

Investigating the Mediating Role of Procrastination in the Relationship between Positive and Negative Perfectionism and Mobile Phone Addiction in Gifted Students

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Abstract

Objective: Adolescence is a critical period in terms of development and education, in which there are numbers of high-risk behaviors that can negative effects on personal and educational life. One of these high-risk behaviors is mobile phone addiction that is a sociopsychological phenomenon, and the lack of control in the use of this technology by students can cause damage to various aspects of their personal and educational lives. The aim of the present study was to investigate the mediating role of procrastination in the relationship between positive and negative perfectionism and addiction to mobile phone in gifted students.

Method: This was a descriptive and correlational study in which 200 gifted students from gifted students' high school of Meshghinshahr were selected using cluster sampling in 2020. Tri-Shot Perfectionism questionnaires, Tuckman Procrastination Scale, and Savari Mobile Phone Addiction questionnaire were applied to collect data. Descriptive statistics, correlation matrix, and path analysis (Structural Model) were used to analyze data.

Results: The findings revealed positive and negative perfectionism was not directly related to cell phone addiction. However, positive perfectionism through procrastination meditation had a negative and indirect relationship with mobile phone addiction ($\beta = -0.18$), and negative perfectionism through procrastination meditation had a positive and indirect relationship with mobile phone addiction ($\beta = 0.17$). In other words, procrastination is a complete mediation in the relationship between negative and positive perfectionism and cell phone addiction in students ($\beta = 0.29$).

Conclusion: The results emphasized the effect of procrastination on the relationship between positive and negative perfectionism and mobile phone addiction in gifted students. Therefore, these findings can help school and rehabilitation counselors to prepare programs for reducing students' addictive and avoidant behaviors.

Key words: Gifted Students; Mobile Phone Addiction; Perfectionism; Procrastination

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Article Information:

Received Date: 2020/06/21, Revised Date: 2020/07/14, Accepted Date: 2020/09/11



Adolescence is a critical period in terms of development and education, in which there are numbers of high-risk behaviors that can have negative effects on personal and educational life (1). One of these high-risk behaviors is mobile phone addiction. Mobile phone addiction is a type of addictive behavior through which people overuse their cell phones, which leads to a high sense of dependence on the phone and harms their physical, mental, and social functions (2).

The overuse of cell phones is a chronic problem in modern society and the results of existing studies indicate young people tend to overuse cell phones than adults, which can cause severe damage to their physical, psychological, and other aspects of life (2-4). Therefore, one way to reduce these damages is to identify and survey the factors that affect mobile phone addiction.

Research shows that behavioral addiction among students may be a consequence of their procrastination (5, 6).

Procrastination is a kind of failure in self-regulation, which is characterized by unnecessary delays in aims that people intend to do despite waiting for a negative outcome (7). One of the most common forms of school procrastination is academic procrastination. In this state, the procrastinator person who has to do the assignment related to the academic field does not have the motivation to do so within the expected time frame for unknown reasons (8). Studies have shown that procrastination has spread among new generations and one of the main reasons is that these young people spend more time on social media. Previous studies in the field of procrastination behavior have shown that internet addiction or excessive use of technology has a positive and significant correlation with academic procrastination (9-11). For example, in a study, Kandemir (2014) showed a strong and positive correlation between academic procrastination and the degree of internet addiction (12). Also, in another study, Wang et al (2019) found that procrastination has a mediated role in adolescent addiction to smartphones (13).

Procrastination is believed to occur due to a variety of factors, including fear of the consequences of failure and anxiety about other harsh judgment and evaluation (14). One of the variables that are associated with extreme fear of failure is perfectionism (15). Procrastination is one of the avoidant behaviors to respond to some underlying or causal factors, such as perfectionism (16). Perfectionism is defined as the setting of very high personal standards in performance (17). Most researchers in the field of psychology agree that some elements of perfectionism have adverse effects on mental health, the gap between self-real and self-ideal, and academic or occupational performance (18). People with dysfunctional perfectionism are more likely to avoid situations that require engagement with their standards set for themselves. Previous studies have shown negative perfectionism is a source of stress that

often makes a person feel defeated, and such stressful situations cause a variety of emotional reactions, such as addictive behaviors (19-21). Perfectionism plays an important role in the tendency to addictive behaviors such as eating disorders, work, or sports addiction. For example, Long and Liu (2015) and Hallet and al (2009) showed that incompatible perfectionism can be a risk factor for behavioral addictions such as smartphones and exercise addiction (22, 23).

A review of the research literature shows that gifted students experience more stress than other students under the influence of factors such as feeling pressured for academic achievement and success, being different from others, and being extremely sensitive to future academic and career issues (24). If these stressors are accompanied by pressures from personal perfectionism and parental perfectionism, which are greater in such students than other students (25), they can lead to maladaptive coping strategies. Studies showed avoidance strategies such as procrastination and addictive behaviors are frequently observed by these students (26). However, despite numerous studies on perfectionism with addictive behaviors (22), perfectionism with procrastination (16) and procrastination with cell phone addiction (13), it has not been checked whether the perfectionism alone lead to addictive behaviors or it creates such a relationship by influencing procrastination. Therefore, given the existing research gap, the researchers in this study examine comprehensively the reasons for the tendency of gifted students to avoid and addictive behaviors.

On the other hand, according to a research proposal presented in the research of Yang and Liu (2015) to conduct more research to understand the relationship between perfectionism and smartphone addiction (22), the present study was done to complement the findings of previous research to determine whether perfectionism is directly related to cell phone addiction in gifted students, or whether it affects their cell phone addiction by affecting procrastination? According to the hypothesis of this research, the proposed model of the present study has shown in figure1:

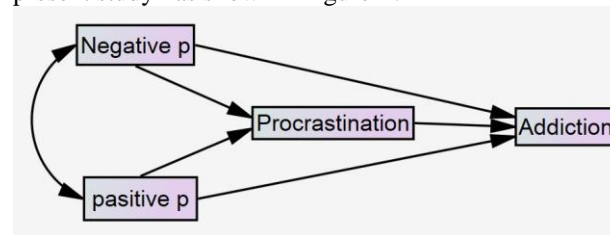


Figure1. The Proposed Model of Mobile Phone Addiction

Materials and Methods

Procedure and Sample

This descriptive-correlational study was conducted on students studying in gifted students' high school in

Meshghinshahr. According to the minimum sample size for a structural equation modeling and path analysis (27), in the present study, the minimum sample size of 200 was estimated, based on 95% confidence interval and an error estimate of 5%, using the Cochran formula. Among the gifted high school students of Meshghinshahr, 216 students were selected through cluster sampling. Finally, 200 students who completed the questionnaire and had a good cooperation were enrolled in this study. Inclusion criteria were as follow: age 15; Iranian nationality; living in Meshghinshahr; studying in gifted middle schools; excessive daily use of mobile phones; and willingness to participate. Exclusion criteria also included age older or younger than 13-20 years; not living in Meshghinshahr; not studying in gifted schools; lack of willingness to participate in the study; and not using mobile phones.

To comply with the ethical considerations of research, the study was performed under the Declaration of Helsinki and approved by the Education Department of Meshghinshahr, Iran. The research objectives were explained and participants were ensured that their information would remain confidential. Students who met the inclusion criteria and were willing to take part in the study completed informed consent and agreement forms. Also, participants could leave the course at any time, and the research was performed based on respecting the rights of the participants, anonymousness, and confidentiality. In the next step, after coordinating with the Education Department of Meshghinshahr and management of high school gifted students, we administrated the study.

Measures

In this study, the research tool was selected based on the sample and the appropriateness of the measured values. This study included 3 types of instruments: (1) The Positive and Negative Perfectionism Scale (PNP), (2) Tuckman Procrastination Scale (TPS), and (3) Savari Mobile Phone Addiction questionnaire. In addition, demographic data, including gender, age, and education level were collected.

1)The Positive and Negative Perfectionism Scale (PNP): This self-report questionnaire was created by Terry-short et al (28) to assess participants' perfectionism from the functional or behavioral aspects. The answers of 40-Likert scale questions range from strongly disagree (= 1) to strongly agree (= 5); 18 questions are related to positive perfectionism and 22 questions represent negative perfectionism. In Iran, Besharat (2005) reported Cronbach's alpha for the positive and negative perfectionism scales to be 0.89 and 0.86, respectively. In the present study, the reliability of this questionnaire using Cronbach's alpha coefficient was 0.83 for positive perfectionism, 0.75 for negative perfectionism, and 0.83 for the whole scale (29).

2)Tuckman Procrastination Scale (TPS): This questionnaire comprises 16 self-report items about

educational behavior and was developed by Tuckman (30). This questionnaire is a 4- point Likert rating scale. Answers are rated on a 5-point Likert scale from strongly agree (4) to strongly disagree (1). Twelve items are positively and 4 items of 6, 12, 14, and 16 are negatively worded. Low scores indicate high academic procrastination. In Iran, Golestaneh et al (2016) reported the Cronbach's alpha coefficient for the entire scale as 0.76. In the present study, the reliability of this questionnaire using Cronbach's alpha coefficient was obtained to be 0.63 (31).

3)Savari Mobile Phone Addiction Questionnaire:

This self-report questionnaire was created by Savari (2014) and consists of 13 items with 3 subscales: Lack of creativity (7 questions), tendency (3 questions), and feeling lonely (3 questions). Answers ranged from "never (1)" to "most of the time (5)". The reliability of this tool was reported to be 0.87 for the whole scale and 0.78, 0.76, and, 0.84 for each of the subscales of lack of creativity, tendency, and Feeling lonely, respectively. Also, the validity of this tool has been confirmed using factor analysis (32). In the present study, the reliability of this questionnaire using Cronbach's alpha coefficient was 0.89.

Statistical Analyses

The required data were analyzed using SPSS21 and Amos23 software. Data were analyzed using descriptive statistics (mean and standard deviation), correlation matrix, and Path analysis (Structural Model).

Results

The demographic information revealed out of 200 participants, 100 (50%) were male and 100 (50%) were female students. The age range of participants was categorized as follows: 15 years old (36 (18%)), 16 years old (67(33.5%)), 17 years old (80 (40%)), and 18 years old (17 (8.5%)). Also, the education degree of the participants was as follows: tenth grade (65 students (32.5%)), 11th grade (99 students (49.5%)), and 12th grade (36 students (18%)).

The results of Table 1 showed the mean and standard deviation of the procrastination, positive perfectionism, negative perfectionism, and mobile phone addiction were 39.31 ± 6.80 , 75.25 ± 12.21 , 63.11 ± 10.43 , and 30.17 ± 11.19 , respectively. The correlation matrix between the research variables shows that positive perfectionism has a negative and significant relationship with procrastination and mobile phone addiction. Also, negative perfectionism has a positive and significant relationship with procrastination and mobile phone addiction. Also, procrastination has a positive and significant relationship with mobile phone addiction ($P < 0.01$). Path analysis, using a maximum likelihood was conducted with Amos 23. The results of Table 2 indicated that the model fitted well to the data ($\chi^2/df = 2/58$, CFI = 0/94, RMSEA = 0/08). As shown in Table 3, the total relationship between perfectionism, procrastination, and mobile phone addiction was

significant. Also, the indirect effect of mobile phone addiction through procrastination, as a mediator, was significant. Nonetheless, the direct effect of perfectionism was not significant. Therefore, it can be concluded that procrastination had a full meditating role

in the relationship between perfectionism and mobile phone addiction. Also, Figure 2 illustrates the standard coefficients of the variables in the final model.

Table1. Summary of Correlation Matrix, Mean and Standard Deviation among Research Variables (N = 200)

Variable	Mean, SD	1	2	3	4
Procrastination	39.31±6.80	1			
Positive Perfectionism	75.25±12.2	-0.157*	1		
Negative Perfectionism	63.11±10.4	0.269**	0.286**	1	
Mobile Phone Addiction	30.17±11.1	0.289**	-0.181*	0.175*	1

*P<0.05, **P<0.01

Table2. Model Fit Indices for the Proposed Model

INDEX	X ² /df	Df	GFI	NFI	IFI	CFI	RMSEA
	2.58	2	0.98	0.92	0.95	0.94	0.08

Table3. Direct, Indirect, and Total Effects on the Approved Pattern

Variable	Standardized Direct Effect	Standardized Indirect Effect	Standardized Total Effect
On mobile phone addiction from:			
Negative perfectionism	0.07	0.10	0.17
Positive perfectionism	-0.11	-0.07	-0.18
Procrastination	0.29		0.29
On procrastination from:			
Negative perfectionism	0.34		0.34
Positive perfectionism	-0.25		-0.25

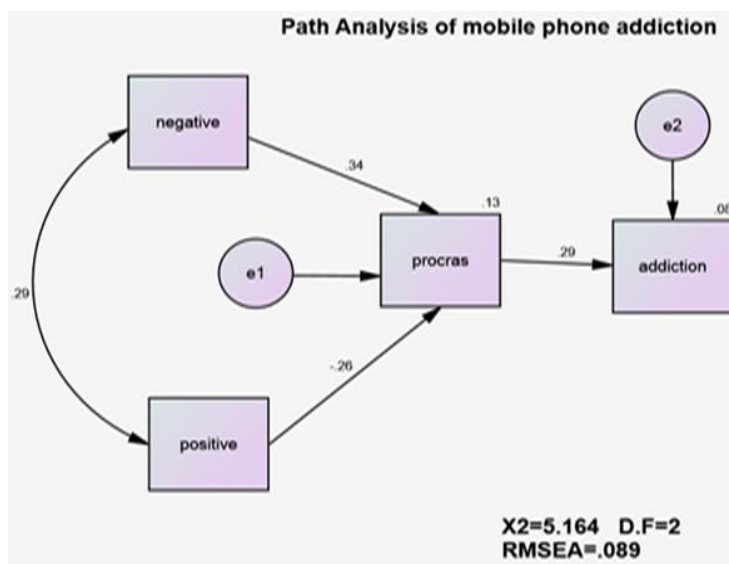


Figure2. The Hypothesized Direct and Indirect Relationships between Perfectionism, Procrastination, and Mobil Phone Addiction

Discussion

The aim of this study was to investigate the mediating role of procrastination in the relationship between positive and negative perfectionism and addiction to mobile phone in gifted students. The results of data analysis showed positive and negative perfectionism are not directly related to mobile phone addiction, rather they can predict students' addictive use of mobile phone indirectly and through procrastination. Also, positive perfectionism and negative perfectionism had a negative and positive relationship with procrastination as well as mobile phone addiction, respectively.

These findings are aligned with Long and Liu (2015) and Hall et al (2009) studies that found incompatible perfectionism can be a risk factor for behavioral addictions and may directly and indirectly affect behavioral addictions such as smartphone and exercise addiction (22,23). Moreover, some studies showed procrastination is one of the common behaviors of people with negative perfectionism (18, 19-26). Also, another research showed that behavioral addictions among students may be a consequence of their procrastination (6, 33). For example, Wang et al (2019) found procrastination has the mediating roles in adolescents' smartphone addiction (13).

To explain the results of the research, gifted students are not only vulnerable to perfectionist behavior due to very high standards but also due to factors such as perfectionist parents and pressure from teachers and peers (25). Inconsistent perfectionism always causes these students to be afraid that they will not be able to meet the expected standards. Therefore, to avoid possible failures that are accompanied by feelings of inadequacy and negative evaluation of others, they subconsciously tend to avoid behaviors, such as procrastination, as a mechanism to reduce stress. The results of some studies have shown if people feel they are not able to achieve the desired level of success, perfectionism can be unproductive and cause procrastination as a mechanism for avoidance (16). In this situation, addictive behaviors can be a pretext for avoiding the feeling of failure caused by self-doubt. Therefore, addictive behaviors such as cell phone addiction act as a mechanism to protect oneself from failure and the resulting anxiety by creating a favorable environment for procrastination. In support of this (34) it can hypothesize that gifted students may lack the social and emotional skills needed to cope with perceived stress due to their age; in this case, they are more likely to react inappropriately to these stresses.

Limitation

This study had limitations that should be regarded in describing the data. Participants were evaluated by a self-report scale, which may not be appropriate enough to obtain accurate data. This was a cross sectional study. The correlation between the variables studied may be due to alternative elements, which can only be controlled

by the survey of the role of each element in the creation of such types. Furthermore, recognizing that the present study was conducted among the students of Meshginshahr, caution should be exercised to generalize the results. Thus, it is suggested that this research be done on other social groups.

Conclusion

The findings revealed positive perfectionism through procrastination meditation had a negative and indirect relationship with mobile phone addiction and negative perfectionism through procrastination meditation had a positive and indirect relationship with mobile phone addiction. This shows, Procrastination is a complete mediation in the relationship between negative and positive perfectionism with cell phone addiction in gifted students. Therefore, these findings can help school and rehabilitation counselors to prepare programs for reducing students' addictive and avoidant behaviors.

Acknowledgment

We appreciate the Education Department of Meshginshahr and Management of high school gifted, and especially students for their cooperation in this study.

Conflict of Interest

None.

References

1. Demir Y, Kutlu M. Relationships among Internet addiction, academic motivation, academic procrastination and school attachment in adolescents. *Int Online J EducSci*. 2018; 10(5): 315-332.
2. Liu L, Min G, Yue S, Cheng L. The influence of mobile phone addiction on procrastination: a moderated mediating model. *J Ergon*. 2018; 8(232):2.
3. Shoukat S. Cell phone addiction and psychological and physiological health in adolescents. *Excli j*. 2019;18:47-50.
4. Servatyari K, Valizadeh Ardalan P, Yazdanpanah S, Yazdanpanah H, Parkalian M. The Relationship between Mobile Phone Addiction and Depression and Hopelessness among High School Students in Divandareh city in 2018. *Acta Scientific Medical Sciences*. 2019;3(10):58-64.
5. Uzun AM, Ünal E, Tokel ST. Exploring internet addiction, academic procrastination and general procrastination among pre-service ICT teachers. *Online Submission*. 2014;4(1):189-201.
6. Ayadi N, Ghasemi Jobaneh R, Dargahi S, Ganji B. The Role of Alexithymia and Decisional Procrastination in Predicting Addictive Use of

- the Internet among Students. *J Police Med.* 2019; 8(4):171-175
7. Prem R, Scheel TE, Weigelt O, Hoffmann K, Korunka C. Procrastination in Daily Working Life: A Diary Study on Within-Person Processes That Link Work Characteristics to Workplace Procrastination. *Front Psychol.* 2018; 9:1087.
 8. Nowrin J. Academic Procrastination and Perfectionism among College Students. *Int J Sci Res.* 2018; 7(11): 33-5.
 9. Aslan Efe H, Efe R. The Relationship between Academic Procrastination Behaviors of Preservice Science Teachers and Their Attitudes toward Social Media. *Journal of Education and e-Learning Research.* 2018;5(2):102-9.
 10. Geng J, Han L, Gao F, Jou M, Huang C-C. Internet addiction and procrastination among Chinese young adults: A moderated mediation model. *Computers in Human Behavior.* 2018; 84:320-33.
 11. Hayat AA, Kojuri J, Amini M. Academic procrastination of medical students: The role of Internet addiction. *J Adv Med Educ Prof.* 2020;8(2):83-9.
 12. Kandemir M. Predictors of academic procrastination: coping with stress, internet addiction and academic motivation. *World Applied Sciences Journal.* 2014; 32(5):930-8.
 13. Wang J, Wang P, Yang X, Zhang G, Wang X, Zhao F, et al. Fear of missing out and procrastination as mediators between sensation seeking and adolescent smartphone addiction. *International Journal of Mental Health and Addiction.* 2019;17(4):1049-62.
 14. Korkmaz, O., Ilhan, T., & Bardakci, S. An Investigation of Self-Efficacy, Locus of Control, and Academic Procrastination as Predictors of Academic Achievement in Students Diagnosed as Gifted and Non-Gifted. *Online Submission,* 2018; 4(7), 173-92.
 15. Closson LM, Boutilier RR. Perfectionism, academic engagement, and procrastination among undergraduates: The moderating role of honors student status. *Learn Individ Differ.* 2017;57:157-62.
 16. Foster JF. Procrastination and perfectionism: connections, understandings, and control. *Gifted Education International.* 2007;23(3):264-72.
 17. Yurtseven N, Akpur U. Perfectionism, Anxiety and Procrastination as Predictors of EFL Academic Achievement: A Mixed Methods Study. *Novitas-ROYAL (Research on Youth and Language).* 2018;12(2):96-115.
 18. Rice KG, Richardson CM, Clark D. Perfectionism, procrastination, and psychological distress. *J Couns Psychol.* 2012;59(2):288-302.
 19. Smith MM, Sherry SB, Saklofske DH, Mushqaush AR. Clarifying the perfectionism-procrastination relationship using a 7-day, 14-occasion daily diary study. *Pers Individ Dif.* 2017; 112:, 117-23.
 20. Hauck C, Schipfer M, Ellrott T & Cook B. "Always do your best!"—The relationship between food addiction, exercise dependence, and perfectionism in amateur athletes. *Ger J Exerc Sport Res.* 2020; 50(1), 114-22.
 21. Bahramnejad A, Rabani-Bavojdan M, Rabani-Bavojdan M, Kaviani N. The Value of Perfectionism in Predicting Coping Strategies in Drug-User Women. *Addict Health.* 2015;7(3-4):157-63.
 22. Long J, Liu T. Maladaptive Perfectionism: A Potential Risk Factor for Smartphone Addiction. *Int Arch Addict Res Med.* 2015; 1: 1-2.
 23. Hall HK, Hill AP, Appleton PR, Kozub SA. The mediating influence of unconditional self-acceptance and labile self-esteem on the relationship between multidimensional perfectionism and exercise dependence. *Psychol Sport Exerc.* 2009;10(1):35-44.
 24. Baker JA. Everyday stressors of academically gifted adolescents. *Journal of Secondary Gifted Education.* 1996;7(2):356-68.
 25. Schuler PA. Perfectionism and gifted adolescents. *J Second Gift Educ.* 2000; 11(4): 183-96.
 26. Jadidi F, Mohammadkhani S, Tajrishi KZ. Perfectionism and academic procrastination. *Procedia-Social and Behavioral Sciences.* 2011; 30:534-7.
 27. siyami M, rostami S. Path Analysis of the Effect of mobile phone usage on academic engagement: the Mediating Role of attention. *Educational Research Journal,* 2017; 4 (35):72-92.
 28. Terry-short L A, Owens R G, Slade P D, Dewey M E. Positive and negative perfectionism. *PersIndivid Differ.*1995; 18, 663-8
 29. Besharat MA. Evaluating psychometric properties of Farsi version of the Positive and Negative Perfectionism Scale. *Psychol Rep.* 2005;97(1):33–42
 30. Tuckman BW. The development and concurrent validity of the procrastination scale. *Educational and psychological measurement.* 1991; 51(2):473-80.
 31. Golestaneh SM, Rafiee M, Hoseini FS. The effectiveness of procrastination management training on the enhancement of self-efficacy and learning strategies, and reduction of procrastination and avoidance of failure. *Contemporary Psychology.* 2016; 11(1):75-90.
 32. Savari K. Build and validate mobile phone addiction questionnaires. *J Educ Meas.* 2014; 4 (15): 126-42.
 33. Przepiorka A, Błachnio A, Díaz-Morales JF. Problematic Facebook use and procrastination. *Comput Human Behav.* 2016; 65:59-64.
 34. Mofield E, Parker Peters M & Chakraborti-Ghosh S. Perfectionism, coping, and underachievement in gifted adolescents: Avoidance vs. approach orientations. *Sci Educ.* 2016; 6(3), 21.