measure academic achievement [28]. Future studies may explore more interesting results if they predict academic performance in a variety of ways, not just grades. Second, although the causal relationship between the variables was assumed, calling, grit, and career stress measured using the assessments at the same time. In the future, longitudinal research design with time-lag measurements will be needed to clarify the causal relationship between the variables. In spite of these limitations, this study examined the effect of their calling on objective academic achievement and subjective career stress in college students. Based on these findings, this study raised the necessity of vocational education that can play a positive role in the objective achievement and subjective perception of college students.

5. CONCLUSION

We suggests the need for an education or training program that can instill a sense of calling in college students, as meaningful results are obtained not only from objective performance results such as academic achievement but also from subjective evaluation such as career stress. College students are faced with a more difficult employment situation than ever before. Rather than choosing a job for a stability or economic reasons, the calling that helps them to find a job that has a sense of mission and meaning can go beyond the satisfaction of college students and increase their academic achievement. As a result, there is a need for a career exploration program that allows students to find out what they consider meaningful. Calling is the attitude of looking at a career that can be developed through education and learning, unlike personality or temperament. If students are given the time to think about and explore their calling from high school, they will be able to study more seriously in choosing a major in college.

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