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## The Relationship Between Technology Addiction and Psychological Well-Being in University Students: Is Self-Handicapping A Mediator?

Üniversite Öğrencilerinde Teknoloji Bağımlılığı ve Psikolojik İyi Oluş Arasındaki İlişki: Kendini Sabotaj Aracı Mıdır?

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**Abstract:** This study examines the mediating role of self-handicapping in the relationship between technology addiction and psychological well-being in university students. 162 university students participated in this study, which was organized in accordance with the relational screening model, between April and June 2023. Technology Addiction Scale, Psychological Well-Being Scale and Self-Handicapping Scale were used. AMOS program was used to evaluate the mediating effect in the study. The study showed that technology addiction reduces psychological well-being and increases self-handicapping tendency and that higher self-handicapping tendency leads to decreased psychological well-being in university students. When the mediating effect was examined, self-handicapping was a full mediator in the balance between technology addiction and psychological well-being ( $\beta: -0.216$ ;  $p < 0.001$ ). Accordingly, increasing technology addiction increases self-handicapping tendency, and increasing self-handicapping tendency reduces psychological well-being. Based on these results, it is recommended that health professionals encourage the correct use of technology to improve the psychological well-being of university students and plan awareness interventions to reduce self-handicapping tendencies.

**Keywords:** Psychological well-being, Self-handicapping, Technology addiction, University student

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**Öz:** Bu çalışmanın amacı, üniversite öğrencilerinde teknoloji bağımlılığı ve psikolojik iyi oluş arasındaki ilişkide kendini sabotajın aracılık rolünü incelemektir. İlişkisel tarama modeline uygun olarak düzenlenen bu çalışmaya Nisan-Haziran 2023 tarihleri arasında 162 üniversite öğrencisi katılmıştır. Teknoloji Bağımlılığı Ölçeği, Psikolojik İyi Oluş Ölçeği ve Kendini Sabotaj Ölçeği kullanılmıştır. Çalışmada aracılık etkisinin değerlendirilmesi amacıyla AMOS programı kullanılmıştır. Çalışma, teknoloji bağımlılığının üniversite öğrencilerinde psikolojik iyi oluşu azalttığını ve kendini sabote etme eğilimini artırdığını, kendini sabote etme eğiliminin yüksek olmasının ise psikolojik iyi oluşun azalmasına yol açtığını göstermiştir. Aracılık etkisi incelendiğinde, teknoloji bağımlılığı ile psikolojik iyi oluş arasındaki dengede kendini sabotajın tam aracılık yaptığı görülmektedir ( $\beta: -0,216$ ;  $p < 0,001$ ). Buna göre teknoloji bağımlılığının artması kendini sabote etme eğilimini artırmakta, kendini sabote etme eğiliminin artması ise psikolojik iyi oluşu azaltmaktadır. Bu sonuçlar doğrultusunda sağlık profesyonelleri tarafından üniversite öğrencilerinde psikolojik iyi oluşu arttırmak için teknolojinin doğru kullanımının teşvik edilmesi ve kendini sabotaj eğilimini azaltacak farkındalık müdahalelerinin planlanması önerilmektedir.

**Anahtar Kelimeler:** Kendini sabotaj, Psikolojik iyi oluş, Teknoloji bağımlılığı, Üniversite öğrencisi

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## Introduction

With the rapid technological advances, excessive/problematic use of technology has become a social issue (1) and addiction to technology has surfaced as a concern (2). Technology addiction is a behavioural addiction having no connection with a physical substance and refers to uncontrollable use of technology and the internet (3). Studies in the literature show that technology addiction is a global problem among university students (4,5,6,7,). This causes significant issues such as socialization problems, depression and insomnia (8). Improper and ineffective use of technology can negatively affect the physical and psychological health of university students (4) and is considered a major obstacle to their psychological well-being (9).

Psychological well-being refers to general perceptions and understanding of one's own life, emotions, thoughts and experiences (10). It is also defined as the ability to manage the problems the individual faces in life (11). It encompasses self-acceptance, willingness for personal development, autonomy, aiming to find meaning in life, establishing positive relationships with the social environment, and developing awareness of the environment (12). When university students cannot effectively cope with the stressors in their school life, their academic success suffers (13), and their psychological well-being is negatively affected by mental problems such as depression, addiction and anxiety disorders (14). Therefore, it is crucial to evaluate the psychological well-being of university students. Given that there is a relationship between psychological well-being and self-esteem in university students (15,16), there could be a relationship between self-handicapping tendencies that individuals resort to in order to protect their self-esteem and psychological well-being.

Self-handicapping is inhibiting oneself from achieving success to maintain a sense of self-efficacy. In other words, it is the externalization of failure and internalization of success to protect self and sense of competence (16,17). The individual aims to protect the self by creating several obstacles that will reduce the likelihood of success in a situation, and thus, in case of failure, externalize their failure by attributing it to these obstacles they created. Conversely, if successful, they can benefit in both cases by thinking that they succeeded despite these obstacles (17). Self-handicapping in university students manifests in behaviours such as doing things that are not essential when there are important tasks to be done and avoiding or postponing responsibilities (16). Self-handicapping strategies are divided into two categories: behavioural and verbal (18). Verbal self-handicapping refers to claiming that one's performance is hindered by factors beyond one's control. Behavioural self-handicapping, on the other hand, is defined as creating obstacles to one's own performance and making it difficult for one to succeed. Behavioural self-handicapping is thought to cause more harm than verbal self-handicapping because it has a direct negative impact on achievement (18). In addition, it has been proven that people who frequently resort to these strategies are more at risk of developing addiction (19).

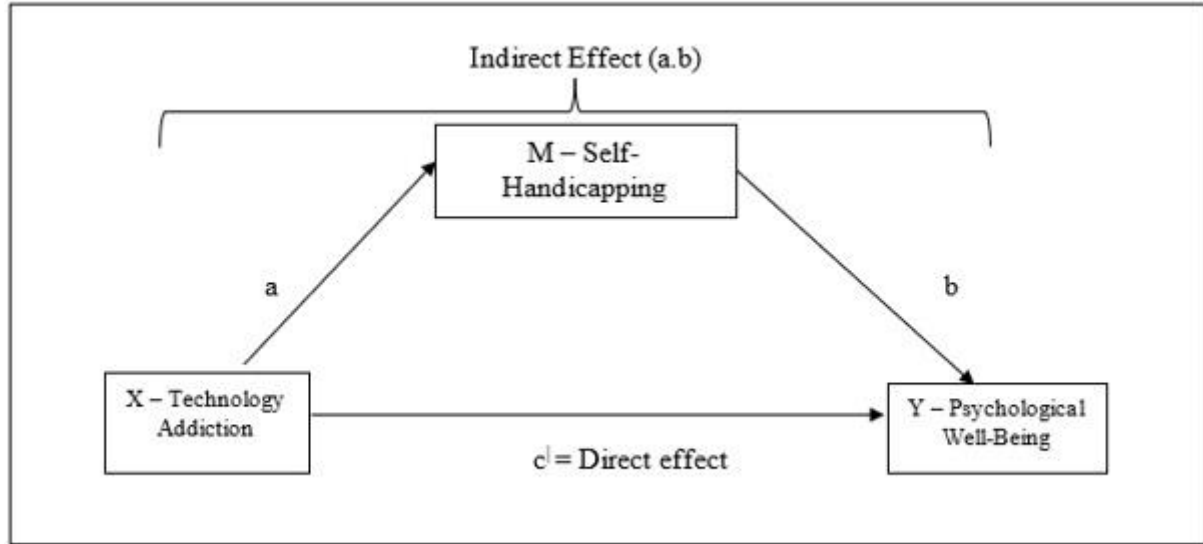
Given these insights and considering that developing addiction is a behavioural self-handicapping strategy, there may be a significant relationship between technology addiction and self-handicapping. Also, self-handicapping strategies lead to anxiety, negative emotions, decreased life satisfaction, and consequently, a decrease in psychological well-being in individuals (19,20).

Considering that technology addiction is a frequently encountered problem today (1) and reduces psychological well-being (12), this study addresses self-handicapping as a potential mediator of this relationship and is designed to examine the mediating role of self-handicapping in the relationship between technology addiction and psychological well-being in university students. The research hypotheses are (i) H1: Technology addiction affects self-handicapping, (ii) H2: Self-handicapping affects psychological well-being, (iii) H3: Technology addiction affects psychological well-being, and (iv) H4: Self-handicapping has a mediating role in the relationship between technology addiction and psychological well-being in university students.

## Materials and Methods

### Design and Research Model

This study was designed in a descriptive-correlational model, analyzed according to the mediator variable conditions determined by Baron and Kenny (13), including (i) the independent variable affects the mediator variable, (ii) the mediator variable affects the dependent variable, (iii) the independent variable affects the dependent variable, and when the mediator variable is added to the model ( $c'$ ), the independent variables lose their effect on the dependent variable (full mediator variable) or reduces in effect (partial mediator variable) (13). The research model is shown below (see Figure 1).



**Figure 1.** The conceptual model of the research.

### Participants and sample size

The population was students from a university. The sample was calculated by considering the correlation value between technology addiction and psychological well-being (14), showing that the sample size should be 113, according to 95% confidence ( $1-\alpha$ ), 95% test power ( $1-\beta$ ),  $r = -0.26$  correlation value and two-way hypothesis. The study was completed with the participation of 162 students from different faculties, different departments and different grade levels. ( $n=162$ ).

The inclusion criteria were volunteering to participate and studying at the university. The exclusion criterion was that the student was studying for a postgraduate degree and having a psychiatric disorder diagnosis. "Snowball sampling" was used as the sampling method.

### Data Collection

The data was collected online between April 2023 and June 2023 through the social media account of the university's official student community. The average completion time for measurement tools was 20 minutes.

### Measures Instruments

**Structured Questionnaire:** This form was developed by the researchers and consists of three questions covering the demographic characteristics of the students (gender, year of birth, grade).

**Technology Addiction Scale (TAS):** The scale was developed by Aydın (15) and measures technology addiction levels. The 5-point Likert-type scale includes twenty-four questions. The score range that can be obtained from the scale is between 24 and 120 points, with higher scores indicating higher levels of technology addiction. The Cronbach's alpha internal consistency coefficient of the scale in this study was 0.904.

Psychological Well-Being Scale (PWBS): The scale was developed by Diener et al. (16) and adapted to Turkish by Telef (17). The 7-point Likert-type scale evaluates the psychological well-being level of individuals and consists of eight questions. The scores that can be obtained from the scale vary between 8 and 56 points, and higher scores indicate that the person has several psychological resources and strengths. The Cronbach's alpha internal consistency coefficient of the scale in this study was 0.860.

Self-Handicapping Scale (SHS): Developed by Jones and Rhodewalt (18), the scale was adapted to Turkish by Akın (19). The 6-point Likert-type scale evaluates individuals' self-handicapping level and has twenty-five questions. Possible scores from the scale vary between 25 and 150 points, with high scores indicating an increased tendency for behavioural and verbal self-handicapping. The Cronbach's alpha internal consistency coefficient of the scale in this study was 0.718.

#### Data analysis

Frequency and percentage analyses were used to determine the participants' descriptive characteristics, mean and standard deviation statistics to examine the scales, and the Shapiro-Wilk test to evaluate the normality of the variables.

The continuous variables of the study included Pearson correlation analysis, linear regression and hierarchical regression analyses for the mediating effect using the AMOS program. The impact of the mediator variable on the relationship between the independent and dependent variables was examined by obtaining total effect, indirect and direct effect scores in AMOS. The analysis result was created using a 90% confidence interval and a 2000 bootstrap sample size.

#### Ethical consideration

Ethics committee permission required to conduct the research was obtained from a university's non-invasive research ethics committee (Number: E-25403353-050.99-2300076327, Date: 13.04.2023) and institutional permission was obtained from the rectorate of the relevant university. Students who agreed to participate in the study ticked the consent box.

#### Results

Of the participants, 63% were women, 44.4% were first graders, and their average age was  $22.15 \pm 3.75$  (min: 22, max: 65). Their mean TAS score was  $53.54 \pm 15.08$ , mean PWBS score was  $39.43 \pm 8.52$ , and mean SHS score was  $85.18 \pm 12.40$  (Table 1).

The relationship between TAS score and SHS score and PWBS score ( $r=0.520$ ,  $p<0.001$ ;  $r=-0.256$ ,  $p=0.001$ ) and the relationship between SHS score and PWBS score ( $r=-0.437$ ;  $p<0.001$ ) were statistically significant (Table 2).

The a path between TAS and SHS ( $\beta:0.520$ ;  $p<0.001$ ) and the b path between SHS and PWBS ( $\beta:-0.416$ ;  $p<0.001$ ) were found to be significant. Also, in the c path, the path coefficient between TAS and PWBS was statistically significant ( $\beta:-0.256$ ;  $p<0.001$ ). When the mediating effect of SHS in the model was examined, there was a mediating role in the effect of TAS on PWBS (95% CI [-0.309;-0.143]). When SHS was added to the model (path c') to evaluate whether SHS was a partial or full mediator variable, the relationship between TAS and PWBS (path c;  $\beta: -0.256$ ,  $p<0.001$ ) disappeared ( $p>0.05$ ). Hence, SHS was found to be the full mediator variable between TAS and PWBS (Table 3).

**Table 1.** Distribution of the participants according to their characteristics (n=162).

	n	%
<b>Gender</b>		
Female	102	63.0
Male	60	37.0
<b>Undergraduate school year</b>		
Preparatory class	1	0.6
1st year	72	44.4
2nd year	30	18.5
3rd year	37	22.8
4th year	16	9.9
5th year	6	3.7
	<b>Min-Max</b>	<b><math>\bar{x} \pm s</math></b>
<b>Age (years)</b>	18-43 (21)	22.15±3.75
<b>SHS score</b>	55-116 (86)	85.18±12.40
<b>TAS score</b>	24-97 (51)	53.54±15.08
<b>PWBS score</b>	8-56 (41)	39.43±8.52

\* Multiple response, descriptive statistics (mean, standard deviation, number, percentage), **TAS**: Technology Addiction Scale, **SHS**: Self-Handicapping Scale, **PWBS**: Psychological Well-Being Scale.

**Table 2.** The relationship between the scale scores of the participants.

	<b>SHS score</b>		<b>TAS score</b>	
	<b>r</b>	<b>p</b>	<b>r</b>	<b>p</b>
<b>SHS score</b>	-	-		
<b>TAS score</b>	0,520*	<0,001	-	-
<b>PWBS score</b>	-0,437*	<0,001	-0,256*	<0,001

\*<0,01 **TAS**: Technology Addiction Scale, **SHS**: Self-Handicapping Scale, **PWBS**: Psychological Well-Being Scale.

**Table 3.** Mediating role of self-handicapping.

The dependent variable	Independent variable	$\beta$	SE	t	p	95% CI Lower	95% CI Upper
SHS	TAS(a)	0,520	0,056	7,718	<0,001*	0,405	0,613
R=0,520, R-kare=0,270, F=59,192, p<0,001*							
PWBS	TAS(c)	-0,256	0,090	-3,359	<0,001*	-0,394	-0,091
R=0,256, R-kare=0,065, F=11,214, p=0,001*							
PWBS	TAS(c')	-0,040	0,094	-0,476	0,634	-0,193	0,113
PWBS	SHS(b)	-0,416	0,080	-5,023	<0,001*	-0,538	-0,278
R=0,438, R-kare=0,192, F=18,904, p<0,001*							
<b>Total Effect</b>		-0,256	0,090	-3,359	<0,001*	-0,394	-0,091
<b>Direct Effect</b>		-0,040	0,094	-0,476	0,634	-0,193	0,113
<b>Indirect Effect</b>		-0,216	0,050	-	<0,001*	-0,309	-0,143

\*p<0,001; SE: Standart Error;  $\beta$ : Standardized coefficients; **R2**: Coefficient of determination, **TAS**: Technology Addiction Scale, **SHS**: Self-Handicapping Scale, **PWBS**: Psychological Well-Being Scale.

## Discussion

Focusing on the predictors of psychological well-being, this study has demonstrated that self-handicapping fully mediates the relationship between technology addiction and psychological well-being. Previous studies have reported that technology addiction increases the tendency to self-handicapping (17), which allows a performance opportunity by internalizing success and externalizing failure, and that an increase in the propensity to self-handicapping reduces psychological well-being (12), which is characterized by

awareness and self-acceptance of the individual that are essential in coping with the difficulties of life (13). Determining the balance between these three variables may help develop interventions that increase psychological well-being in university students.

#### The relationship between variables

This study examined the relationship between the variables “technology addiction, psychological well-being and self-handicapping” and demonstrated that increasing technology addiction increases self-handicapping and decreases psychological well-being in university students. The findings of the studies on the relationship between technology addiction and psychological well-being in the literature are consistent with this study and show that university students with increased technology addiction have more negative emotions and less psychological well-being (21,29,30). This result suggests that focusing on the proper use of technology could be a good approach to promoting the psychological well-being of university students.

Self-handicapping, identified as another variable associated with technology addiction, is highly important for university students in terms of time management (31). It is known that the harmful use of technology causes problems, such as postponing responsibilities, difficulties in time management, moving away from social life, and loneliness (8). These problems overlap with self-handicapping behaviours. However, no study directly addressing the relationship between technology addiction and self-handicapping has been encountered. In this regard, the study's findings contribute to the literature by shedding light on this aspect. These two findings emphasise the need to support students in the conscious, safe and effective use of technology, prevent excessive and harmful use, carry out awareness activities and develop/implement educational programs on the mindful use of technology, encourage the beneficial use of technology, and identify students at risk of developing technology addiction and take precautions as necessary.

The study showed that as self-handicapping tendency increases, psychological well-being decreases. The findings of studies regarding the relationship between self-handicapping and psychological well-being are consistent with this study, indicating that university students showing increased self-handicapping tendencies tend to have lower psychological well-being (32,33). Considering that self-handicapping causes problems in social life and time management in university students (16) and that psychological well-being is an essential factor in developing awareness of oneself and the environment (12), it is safe to assume that planning initiatives aimed at reducing self-handicapping tendency can promote psychological well-being in university students.

#### The mediating role of self-handicapping

The study discussed technology addiction and self-handicapping as predictors of psychological well-being and evaluated the mediating effect of self-handicapping tendency. Self-handicapping, which is thought to be a mediating variable in the relationship between technology addiction and psychological well-being, was added to the model, and the effect of self-handicapping on psychological well-being became significant. According to this result, increasing self-handicapping reduces psychological well-being. With the significant balance between self-handicapping and psychological well-being, the mediating role could be evaluated. The relationship between technology addiction and psychological well-being disappeared, proving that this relationship is mediated by self-handicapping. According to this result, increasing self-handicapping reduces psychological well-being. With the significant balance between self-handicapping and psychological well-being, the mediating role could be evaluated. The relationship between technology addiction and psychological well-being disappeared, proving that this relationship is mediated by self-handicapping. In line with the finding that self-handicapping is a mediating variable, mental health interventions to prevent and reduce self-handicapping tendencies may contribute to managing the process. Thus, we may recommend that professionals working in the field of addiction and mental health can detect self-handicapping tendencies in university students through their role as researchers, plan social awareness activities regarding self-handicapping tendencies and technology addiction through their educator roles, and organise psycho-educational programs to increase psychological well-being and prevent technology addiction through their consultant roles in university students.

## Strengths and Limitations

With this study, the relationship between technology addiction and self-handicapping in university students and the mediating effect of self-handicapping on the relationship between technology addiction and psychological well-being were investigated for the first time to the best of our knowledge. Given that technology addiction is a widespread problem today<sup>1</sup>, we believe that examining psychological well-being, which is closely related to its occurrence<sup>12</sup>, and self-handicapping, which is thought to be a mediator between these two variables, will contribute to the literature. However, evaluating the causality in the relationship between technology addiction and psychological well-being with a single variable (self-handicapping) was a limitation of this study. We recommend future studies to examine the mediating effects of more variables on the balance between technology addiction and psychological well-being.

## Conclusion and Suggestions

The results of this study revealing the predictors of psychological well-being showed that higher technology addiction leads to reduced psychological well-being in university students. Technology addiction's effect on psychological well-being increases when this process is mediated by self-handicapping. Overall, the results highlight the importance of encouraging the correct use of technology and developing interventions that reduce the tendency for self-handicapping to increase psychological well-being in university students.

**Ethical Statement:** Ethics committee approval for this study, Eskişehir Osmangazi University Retrieved from the Non-invasive Ethics Committee (Date: 13.04.2023 and Decision No: E-25403353-050.99-2300076327). It has been declared that scientific and ethical principles and the research principles in the Declaration of Helsinki were complied with during the preparation of this study, and all studies used are included in the bibliography. This article has been scanned by iTenticate. No plagiarism detected.

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