

Analysis of the relationship between the personality traits of university students and their grit levels

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ABSTRACT

This research aims to examine the relationships between personality traits and the grit levels of university students. Participants of the study are 379 students (304 females, 75 males). The age range of the study group is 18-25. Five-Factor Personality Scale, Short Grit Scale, and Personal Information Form were used as data collection tools in the study. Analysis of the data was performed using the Pearson product moments correlation with the SPSS program and t-test techniques for independent groups. According to the findings obtained from the study, a positive significant relationship was found between liability, openness to experience, extraversion and adaptation personality traits, and grit levels. It's also found that a negative relationship between neuroticism and grit levels. In terms of gender, there was no significant difference between male students and female students in grit levels. However, in terms of gender, it was observed that there was a significant difference between male students and female students in terms of adaptation and openness to experience. The research findings were discussed within the scope of the literature and recommendations were made according to the results.

Keywords: Personality traits, grit, liability.

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INTRODUCTION

When we look at the work of people who are successful in many areas of life, from education to economy, from arts to sports, it is seen that success is the result of an ongoing effort and work (Duckworth, 2006; Duckworth et al., 2011). University education is one of the most important stages in preparing the individual for his/her professional life. The effort made during this period affects professional competence and success levels (Akoğlu and Dalkıranoğlu, 2013; Broadbridge and Swanson, 2005). The grit and determination shown by students are effective in achieving their goals and reflecting their potential to life (Baltaş, 2012; Bazelis et al., 2016, Duckworth, 2006, 2018; Sarıçam et al., 2016).

Grit is one of the basic concepts of the positive psychology approach. The concept of grit was first defined in the literature as the passion and persistence shown to achieve a long-term goal. The sub-dimensions

of the concept of grit were expressed as hope, interest, practice, and purpose (Duckworth, 2006). Grit is a personality trait that can be developed with psychoeducational practices and social context in reaching people's long-term goals (Orji, 2020; Ekinci and Hamarta, 2020; Gamel 2014; Perez, 2015; Chua, Yirong and Yang, 2020). People's grit levels affect their performance and entrepreneurship levels in different fields, especially education (Duckworth, 2006, 2016; Taş and Yılmaz, 2020). Besides, in increasing the levels of happiness, endurance, positive affect, and life satisfaction of people; it is effective in reducing burnout and depression levels (Tang et al., 2021; Siah et al., 2020; Ekinci and Hamarta, 2020; Khan and Khan, 2017; Blalock et al., 2015; Özhan and Boyacı, 2018; Yoncalık, 2018). In general, grit appears to be a good predictor of student success in school life and in other personal,

professional, and competitive situations with high difficulty (Bogin, 2017; Robinson, 2015; Wallace, 2015). However, another important area that researchers direct their studies to clarify individual differences in academic achievement is the personality traits of the students (Aydin Sunbul, 2019).

Common aspects of personality definitions are stated as individual and continuous consistent characteristics that affect human behaviors, emotions, thoughts, and attitudes (Burger, 2006). The relationship between personality and job performance has been a frequently studied research topic in industrial-organizational psychology in the past century (Barrick et al., 2001; Salihoğlu, 2018). Personality traits support the studies in the field of personnel selection, training and development processes of the personnel, and performance evaluation. It will be beneficial for university students to realize their personality traits and to use their existing potential. In addition, personality traits have numerous implications for research and applications in the field of workers' mental health (Barrick and Mount, 1991). In some of these studies, it was concluded that there is a relationship between personality traits of university students, entrepreneurship, subjective well-being, and problem-solving skills (Taş and Yılmaz, 2020; Doğan, 2012; DüNDAR, 2009; Reisoğlu and Yazıcı, 2017). Personality traits and the concept of grit play an important role for university students in their professional and personal lives according to the researches. University students can develop their personality traits with a positive social context (Chua, Yirong and Yang, 2020).

After grit was defined as a concept in the literature, a new discussion arose. Before it gained popularity, its basic psychometric properties were not determined. There must be a difference between liability which is one of the five major personality traits and grit (Ponnock et al., 2020). In this context, the relationship between the grit level of university students and their personality traits such as liability, extraversion, neuroticism, adaptability, and openness to development was examined in this study. Especially the relationship between grit and liability, which is discussed in the literature, was evaluated. There are studies in which there are similarities as well as differences between grit and liability. Grit differs from liability in that it puts more emphasis on endurance. This feature distinguishes it from other relevant personality factors such as the dimension of liability (Duckworth et al., 2007). However, the relationship between the concept of grit and performance is moderate, but at a high level with liability (Credé et al., 2017). Other research findings reveal the importance of providing a positive social context to higher education students going through the transition period. Thus, their grit personalities can be developed and as a result, their academic cohesion can be increased (Chua, Yirong and Yang, 2020). In other words, in this study, it is predicted that university students recognize the areas

that they can improve by realizing their personality traits.

METHODS

This study, which examines the relationship between personality traits and grit levels of university students, was designed with the relational scanning technique of the general scanning model, which is one of the quantitative research methods.

Sample

The research was held with the participation of 379 students in ongoing formal education in various departments and programs at Karamanoğlu Mehmetbey University in Turkey. 304 (80%) of the university students that make up the study group are women and 75 (20%) of them are men. The ages of the students participating in the research vary between 17 and 25.

Data collection tools

In obtaining the data of the research, Adjectives Based Personality Test, Short Grit Scale, and Personal Information Form were used. Information on the data collection tools used in the study is presented below.

Adjective based personality test

The Adjective Based Personality Test was developed by Bacanlı et al. (2009). The scale consists of emotional instability/neuroticism, extraversion, openness to experience, mildness, and liability sub-dimensions. Factor analysis and similar scale validity methods were used to test the validity of the developed scale. In the factor analysis for the validity of the scale, 40 adjective pairs that can measure five different personality dimensions (extraversion, mildness, liability, emotional instability, and openness to experience) were determined. The dimensions obtained explained 52.6% of the variance of five factors personality. Sociotropy Scale, Conflict Response Scale, Negative-Positive Emotion Scale, Trait Anxiety Inventory were used to test the external validity of the developed scale. The results obtained showed that the scale was valid (Bacanlı et al., 2009). It was found that the internal consistency coefficients calculated for the reliability of the scale ranged from 0.73 to 0.89, and the highest internal consistency coefficient belonged to the Extraversion (0.89) and the lowest internal consistency coefficient belonged to the Emotional Imbalance (0.73) dimension. In the findings related to test-retest reliability of the scale, it was found that mildness ($r = 0.86$) had the highest

relationship and the dimension of Openness to Experience ($r = 0.68$) had the lowest relationship.

Short grit scale

Short Grit Scale Developed by Duckworth and Quinn (2009), the original language of the scale is English. It is a 5-point Likert-type measurement tool for self-assessment, adapted to Turkish by Sarıçam et al. (2016). The scale has 2 sub-dimensions (consistency of interest, persistence in effort) consisting of 8 items. Under the consistency of interest sub-dimension items 1,3,5. and 6 are reverse-coded. As a result of the confirmatory factor analysis, the fit index values of the 2-dimensional model were found as ($\chi^2 (19, N = 1.554) = 188.52, p < .001$; RMSEA = .076 (90% CI = .066-086), CFI = .96). Factor loadings of the scale rank between .37 and .80. In a similar scale validity study, a relationship was found between the short grit scale and long grit scale at $r=.91, p < .01$ significance level. The Cronbach's alpha internal consistency reliability coefficients were .70 for the persistence in effort sub-dimension, .77 for the consistency of interest sub-dimension, and .82 for the whole scale.

Personal information form

In the Personal Information Form prepared by the researchers and questions about the gender, age, and class levels of the participants were included.

Procedure

The data of the study were collected in classroom environments with the participation of students who volunteered and wanted to support the study. Before the scale set prepared for data collection was given to the students, related structuring was made for the research. It is explained that the data will be used for scientific purposes based on confidentiality. It was stated that even after the measurement set is started to be filled, students who want to have the right to withdraw.

Data analysis

Statistical analysis of the obtained data was made with the help of SPSS 21.00. Percentage (%) and frequency (f) methods, which are descriptive statistical methods, were used to determine the distribution of demographic information of the participants. After it was determined that the data had a normal distribution, a t-test was conducted for two-factor variables to analyze the significant differences. The significance level was accepted as $p < 0.05$. Also, Pearson Moments Multiplication Correlation analysis was used to determine the relationships between personality traits and grit scale scores.

RESULTS

The research findings were analyzed under two main headings. First of all, the findings related to whether there is a relationship between the personality traits of university students and their level of grit, and whether their personality traits and grit levels differ according to gender.

When Table 1 is examined, it is seen that there are statistically significant relationships between all sub-dimensions of personality traits examined in the study and their grit levels. In other words, it was found that there was a positive level of .60 with grit and liability, .43 with extraversion, .40 with openness to experience, .14 with adaptation, and a negative relationship of .34 with neuroticism.

When Table 2 is examined, no statistically significant difference was found according to the gender variable in terms of the grit levels of university students and the sub-dimensions of liability, neuroticism, and extraversion. On the other hand, it is seen that the sub-dimensions of personality traits, adaptation, and openness to experience, differ statistically significantly according to the gender variable. The adaptation scores of female university students ($\bar{x} = 51.86$) are higher than male students ($\bar{x} = 49.15$) ($t = 2.65; p < .05$) and female university students' openness to experience scores ($\bar{x} = 42.61$) are compared to male students ($\bar{x} = 40.88$) is higher ($t = 2.07; p < .05$).

Table 1. Pearson's moments multiplication correlation analysis results between personality traits and grit scales.

Variable	1	2	3	4	5	6
Grit	-					
Liability	.60*	-				
Adaptation	.14*	.31*	-			
Neuroticism	-.34*	-.30*	-.29*	-		
Extroversion	.43*	.50*	.13*	-.20*	-	
Experience	.40*	.46*	.24*	-.22*	.67*	-

* $p < .01, N=379$.

Table 2. Test analysis results for independent groups between personality traits sub-dimensions and grit scales.

	Gender	n	\bar{x}	ss.	t	p
Grit	F	304	29.22	5.03	.75	.45
	M	75	28.73	4.97		
Liability	F	304	40.04	6.62	1.13	.26
	M	75	39.08	6.42		
Adaptation	F	304	51.86	7.81	2.65	.01*
	M	75	49.15	8.34		
Neuroticism	F	304	25.80	6.99	.13	.90
	M	75	25.70	5.76		
Extroversion	F	304	45.71	10.77	1.45	.15
	M	75	43.75	9.48		
Experience	F	304	42.61	6.39	2.07	.04*
	M	75	40.88	6.77		

* $p < .05$, $N=379$.

DISCUSSION

The findings of the study showed that there is a relationship between the personality traits of university students and their grit levels. There were statistically significant relationships between the grit level of university students and the personality trait of liability in the positive direction, moderate positively with extraversion and openness to experience, weak positively with adaptation, and negatively weak in the negative direction between neuroticism.

The results obtained in this study are similar to the results of the research conducted on personality and grit in the literature. In studies conducted in different cultures, it was seen that liability was the best personality traits that reflected grit (Collaço, 2018; Credé et al., 2017; Godkin, 2020; Ivcevic and Brackett, 2014; Muenks et al., 2017; Ponnock et al., 2020; Aydin Sunbul, 2019). In the literature, some studies identify the concept of grit as a different concept from liability (Datu, 2021; Duckworth et al., 2007; Duckworth and Quinn, 2009).

Personality traits and grit levels affect the performance of both employees and students. In a study, it was concluded that there was a statistically significant relationship between the achievement scores of doctoral students and the personality trait of liability and that there was no statistically significant relationship with the grit levels of the students (Walsh, 2020). In another study, it was found that there is a positive significant relationship between students' average achievement and performance and their level of grit (Duckworth and Seligman, 2005; Duckworth et al., 2011). Significant

relationships between liability and job performance have been found in studies on personality traits in working life (Barrick and Mount, 1991; Barrick et al., 2001). In addition, both openness to experience and extraversion were found to be valid determinants of educational competence criteria for professions (Barrick and Mount, 1991).

Another important finding of the study is that there is no statistically significant difference between the grit levels of university students according to the gender variable. It can be said that the gender variable does not have a significant effect on the grit levels of the students. This finding is similar to the studies that found no difference according to the gender variable in grit studies. When the studies were examined, no statistically significant difference was found between the grit levels of the participants according to the gender variable literature (Gamel, 2014, Wallace, 2015, Kwon, 2018). In a study, a significant difference was found between grit levels and gender. The grit score of women was determined to be higher than male participants (Farroll, 2016). In another study, in which the grit-gender variable was examined, no statistically significant difference was found between the participants' levels of grit according to gender and age variables (Ömürlü, 2018).

Another finding is that no statistically significant difference was found according to the gender variable in terms of liability, neuroticism, and extraversion sub-dimensions of the personality traits. On the other hand, it is seen that the sub-dimensions of adaptation and openness to experience differ significantly according to the gender variable. It was concluded that female

university students' scores of adaptation and openness to experience sub-dimension were higher than male students. In a study that found different results in the literature, a significant difference was observed in the personality traits of university students in the neuroticism sub-dimension in terms of gender variables. The neuroticism mean scores of female students were found to be statistically significantly higher than male students (Tatlıoğlu, 2014).

A well-known problem in psychological research is the jangle fallacy. This is defined as the assumption that two identical structures are different simply because they have different names (Kelley, 1927). Although liability and grit personality traits are similar concepts, they also have separate qualities. While liability is one of the Big Five personality traits and characterized by responsibility, diligence, orientation to success, and diligence (Soto et al., 2016), grit involves constantly working on a particular interest or effort and insisting on difficult tasks over a long period (Duckworth, 2006).

Conclusion

This study, it was aimed to examine the relationship between personality traits and the grit levels of university students. The findings of the study showed that there is a relationship between the personality traits of university students and their grit levels. In this context, a positive relationship was found between the level of perseverance and the personality trait of liability, moderate positively with extroversion and openness to experience, weak positively adaptation, and weak negatively statistically significant relationships with neuroticism. Another important result of the study was that no difference was found between the grit levels of the students according to the gender variable. On the other hand, it was observed that the scores of female students were higher than male students in personality traits of adaptation and openness to experience.

Today, while planning educational practices, students are not only engaged in the development of academic skills, but also the development of social and emotional skills. Personality traits and grit levels, which are effective in both school success and life success, are within the activity area of educators. Psychological counseling services offered within the framework of student personality services in educational institutions are carried out by psychological counselors, management, and educators for the social and emotional development of students.

Research results support the contextual view that personality is a condition that can be changed by certain social contexts. The findings reveal the importance of providing a positive social context to higher education students going through the transition period so that their enthusiastic personalities can be developed and students can improve their academic cohesion (Chua, Yirong and

Yang, 2020). As a result, guidance services in schools and psychological counseling centers in universities can work to raise awareness of students in terms of personality traits and grit levels within the scope of individual recognition services. Thus, students can be included in the psychoeducation programs to improve their self-knowledge and grit and contribute to their self-development. The achievements can contribute to both academic and life success.

LIMITATIONS AND RECOMMENDATIONS

The research has yielded important findings, but there are some limitations. Since the research was conducted with university students, it can be said that the generalizability of the results is limited to university students. To increase the generalizability of research results, it can be thought that new studies are needed with the participation of students from different education levels. Besides, since the research data are carried out with self-assessment tools, new researches using different methods (such as interviews and observation) can be performed. As a result, it can be stated that new studies, in which different research designs will be used with different participant groups, can make significant contributions to the literature on personality traits and grit levels.

Conflict of interest

We have no conflicts of interest to disclose. We give assurance that no part of the manuscript reporting original work is being considered for publication in whole or in part elsewhere and we all the authors have read and approved of the manuscript.

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