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The Investigation of The Relationship Between Perfectionism and Creative Thinking Dispositions

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Abstract: The multidimensional nature and the psychological aspects of perfectionism suggest that creativity could be affected by the two sides of perfectionism differently. The purpose of the current study is to explore the potential predictive powers of adaptive and maladaptive perfectionism on creativity. The study group consisted of 151 college students attending a university in İstanbul. The APS Perfectionism Scale and The Marmara Creative Thinking Dispositions Scale were administered to the participants as data collection tools. The findings revealed that there is a positive and significant relationship between adaptive perfectionism and creativity. On the other hand, the relationship between maladaptive perfectionism and creativity as well as the relationship between maladaptive perfectionism and adaptive perfectionism is significant and negative. In the regression analysis it was found out that the adaptive perfectionism predicts creativity positively and significantly (ß=.40; p<0.01), while maladaptive perfectionism predicts creativity significantly in a negative way.

Keywords: Perfectionism, Adaptive Perfectionism, Maladaptive Perfectionism, Creativity

Mükemmeliyetçilik ve Yaratıcılık Arasındaki İlişkinin İncelenmesi

Öz: Mükemmeliyetçiliğin çok boyutlu doğası ile psikolojik özellikleri, yaratıcılık kavramının, mükemmeliyetçiliğin iki farklı boyutu tarafından etkilenebileceğini düşündürmektedir. Bu çalışmanın amacı, uyumlu ve uyumsuz mükemmeliyetçiliğin yaratıcılık üzerindeki potansiyel yordayıcı etkilerini araştırmaktır. Çalışma grubunu İstanbul'da bir devlet üniversitesine devam eden 151 üniversite öğrencisi oluşturmuştur. Veri toplama aracı olarak katılımcılara APS Mükemmeliyetçilik Ölçeği ve Marmara Yaratıcı Düşünme Eğilimleri Ölçeği uygulanmıştır. Elde edilen bulgular, uyumlu mükemmeliyetçilik ile yaratıcılık arasında anlamlı ve olumlu bir ilişki olduğunu ortaya koymuştur. Öte yandan uyumsuz mükemmeliyetçilik ile yaratıcılık arasındaki ilişki ile uyumsuz mükemmeliyetçilik ile uyumlu mükemmeliyetçilik arasındaki ilişki anlamlı ve olumsuzdur. Regresyon analizinde, uyumlu mükemmeliyetçiliğin yaratıcılığı pozitif ve anlamlı bir şekilde yordadığı (ß=.40; p<0.01), uyumsuz mükemmeliyetçiliğin ise yaratıcılığı olumsuz yönde anlamlı bir şekilde yordadığı bulunmuştur

Anahtar Sözcükler: Mükemmeliyetçilik, Uyumlu Mükemmeliyetçilik, Uyumsuz Mükemmeliyetçilik, Yaratıcılık

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Having attracted the attention of the world to the term creativity with his speech in the 1950s, Guilford was emphasizing the scarcity of research on the concept in the literature (Guilford, 1950; Kim & Pierce, 2013; Medyna et al., 2013) and pointing out that creativity, which was once attributed to divine inspiration (Glaveanu & Kaufman, 2019), was a natural resource and could have an active role in solving the problems confronted. In its strict sense, Guilford (1950) refers to the term as abilities that pave the way for creative behaviours. In the related literature, various definitions of the term by researchers were put forward due to its multifaceted nature and diverse aspects. Emphasizing the concept's complex and confusing nature, it is identified as the "development of the novel and valuable ideas" (Bierly et al., 2009, pp. 103). It is also suggested that creativity is among the most valuable, however, least understood constructs of educational psychology, defined as "the interaction among aptitude, process, and environment by which an individual or group is able to produce original and adaptive interpretations, ideas, behaviours, solutions, or products" (Plucker & Beghetto, 2008, pp. 194). According to Ornstein and Hunkins (2018), it contains intuition and discovery, and it requires deductive thinking, novelty, along with originality.

The three-dimensional Structure of Intellect Model (SOI), which Guilford put forward and aimed to describe cognitive skills, enabled researchers to examine the multi-component and complex structure of creativity (Eysenck, 1979). The model suggested by Guilford is important in terms of making the distinction between convergent and divergent thinking, which is used to explain creative thinking, as well as providing a basis for many studies on the pairing of the components in question and creativity (Cabra & Uribe-Larach, 2013; Eysenck, 1979; Runco, 2013). Convergent thinking is defined as a type of thinking which aims at getting the best and most accurate answer or solution to a clearly defined and expressed question or problem (Cropley, 2006a; Razumnikova, 2013). Divergent thinking, on the other hand, is a thinking process based on the assumption that only one answer may not be correct. It is applied to produce many different and various ideas regarding the solution of a problem (Antonietti, 2012; Razumnikova, 2013). Thus, this way of thinking, associated with creativity, focuses on a multitude of alternative responses that contain unique, unexpected, and extraordinary ideas (Antonietti & Colombo, 2012; Guilford, 1958; Razumnikova, 2013).

It is mentioned that there are certain factors which influence creativity in positive and negative ways. For instance, classroom atmosphere generally obstructs creativity as individuals face a tough competition, get evaluated through certain sets of criteria, and are observed by others. On the contrary, individual interest, participation, fun, and taking part in challenging tasks or assignments (Beghetto & Kaufman, 2013); letting learners study and work in stimulating ways; designing challenging tasks that learners involve in voluntarily (Wisdom, 2007); positive social perspective (Cropley, 2006b); and constructive criticism (Alencar et al., 2017) could have positive impacts on thriving creativity. Similarly, among others, educational activities and practises (Alencar et al., 2017), negative feedback from others, social comparison (Larey & Paulus, 1999), motivation for a given task (Hennessey & Amabile, 2010), and divergent thinking (Razumnikova, 2013) are all linked to the concept of creativity and could have an impact on it.

Both intrapersonal and interpersonal elements can foster creativity (Amabile, 1996), and individual characteristics like demographics and biology can have an impact (Shalley et al., 2004; Wigert et al., 2012). Vasasova and Lipkova (2014), assessing creativity as a talent of personality, argue that creativity is influenced by perfectionism, which is another personality trait. Perfectionism, defined as "the setting of excessively high personal standards of performance" (Frost et al., 1990, pp. 450) is closely associated with the desire for everything to be flawless. The concept itself has frequently been the subject of many studies (Kim et al., 2017; Miller et al., 2012; Nobel et al., 2012; Slaney et al., 2002; Wigert et al., 2012). It is argued that individuals with the tendency to be perfect often stick to their standards, and they, with irrational wishes, set high and challenging criteria (Flett & Hewitt, 2006). Five dimensions were introduced regarding perfectionism that aim to describe the concept: "personal standards, concern over mistakes, parental expectation, doubting of actions, and organization." "Personal standards" suggests determining irrational and unattainable targets; "concern over mistakes" connotes negative responses to mistakes to such an extent that any result except for success is worthless and futile. "Parental expectation" reflects the parents' excessive goals. While "doubting of actions" reveals doubts about one's performance, "organization" exposes order, regularity, and tidiness (Frost et al.,

1990, pp. 451-453).

Although once treated as a unitary form (Baran-Lucarz, 2013; Fletcher & Neumeister, 2012; Sirois et al., 2010), perfectionism has been framed as a multifaceted structure (Drolet et al., 2014; Slaney et al., 2002; Stoeber et al., 2009). Among others, Slaney et al. (2002) suggested that scales often measure only the negative side of perfectionism and developed the idea that perfectionism could be assessed in two categories: adaptive and maladaptive perfectionism. Adaptive perfectionism is credited with promoting individuals' performance given its positive impact on cognition, self-efficacy, motivation, and attentiveness (Wigert et al., 2012). On the other hand, maladaptive perfectionism is ascribed to a low tolerance of failure, high levels of apprehension over mistakes, and low levels of self-esteem and points out the gap between the individual's actual potential and the goals or standards set beyond the existent ability (Ashby & Rice, 2002; Comerchero & Fortugno, 2013; Gilman & Ashby, 2003). Thus, perfectionism is evaluated as having both positive and negative impacts on individuals' performance (Chang, 2006; Erozkan, 2016; Fletcher & Neumeister, 2012; Stoeber & Eysenck, 2008; Wigert et al., 2012).

Although many studies have explored the probable link between perfectionism and academic achievement (Eum & Rice, 2011; Karatzanos & Zbainos, 2020; Leenaars & Lester, 2006; Loscalzo et al., 2019; Madigan, 2019; Stoeber et al., 2018), the potential prediction of perfectionism over creativity or the correlation between them has not drawn much attention (Ahmetoglu et al., 2015; Chou et al., 2019). Nekoie-Moghadam et al. (2012) explored the link between perfectionism and creativity and found that positive perfectionism correlates with creativity. Likewise, another study conducted by Gallucci et al. (2000) revealed a negative relationship between perfectionism and creativity. On the other hand, Miller et al. (2012) found no relationship between creativity and perfectionism. Similarly, Wigert et al. (2012) reported that that adaptive perfectionism was associated with better quality solutions, but not with originality. Maladaptive perfectionism was unrelated to creativity, while adaptive perfectionism was consistently, although modestly, associated with creativity across a range of metrics. In Vasasova and Lipkova's (2014) study also, perfectionism and figurative creativity have a weakly positive link, whereas verbal creativity and perfectionism have a somewhat positive connection. Further, the findings of the study conducted by Karatzanos & Zbainos, (2020) highlighted no significant relationships between perfectionistic behaviours and creative thinking.

As for the potential association between perfectionism and creativity, it is claimed that the rigidity and inflexibility in the thinking patterns of perfectionists affect or even hinder their creative thinking tendencies (Ahmetoglu et al., 2015; Burns & Fedewa, 2005). Further, although it is argued that people with perfectionistic and creative dispositions have certain characteristics in common, such as showing tolerance to mistakes and viewing the world from various standpoints, tolerance to uncertainty or vagueness, which is peculiar to creative people, does not fit perfectionists (Karatzanos & Zbainos, 2020). In addition, Wigert et al. (2012) connote that even though many studies confirm the general view that perfectionism could be an obstacle to creativity, applying a scale weighing in favour of maladaptive perfectionism might be responsible for the dominant view, which highlights the negative link between perfectionism and creativity.

As stated, perfectionism, with its multifaceted nature and creativity, have been comprehensively studied. However, in spite of the extensive research on each trait, the role of perfectionism in creativity has received little interest, and more research is needed to comprehend the influence of perfectionism on creativity. It is also of crucial importance to determine the roles of adaptive and maladaptive perfectionism on creativity separately, as the related research yields contradictory results and they do not consent to an agreement. Accordingly, the very purpose of the present study has been outlined to address the contradictory results gained from previous studies in order that it will shed light on the future studies and researchers. The multidimensional nature and the psychological aspects of perfectionism suggest that creativity could be affected by the two sides of perfectionism in different ways. Thus, the current study is important in the sense that it explores the potential predictive-powers of adaptive and maladaptive perfectionism on creativity. In that vein, the aim of this study is to explore the predictive power of adaptive and maladaptive perfectionism on creativity and the interconnections among the variables. The research question is as follows:

Does perfectionism, with its multidimensional nature, hinder creativity?

Method

Research Design

In the present study, a correlational research design was employed to examine and identify the statistical relationship between perfectionism and creativity. The correlational method is applied in order to examine associations between variables. By using this method, it would be possible for researchers to explore the correlations that arise naturally and find patterns or links between different variables. In this way, researchers are able to obtain possible insights into probable causal connections by assessing the level of relationship between variables. Furthermore, multiple regression analysis was administered in order to explore the predictive power of adaptive and maladaptive perfectionism on creativity.

Participants

151 college students attending a university in İstanbul comprised the research sample during the academic year 2020-2021. 51.6% (78) of the participants were female, and 48.4 (73) of them were male. The random sampling methods were applied to determine the sample group ensuring that each group or individual has an equal chance of selection and receives similar weighting (Kılıç, 2013). The sample was specified by randomly selecting class numbers from 36 classes with 20-22 students in each and the data collection tools were administered to the assigned classes.

Data Collection Tools

The APS Perfectionism Scale

The APS Perfectionism Scale was originally developed by Slaney and Johnson (1992) and adapted by Sapmaz (2006). In the adaptation form, four sub-scales – high standards, order, dissatisfaction, and discrepancy, – were identified, and the values of Cronbach Alpha for each subscale were found to be .72, .83, .81 and .72 respectively. After the analysis, the sub-scales High Standards and Order were evaluated as adaptive perfectionism, while Dissatisfaction and Discrepancy were considered as maladaptive perfectionism. The internal coefficient value for adaptive perfectionism was .79, and for maladaptive perfectionism, the value was .82 (Sapmaz, 2006). In this study, the coefficient values for adaptive and maladaptive perfectionism were .73 and .77, respectively.

The Marmara Creative Thinking Dispositions Scale

Aiming at measuring adults creative thinking dispositions (Özgenel & Çetin, 2017), The Marmara Creative Thinking Dispositions Scale was developed by Özgenel and Çetin (2017), and it has 25 items and 6 sub-factors (innovation search, courage, self-discipline, inquisitive, doubt, and flexibility). Being a five-point Likert, the scale responses range from never (1) to always (5). The correlation coefficients from the test and re-test among factors were calculated to be significant (r =.88). The value of the Cronbach Alpha consistency coefficient was found to be .87. The internal coefficient value of the scale in the current study was found to be .79.

Data Analysis

The data of the present study were analyzed by means of SPSS 21.00 software program, and the relationship between adaptive as well as maladaptive perfectionism and creativity was examined through correlational analysis. In addition, in order to identify and explain the predictive power of the independent variables (adaptive and maladaptive perfectionism) over the dependent variable (creativity), regression analysis, which allows researchers to comment on the variance in the dependent caused by the independent variable (Büyüköztürk, 2017), was conducted.

Before the analysis of the data, normality distribution tests were performed. In Table 1, z values are given in the one-way outlier analysis of the variable perfectionism.

Table 1. *Z Values and Histogram of Perfection in the One-Way Outlier Analysis*

Extreme Values				
			Case Number	**Value**
Zscore (Perf)	Highest	1	13	1,97399
		2	77	1,97399
		3	120	1,90566
		4	23	1,83733
		5	36	1,76899[a]
	Lowest	1	3	-2,60439
		2	81	-1,98938
		3	73	-1,98938
		4	66	-1,98938
		5	126	-1,92105[b]

Table 1 demonstrates the z values of the variable perfection in the one-way outlier analysis, and it is seen that the values are within the limits. In Figure 1, the histogram of the variable perfectionism in the one-way outlier analysis is presented.

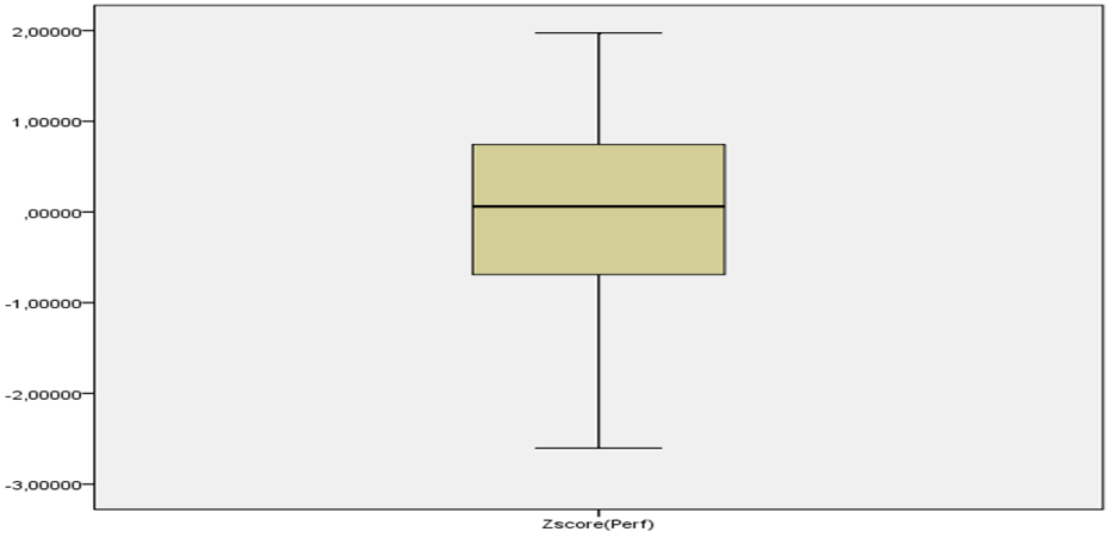

Figure 1. The histogram of perfectionism in the one-way outlier analysis

Figure 1 shows the histogram of the variable perfection in the one-way outlier analysis and it is seen that there are not any outliers beyond the accepted limits. In Table 2, the z values of the variable creativity in the one-way outlier analysis are presented.

Table 2. *Z Values of Creativity in the One-Way Outlier Analysis*

Extreme Values				
			Case Number	**Value**
Zscore (Creativity)	Highest	1	148	2,32165
		2	149	2,32165
		3	151	2,25079
		4	147	2,17992
		5	150	2,17992
	Lowest	1	1	-2,21371
		2	2	-2,00112
		3	5	-1,78852
		4	4	-1,78852
		5	3	-1,78852

In Table 2, the z values of the variable creativity in the one-way outlier analysis are shown, and it is observed that they are less than the limit of ± 4. In Figure 2, the histogram of the variable creativity in the one-way outlier analysis is shown.

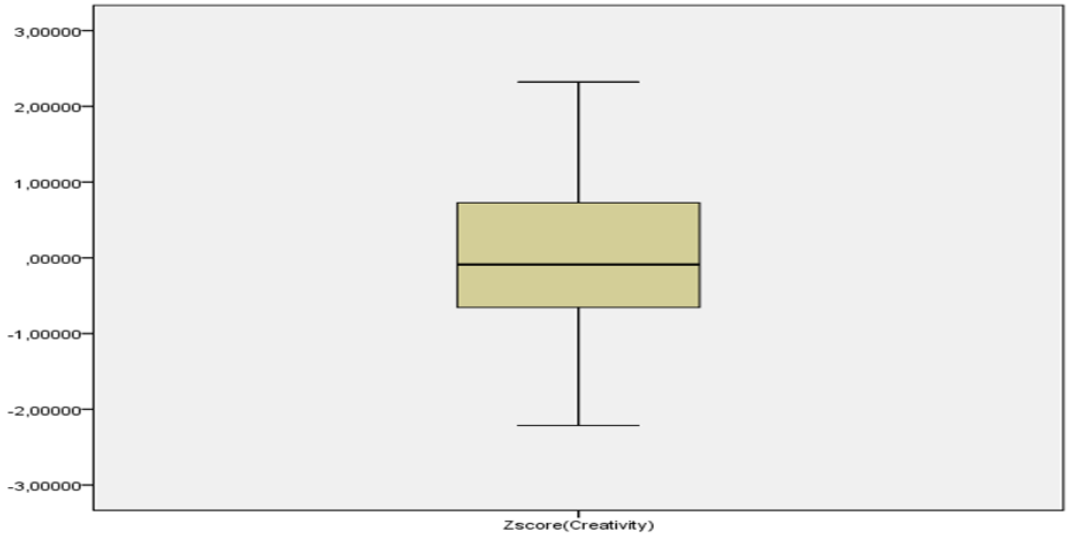

***Figure* 2.** The histogram of perfectionism in the one-way outlier analysis

As it can be observed in Figure 2, there are not any extreme values of the variable creativity. In Table 3, the Mahalanobis distance and multivariate outlier detection of the variables were conducted, and the findings are presented.

Table 3. *Mahalanobis Distance and Multivariate Outlier Detection and the Histogram of the Variables*

Extreme Values				
			Case Number	**Value**
Probability	Highest	1	1	1,00
		2	2	1,00
		3	3	1,00
		4	4	1,00
		5	5	1,00[a]
	Lowest	1	151	,01
		2	150	,05
		3	149	,06
		4	148	,06
		5	147	,08

In Table 3, the values gained through Mahalanobis distance and multivariate outlier detection of the variables show that there are no multivariate outliers detected. In Figure 3, the histogram of Mahalanobis distance and multivariate outlier detection are presented.

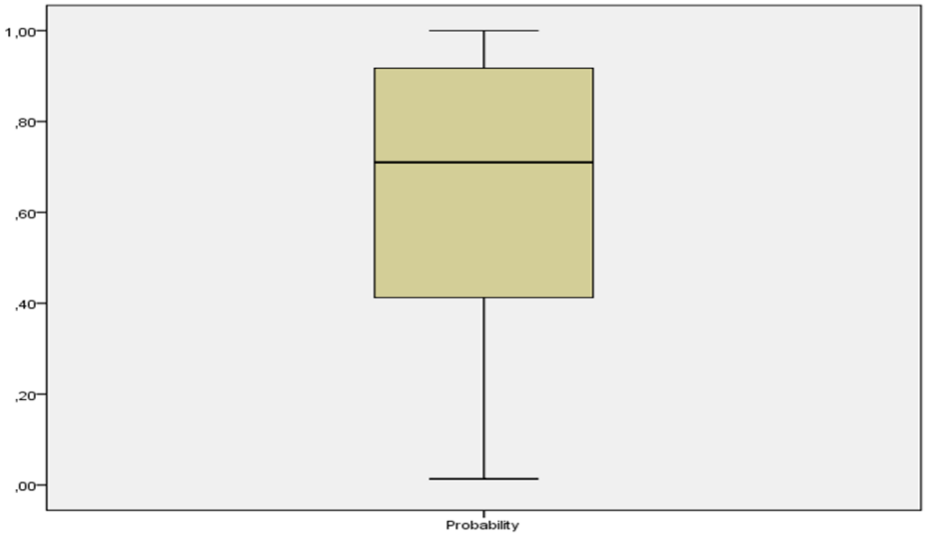

Figure 3. The histogram of Mahalanobis distance and multivariate outlier

As it can be seen in Figure 3, Mahalanobis distance and multivariate outlier analysis shows no outliers. Table 4 presents the values of the multicollinearity assumption and variance inflation factor (VIF) of the variables.

Table 4. *The Values of the Multicollinearity Assumption and Variance Inflation Factor (VIF) of the Variables*

Coefficients							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	77,842	8,778		8,868	,000		
Maladaptive	-,489	,272	-,256	-1,803	,073	,328	3,050
Adaptive	,278	,208	,190	1,339	,182	,328	3,050

a. Dependent Variable: Creativity

Table 4 shows that the VIF values are less than the upper limit of 10, which signifies that it is possible to assess the contribution of variables to a model. In Table 5, the Durbin-Watson test was conducted in order to test whether residual terms are correlated after the model.

Table 5. *The Values of the Durbin-Watson Test*

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
	,148[a]	,022	,009	14,05022	2,075

a. Predictors: (Constant), Adaptive, Maladaptive

b. Dependent Variable: Creativity

Table 5 demonstrates the values of the Durbin – Watson test, and the values themselves show there is no autocorrelation in the model. In Table 6, the values of the Skewness and Kurtosis test of the variables are demonstrated.

Table 6. *The Values of Skewness and Kurtosis Test of the Variables*

Descriptive Statistics					
	N	Skewness		Kurtosis	
		Statistic	Std. Error	Statistic	Std. Error
Adaptive Perfectionism	151	-,192	,192	-,607	,302
Maladaptive Perfectionism	151	-,165	,180	-502	,122
Creativity	151	,172	,193	-.302	.388

As seen in Table 6, since the Skewness and Kurtosis values are within -1.5 and +1.5 confidence limits, the data can be considered to be normally distributed.

Results

In Table 7, the descriptive statistics' values for dependent and independent variables are demonstrated.

Table 7. *The Descriptive Statistics of Variables*

Variables	N	X-Value	SE	SD
Creativity	151	16.88	.22	3.02
Adaptive Perfectionism	151	13.34	.19	3.60
Maladaptive Perfectionism	151	14.92	.23	3. 71

As it is seen in Table 7, the arithmetic means of creativity, adaptive and maladaptive perfectionism are 16.88, 13.34, and 14.92 respectively. The value of the standard deviation of creativity is 3.02; that of adaptive perfectionism is 3.60; and that of maladaptive perfectionism is 3.71. The standard errors of variables range from .19 to .23. In Table 8, the correlation values of creativity, adaptive and maladaptive perfectionism are illustrated.

Table 8. *The Correlation Analysis among Variables*

	1	2	3
1. Creativity	1		
2. Adaptive Perf.	.40*	1	
3. Maladaptive Perf.	-.58*	-.31*	1
N	151	151	151

Table 8 illustrates the correlation values among the variables in the research. It can be seen that there is a positive and significant relationship between adaptive perfectionism and creativity ($r=.40$; $p<0.01$). On the other hand, the relationship between maladaptive perfectionism and creativity ($r=-.58$; $p<0.01$) as well as the relationship between maladaptive perfectionism and adaptive perfectionism ($r=-.31$; $p<0.01$) are significant and negative.

After the analysis of the correlation between creativity, adaptive and maladaptive perfectionism, the regression analysis has been conducted. The findings of the multiple linear regression are displayed in Table 9.

Table 9. *The Results of Multiple Regression Analysis for Predicting Creativity*

Variable	B	Standard Error	β	t	P
Constant	16.90	.712	-	23.740	.000
Adaptive Perf.	.251	.041	.30	6.043	.000
Maladaptive Perf.	-.422	.040	-.52	-10.480	.000
R = .65	R^2 = .42	p<0.01			

When Table 9 is examined, it can be observed that after the multiple linear regression analysis, adaptive and maladaptive perfectionism have been found to have a high level and significant relationship with creativity (R = .65; R2 = .42; p <.01). Accordingly, adaptive and maladaptive perfectionism explain 42% of the total variance in creativity. Considering the standardized ß coefficients and t values, it is seen that the adaptive perfectionism variable predicts creativity positively and significantly (ß=.40; p<0.01), while maladaptive perfectionism predicts creativity significantly in a negative way (ß=-.52; p<0.01).

Conclusion and Discussion

The main aim of the present study was to examine the influence of adaptive and maladaptive perfectionism on creativity. Although perfectionism has primarily been studied as a personality trait, its influence on creativity has received limited attention Among the few studies, those conducted by Chou et al. (2019), Burns and Fedewa (2005), Ahmetoglu et al. (2015), Kim et al. (2017), and Karatzanos and Zbainos (2020) explored the relationship between perfectionism and creativity, outlining the framework of the variables and their interaction.

The correlation analysis in the current study revealed a positive correlation between adaptive

perfectionism and creativity. This finding supports the prevalent assumption that the positive side of perfectionism, which has been associated with normal behaviours (Chou et al., 2019; Eusanio et al., 2014; Flett et al., 1994), is connected with self-efficacy as well as self-esteem. This side of perfectionism is likely to be considered as a remedy for stress as well as dealing with difficult tasks, and it ultimately promotes creativity (Burns & Fedewa, 2005). The scarcity of the related empirical research makes it challenging to compare the results of the current study with other research results. Still, among the limited number of them, in their study, Nekoie-Maghadam et al. (2012) highlighted the significant association between positive perfectionism and creativity. Likewise, another study conducted by Wigert et al. (2012) presented a positive though not strong relationship with creativity. On the other hand, Karatzanos and Zbainos (2020) found no relationship between adaptive perfectionism and creativity, unlike the positive link between perfectionism and academic performance. In a similar way, Joy and Hicks (2014), found a negative relationship between openness to new experiences along with the need to be different, which are connected with creativity and perfectionism. In another study, Ahmetoglu et al. (2015) found that perfectionism is not related to creative achievements. In short, when the related studies analysing the link between creativity and perfectionism are concerned, it is seen that they yield different findings, which could be attributed to several factors, among which applying different methods and various tools could be highlighted.

All in all, it can be pointed out that positive and negative perfectionists regard and react differently to the world around them and develop various ways to cope with daily stress, failures, frustrations, and disappointing experiences. Neokie-Moghadam et al. (2012) emphasize that individuals who display adaptive traits of perfectionism are believed to have joy when confronted with challenges and to evaluate them as opportunities to be better and to get to know their strengths as well as weaknesses. Therefore, individuals with these characteristics are naturally inclined to exhibit creative tendencies, as they tend to be more flexible in their thinking patterns. On the other hand, it is not surprising to see that individuals with maladaptive perfectionist features do not show creative thinking abilities, since factors such as fear for failure, setting unrealistically high standards, low tolerance of failure, and low self-esteem are likely to hinder their wish to be creative.

The present study is thought to extend our perception of perfectionism and creativity in that it sheds light on the two sides of perfectionism as a multifaceted concept and their impacts on creativity separately. The findings have supported the prevalent assumption that the positive side of perfectionism promotes and nurtures creative dispositions, whereas the negative part of the concept potentially hinders creative thinking tendencies. However, examining the impacts of perfectionism on creativity in diverse study groups and contexts could enhance our understanding of this potential link and lead to more reliable generalizations.

Declarations

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Authors' contributions: The research was carried out by the researcher.

Competing interests: There are no declarations of conflict.

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