

Participatory Educational Research (PER)  
Vol.10(1), pp. 17-41, January 2023  
Available online at <http://www.perjournal.com>  
ISSN: 2148-6123  
<http://dx.doi.org/10.17275/per.23.2.10.1>

Id: 1182028

## Mediating Effect of Digital Addiction on The Relationship Between Academic Motivation and Life Satisfaction in University Students

Aşıkay Nur Atasever \*

*Afyon Kocatepe University, Faculty of Education, Department of Educational Sciences  
Guidance and Psychological Counseling, Afyonkarahisar, Türkiye,  
ORCID: 0000-0003-3342-9666*

Levent Çelik

*Afyon Kocatepe Üniversitesi, Faculty of Education, Computer, and Instructional  
Technologies Education, Afyonkarahisar, Türkiye,  
ORCID: 0000-0002-1453-0622*

Yüksel Eroğlu

*Afyon Kocatepe University, Faculty of Education, Department of Educational Sciences  
Guidance and Psychological Counseling, Afyonkarahisar, Türkiye,  
ORCID: 0000-0002-0028-0327*

---

### Article history

**Received:**  
29.06.2022

**Received in revised form:**  
24.09.2022

**Accepted:**  
30.10.2022

### Key words:

Academic motivation, life satisfaction, digital addiction.

In this study, the mediating role of digital addiction in the relationship between academic motivation and life satisfaction was examined. The present study was quantitative in nature and correlational design was used. The data were collected through Google Forms. 191 university students selected by convenience sampling method participated in the study. Personal Information Form, Academic Motivation Scale, Digital Addiction Scale and Life Satisfaction Scale were used to collect data. Statistical analyses were carried out in two stages. First, the means, standard deviations, skewness and kurtosis coefficients of the variables and correlation coefficients between the variables were calculated. In the second stage, it was examined whether digital addiction plays a mediating role in the relationship between academic motivation and life satisfaction. The PROCESS macro model 4 was used to examine this role. In the analyses made to examine the mediation of digital addiction, 5000 resampling options were preferred with the bootstrap technique. The study has revealed that there is a positive direct and significant relationship between the intrinsic and extrinsic motivation sub-dimensions of academic motivation and life satisfaction, and a negative direct relationship between amotivation sub-dimension and life satisfaction. In addition, there is a negative direct relationship between intrinsic and extrinsic motivation and digital addiction, and a positive direct relationship exists between amotivation and digital addiction. In addition to these results, the study also revealed that digital addiction

---

\* Correspondency: askaynur@aku.edu.tr

---

negatively predicted life satisfaction. These results suggest that digital addiction has a partial mediation effect on the relationship between academic motivation and life satisfaction. Findings were discussed based on the literature and recommendations were made accordingly.

---

## **Introduction**

This study aimed to investigate the mediating role of digital addiction in the relationship between academic motivation and life satisfaction. To this end, the direct relations of the variables with each other and the indirect effect of academic motivation on life satisfaction through digital addiction were tested.

Academic motivation has been analyzed in different ways in studies investigating the relationships between academic motivation and life satisfaction in the literature. For example, Demir-Güdü (2015), in her study with university students, divided academic motivation into three motivation profiles: high, medium, low. As a result of the research, it was found that students with a high motivation profile had higher satisfaction with their lives than other students. In addition, it was determined that students with high academic motivation had higher psychological needs satisfaction (autonomy, competence, relatedness) and lower academic procrastination behaviors compared to other groups. Bailey and Phillips (2016) examined academic motivation in five sub-dimensions in the study they conducted with university freshmen students in Australia: 2 intrinsic motivations (for knowing and achievement, for experiencing stimulation), 2 extrinsic motivations (external regulation, introjected regulation) and amotivation. As a result of their studies, they found that intrinsic motivation for knowing and achievement and life satisfaction were positively related, and amotivation was negatively related. However, they found that life satisfaction and intrinsic motivation for experiencing stimulation and extrinsic motivation types did not have a significant relationship. In another study conducted with students studying at the faculty of sports sciences (Koç, 2018), the relationship between the intrinsic (3 sub-dimensions), extrinsic (3 sub-dimensions) and amotivation sub-dimensions of academic motivation with life satisfaction was examined. As a result of the research, it was determined that the intrinsic motivation sub-dimensions of intrinsic motivation for knowing and achievement, and the sub-dimensions of extrinsic motivation, which were determined extrinsic motivation and external regulation, were positively related to life satisfaction at a high level. On the other hand, no significant relationship was found between the sub-dimensions of intrinsic motivation to experience stimulation, introspective extrinsic motivation, and amotivation and life satisfaction. Guo (2018) discussed academic motivation in two dimensions as controlled and autonomous in his study with secondary school students in China. As a result of the research, it was determined that academic autonomous motivation predicted life satisfaction and student participation positively. Ozer and Schwartz (2020), who carried out a similar study with university students, found that autonomous motivation increased life satisfaction, while controlled motivation had no effect on life satisfaction, but was negatively related to psychological well-being. Çelenlioğlu (2020) included only the intrinsic motivation sub-dimension of academic motivation in her study. Evaluating the mediating effects of flow and academic performance in his study, the researcher revealed that intrinsic motivation positively affects life satisfaction both directly and indirectly through flow and academic performance. Tulunay-Ateş (2021), who examined the mediating role of problem-solving skills in the relationship between motivation and life satisfaction, evaluated the effect of intrinsic and extrinsic motivation in her study. As a result of the research, it has been determined that there is a positive and significant relationship between both intrinsic and extrinsic motivation and



life satisfaction, and problem-solving skills play a partial mediation role in this relationship. In a study in which structural equation modeling was used (Yoo & Marshall, 2022), different results were obtained from other studies. In the study examining the effect of academic motivation (intrinsic, extrinsic and amotivation) on life satisfaction through stress and school satisfaction, it was concluded that intrinsic/extrinsic motivation did not have a significant effect on life satisfaction directly or indirectly through stress and school satisfaction. The important finding of the study is that amotivation has a positive relationship with stress and a negative relationship with school satisfaction. In this study, stress mediated between two areas of satisfaction and amotivation. When the studies are examined, it is seen that different results are obtained depending on the way academic motivation is handled and the analysis differences. However, in general, it is understood that intrinsic motivation and autonomous motivation types affect life satisfaction positively, while controlled motivation types and amotivation affect negatively. This general result supports the views of self-determination theory (Deci & Ryan 1985; Ryan & Deci, 2017). In this study, based on the self-determination theory and the results of previous research, the first hypothesis was formed as follows:

*H1: There is a positive direct and significant relationship between the intrinsic and extrinsic motivation sub-dimensions of academic motivation and life satisfaction, and a negative direct and significant relationship between amotivation sub-dimension and life satisfaction.*

In a comprehensive longitudinal study conducted with primary school students (Bae, 2015), it was found that friendship satisfaction and academic motivation negatively affected the addictive use of smartphones and that the increase in friendship satisfaction and academic motivation over time reduced the addictive use of smartphones to that extent. In another study conducted with adolescents (Demir & Kutlu, 2018), it was found that internet addiction negatively affects academic motivation and positively affects academic procrastination. In this study, it has been reported that academic motivation affects school attachment positively and academic procrastination negatively, and internet addiction negatively affects school attachment through academic procrastination. Kandemir (2014) obtained a similar result in his study with university students and found that internet addiction directly predicted academic motivation negatively. Other studies (Arian et al., 2018; Rohani & Tari, 2012) revealed a negative relationship between internet addiction and academic motivation. In a study investigating the relationships between FoMO (Fear of Missing Out), social media participation and academic motivation (Alt, 2015), it was found that social media participation and FoMO had a positive and significant relationship with extrinsic motivation and amotivation. In the research, a negative but insignificant relationship was found between FoMO and social media participation and intrinsic motivation. In a study (Bayram, Yılmaz, Sözen, & Bayer, 2019) examining the effect of nomophobia (smartphone deprivation) on intrinsic motivation, it was revealed that nomophobia positively affects the intrinsic motivation of university students. Studies have also shown that there is a positive relationship between academic burnout (Hosseinpour, Asgari, & Ayati, 2016) and academic procrastination (Hayat et al., 2020; Narci, 2022; Yang, Asbury, & Griffiths, 2019) which are indicators of lack of academic motivation, and subtypes of digital addiction (mobile phone addiction, internet addiction, etc.). When the research results are evaluated; it is thought that intrinsic motivation may be negatively related to digital addiction, while extrinsic motivation and amotivation may be positively related. The second hypothesis of the research determined based on this is as follows:

*H2: There is a negative direct and significant relationship between the intrinsic motivation*

*sub-dimension of academic motivation and digital addiction, and a positive relationship between extrinsic and amotivation sub-dimensions and digital addiction.*

There are many studies in the literature that deal with the relationship between digital addiction types and life satisfaction with different variables. In one of these studies, Longstreet, and Brooks (2017) found that life satisfaction negatively affects internet and social media addiction. In the same study, it was determined that happiness affects life satisfaction positively and stress affects negatively. According to the results of the study, while happiness affects the reduction of addictions through life satisfaction, stress increases addictions by decreasing life satisfaction. In another study (Senol-Durak & Durak, 2011), the mediating roles of life satisfaction and self-esteem between affective components of subjective well-being (positive and negative affect) and cognitions related to problematic internet use were examined. As a result of the analyzes, both positive and negative affect were found to be positive on cognitions related to problematic internet use; It has been determined that life satisfaction and self-esteem have negative effects on the cognitive related to problematic internet use. With these results, it was found that both life satisfaction and self-esteem had a significant mediating effect between positive and negative affect and cognitions related to problematic internet use. As evident in the studies, happiness, and high self-esteem, which are indicators of high life satisfaction and psychological well-being, reduce addiction to digital technology. In a longitudinal study (Hinsch & Sheldon, 2013) conducted with university students who regularly use the internet for social purposes (Facebook and playing games), it was found that because of decreasing internet use, their life satisfaction increased, and procrastination behaviors decreased. Although there are other studies in the literature that reveal the negative relationship between life satisfaction and types of digital addiction (smartphone addiction, internet addiction, social media addiction, etc.) (Ergün & Meriç, 2020; Göldağ, 2019; Narci, 2022; Sahin, 2017; Verduyn, Ybarra, Résibois, Jonides, & Kross, 2017; Yang et al., 2019; Yukay Yüksel, Çini, & Yasak, 2020), there are also studies showing that there is no direct relationship between them (Çat, Koçak, & Toprak, 2021; Çırak & Dost, 2022; Himmetoğlu & Ayhan, 2021; Lepp, Barkley & Karpinski, 2014; Samaha & Hawi, 2016). For example, Samaha and Hawi (2016) found that smartphone addiction does not directly affect life satisfaction, however, smartphone addiction has an indirect effect on life satisfaction by increasing students' stress and reducing their academic performance. Studies showing that there is a positive relationship between life satisfaction and types of digital addiction (Pittman & Reich, 2016; Srivastava, 2015; Taşlıyan, Hırlak, Güler, & Gündoğdu, 2018) show that it is not very possible to reach a definite conclusion on this issue. The difference in research results may have resulted from the purpose of the research, the characteristics of the participants, other variables, the measurement tools used and the analysis methods. In this study, the third hypothesis of the research was formed as follows, because of the thought that the academic life of the students would be adversely affected by addiction, and this would negatively affect their life satisfaction:

*H3: There is a direct and significant negative relationship between digital addiction and life satisfaction.*

In previous studies examining the relationship between academic motivation and life satisfaction, it was determined that different variables such as academic procrastination (Demir-Güdül, 2015), problem-solving skills (Tulunay-Ateş, 2021), flow and academic performance (Çelenlioğlu, 2020) had a mediating effect. As a result of the literature review, no study examining the mediating role of digital addiction in the relationship between academic motivation and life satisfaction was found. In this research, it was aimed to examine



the mediating role of digital addiction and the final hypothesis of the research was determined:

*H4: Digital addiction mediates the relationship between academic motivation and life satisfaction.*

This research was conducted with university students. The reason why university students are preferred in this study is that university students are at risk for digital addiction for various reasons (Kesici & Tunç, 2018). These reasons are that university students are faced with two important developmental tasks such as affirming their sense of identity and establishing new social relationships (Kandell, 1998), digital environments provide university students with the opportunity to express their feelings and thoughts that they cannot express in real life, and they encounter less control in the digital environment (Verhoeven, Heerwegh & De Wit, 2010).

## Literature Review

### *Academic Motivation*

Motivation, generally defined in the literature as an internal force that activates the individual for a certain purpose (Adair, 2009; Ryan & Deci, 2000), is one of the most important elements to be effective in many areas of life. When it comes to the field of education and students, it is stated by experts that academic motivation is necessary to achieve the desired results (Deci & Ryan, 1985, 2008; Ryan & Deci, 2020; Vallerand & Bissonnette, 1992; Wentzel & Wigfield, 2009). Academic motivation is the power or energy that enables the individual to act and to show determination to continue the activity to fulfill one's duties and responsibilities related to one's educational life (Hotaman, 2018; Schunk, Meece, & Pintrich, 2012; Wentzel & Wigfield, 2009). According to field experts, the biggest education problem of our time is to develop and maintain academic motivation in students (Hattie, Hodis, & Kang, 2020; Koenka, 2020). However, many educational environments fall short of solving this problem (Ryan & Deci, 2020). Especially in the last fifty years, scientists who are interested in the subject have evaluated the views of existing theories on academic motivation and developed new theories in the light of the findings they have obtained, to both guide education policies and assist education practitioners. Although many academic motivation theories are mentioned today (Ayhan, 2022; Demir-Güdül, 2015; Hotaman, 2018; Karatepe, 2019), it is seen that five basic motivation theories have inspired research especially in the last two decades: attribution theory, expectancy-value theory, social-cognitive theory, achievement-goal theory, and self-determination theory (Anderman, 2020; Hattie et al., 2020; Koenka, 2020). What these theories have in common is that they have a social-cognitive approach. Therefore, they focus on the relationship between students' perceptions and their social contexts to explain motivation (Koenka, 2020). Despite this partnership, these theories differ in terms of the structures they examine, the questions they seek answers to, and their contributions to educational practices (Anderman, 2020). In this study, the explanations of the self-determination theory developed by Deci and Ryan (1985) were considered, as it was found to be suitable for the purpose of the research.

Self-determination theory provides a general framework based on empirical research on human development, health, and motivation (Deci & Ryan, 1985, 2008). The theory examines the innate abilities of people and the biological, social, and cultural conditions that improve or weaken their psychological development, participation, and well-being in their general and private life areas (Ryan & Deci, 2017). Three types of motivation are mentioned in the theory:

intrinsic motivation, extrinsic motivation and amotivation. Intrinsic motivation is when an individual does an activity “for their own sake” or for his inner interests and pleasures (Deci & Ryan, 2000; Ryan & Deci, 2020). Entertaining activities such as games, which the individual performs to satisfy his own personal pleasure and curiosity, without being exposed to any incentive, reward, or external pressure, are indicators of intrinsic motivation. Although these activities are “fun”, since the individual participates in the activity voluntarily, this also causes him to master the relevant subject over time. Therefore, internal motivation is much more effective on the learning of the individual, unlike the learning and teaching activities carried out by external pressure and coercion (Ryan & Deci, 2017, 2020). As a matter of fact, in the meta-analysis study conducted by Taylor et al. (2014), which included longitudinal studies, it was revealed that intrinsic motivation is the only consistent predictor of academic achievement in different school environments (high school and university) and in different cultures (Canada and Sweden). It is unlikely that every individual has enough intrinsic motivation for every situation. For this reason, it is necessary to benefit from extrinsic motivation in cases where the individual's intrinsic motivation is insufficient. Extrinsic motivation is instrumental, and the individual performs the behavior for external reasons rather than internal satisfaction. What is important for the individual here is the consequences of the behavior rather than the behavior (Deci & Ryan, 2000).

The theory does not consider extrinsic motivation as one-dimensional and the opposite of intrinsic motivation. Instead, about it stresses a heterogeneous category of extrinsic motivation that can change because of individuals' perceptions of autonomy (Deci & Ryan, 1985; Ryan & Deci, 2020; Taylor et al., 2014). There are four main subtypes of extrinsic motivation: external regulation, introjection, identification, and integrated regulation. Extrinsic regulation is about behaviors that are driven by external rewards and punishments. In this arrangement, behavior is not autonomous but is completely controlled from the outside. Introjected regulation is partly related to internalized extrinsic motivation. The individual performs the behavior to obtain internal rewards that increase self-esteem (such as self-pride) in case of success or to avoid feelings of anxiety, shame, or guilt in case of failure. This arrangement also represents the controlled form of motivation. In the identified setting, the individual consciously appreciates or personally affirms the value of an activity. Therefore, the individual chooses and performs the behavior more willingly. It is a more autonomous arrangement than other types.

The most autonomous type of extrinsic motivation is integrated regulation. In this arrangement, the individual recognizes the value of an activity, but also finds it compatible with other core interests and values. Therefore, there is an integration with behavior. There is a progression from controlled behavior to autonomous behavior in extrinsic motivation. Autonomous extrinsic forms of motivation (identified and integrated arrangements) are like intrinsic motivation in that the individual chooses behavior voluntarily. However, these types of motivation differ in that intrinsic motivation is based on interest and pleasure. In intrinsic motivation, the individual does the behavior because he or she finds it interesting or even fun. However, autonomous extrinsic forms of motivation are based on a sense of value and the individual finds the activity valuable even if it is not enjoyable (Ryan & Deci, 2020). Amotivation is one of the important concepts that the theory has brought to the motivation literature (Wigfield & Koenka, 2020). Lack of motivation, which is frequently encountered in classroom environments, is that the individual does not have enough desire and purpose to perform a behavior. Lack of motivation may result from the individual's not valuing the behavior, not believing in his own efficacy, or lack of interest. Studies have shown that amotivation has a negative effect on learning, participation in course activities and



performance (Ryan & Deci, 2020).

Self-determination theory argues that three basic psychological needs must be met for healthy development: autonomy, competence, and relatedness. Autonomy is about being able to choose one's behavior and taking responsibility for one's choices. If the individual can make choices with his free will in accordance with his own values and interests, the perception of autonomy develops. In cases where the behavior of the individual is tried to be controlled from the outside with reward or punishment, the individual's perception of autonomy begins to weaken. Competence is related to the individual's belief that he or she can improve and become successful and specialize in a subject. This need can be met by presenting moderate challenges in which the individual can succeed, giving positive feedback, and creating well-structured environments that provide opportunities for the individual to thrive. The need for relatedness is related to the individual's sense of belonging and commitment. Environments in which positive emotions such as respect, interest, care, and sincerity take place contribute to the fulfillment of this need of the individual (Ryan & Deci, 2020). The theory proposes that the degree of support and frustration of basic psychological needs affects both the type and strength of motivation. According to Ryan and Deci (2020), the inhibition of one of these three basic needs harms the motivation and well-being of the individual. For this reason, educational environments should primarily focus on the extent to which they meet or hinder these basic needs.

### ***Life Satisfaction***

With the development of positive psychology (Seligman & Csikszentmihalyi, 2000), the idea that focusing on positive, strong, and developable characteristics of people instead of focusing on the negative, weak, and problematic aspects of people will allow more positive results to be adopted. This situation has led researchers to focus their research on positive concepts such as happiness, well-being, meaning of life, and subjective well-being. Subjective well-being is a multifaceted construct with both emotional and cognitive components. Life satisfaction constitutes the cognitive aspect of subjective well-being and is the evaluation of the individual's quality of life. The individual compares the life conditions he perceives with the standards he determines and makes a judgment about his life. Therefore, life satisfaction is the cognitive judgment by which an individual evaluates the quality of life according to his/her own criteria (Pavot & Diener, 2009). Life satisfaction has been found to be associated with field satisfaction (marriage satisfaction, job satisfaction, academic satisfaction, etc.), which reflects an individual's judgment about a certain aspect of his life (Antaramian, 2017; Pavot & Diener, 2008). Research has concluded that the judgment of life satisfaction, which is formed by the individual's personality and temperament, affects the judgment of satisfaction against an area, and similarly, changes that occur in a life area according to the situation also affect life satisfaction (Pavot & Diener, 2008). As a matter of fact, in studies conducted with university students, it has been determined that academic satisfaction increases life satisfaction (Duffy, Allan, & Bott, 2012; Ojeda, Flores, & Navarro, 2011).

University years are one of the important life periods that affect the future life of the individual. For this reason, it is very important to investigate the life satisfaction of young people at university and to produce the necessary solutions in terms of creating happier and healthier societies. In a study investigating the source of university students' life satisfaction judgments (Schimmack, Diener, & Oishi, 2002), it was determined that students' thoughts about life areas such as academic performance, romantic relationships and family relationships were effective. Antaramian (2017), on the other hand, found that university

students with high life satisfaction participate more in academic activities, are more confident in their academic abilities, experience less academic stress, are more motivated to academic studies, and achieve higher grade point averages than students with average and low life satisfaction. determined what they did. In other studies, it has been determined that university students who do not have any psychological problems such as somatization, depression, and anxiety and who have high life satisfaction are more involved in the university experience and academic success is higher than students with low life satisfaction. (Antaramian, 2015; Renshaw & Cohen, 2014). Based on these results, it can be said that life satisfaction is a factor that facilitates academic functioning. In addition, in another study investigating the relationships between Instagram addiction, academic performance, depression, social anxiety and life satisfaction (Foroughi, Griffiths, Iranmanesh, & Salamzadeh, 2021), it has been revealed that Instagram addiction affects academic performance negatively, social anxiety and depression positively, and accordingly, academic performance positively predicts life satisfaction, while social anxiety and depression affect life satisfaction negatively. As a result, while positive results in academic life affect life satisfaction positively, high life satisfaction reflects positively on students' academic lives.

### ***Digital Addiction***

In today's world where a technological product is invented almost every day, technology has brought many problems with it while making our life easier in many areas. One of these problems is technology addiction, which occurs because of individuals' unconscious and uncontrolled use of technology. With the development of digital technology in the 21st century, digital addiction has recently been mentioned (Yengin, 2019). Digital addiction is a broad term used to describe the problematic use of digital devices (tablets, smartphones, etc.) characterized by being excessive, compulsive, impulsive, and hasty (Alrobai, McAlaney, Phalp, & Ali, 2019; Jiang, Phalp, & Ali, 2015). Digital addiction, which is a type of behavioral addiction, includes various addictions and disorders such as internet addiction, game addiction, cyber relationship addiction, information overload, social media addiction, wifi addiction, nomophobia, FoMO, and netlessphobia (Alrobai et al., 2019; Gezgin, 2019; Yengin, 2019). Although digital addiction is not yet officially classified as a mental disorder in the 5th and latest edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) (American Psychiatric Association, 2013) (Alrobai et al., 2019), studies have shown that digital addiction has withdrawal symptoms similar to those found in drug, tobacco and alcohol addictions (Ali, Jiang, Phalp, Muir, & McAlaney, 2015). Along with this, psychological problems such as digital addiction, distraction, insomnia, depression, decreased creativity and productivity, disconnection from reality and decreased social skills, and heart rhythm disorder, migraine, obesity, developmental problems due to lack of movement, posture disorders, eye problems, hearing problems, low back It has also been associated with bodily ailments such as neck hernia (Ali et al., 2015; Aziz, Nordin, Abdulkadir, & Salih, 2021; Gezgin, 2019; Ertemel & Aydın, 2018; Evci, 2022).

According to the digital reports of We Are Social, which is published regularly every 3 months; there is an increase in the use of the internet, social media, and mobile phones every year. According to the 2022 data of the report; 67.1% (5.31 billion) of the world's population of 7.91 billion uses a mobile phone. Compared to the data of 2021, the number of new mobile users has increased by 95 million. Similarly, the number of social media users reached 4.62 billion (58.4%) in 2021, with 424 million new users joining social media. The report also states that internet users, which were 2.18 billion in 2012, reached 4.95 billion at the beginning of 2022. According to the Türkiye data of the report, it is stated that 69.95 million





of the 85.30 million population use the internet and this figure is 3.9 million more than the 2021 report. The duration of people's use of the Internet is 8 hours per day. In addition, there is information that the number of mobile connections in our country has increased by 2.5 million (3.3%) in 2022 and reached 78 million, and that people spend more than 4 hours on mobile devices in a day. When the data is evaluated, it is seen that digital addiction is a danger in every age group both in the world and in our country. Due to the importance of the subject, the number of research studies has increased in recent years. Especially in the Covid-19 process, the transition to distance education and the greater exposure of students to digital devices have caused research to focus on students. In research conducted with students, it has been determined that digital addiction negatively affects academic life, attachment to the educational environment (Chang, Chiu, Lee, Chen, & Miao, 2014; Demir & Kutlu, 2018; Zhai, 2020) and all academic studies in general (Yang & Tung, 2007). Internet-addicted students have difficulty managing time (Cao & Su, 2007). This causes them to postpone their academic duties and responsibilities such as writing a term paper, studying for an exam, and fulfilling weekly reading assignments (Demir & Kutlu, 2018; Hayat, Kojuri & Mitra Amini, 2020; Narci, 2022) and thus their academic success decreases (Arian, Bagher Oghazian, Amini, Khosravipur, & Abaszadeh, 2018; Chaudhury & Tripathy, 2018; Chen, Chen & Gau, 2015; Demir & Kumcağız, 2019; Hassell & Sukalich, 2015; Jiang, 2014; Turel & Toraman, 2015). Digital addiction was also negatively associated with students' academic self-efficacy (Baturay & Toker, 2019; Hassell & Sukalich, 2015; Li, Gao & Xu, 2020; Parmaksız, 2022), participation in academic activities (Ganji, Tavakoli, Baniyasi Shahr-e Babak, & Asadi, 2016), and academic motivation (Arian et al., 2018; Demir & Kutlu, 2018), which are essential for success in their academic studies. In a recent study (Besalti & Satıcı, 2022), it was concluded that internet addicted students had lower learning satisfaction in online learning environments.

## METHODS

### *Research Design*

The present study was quantitative in nature and correlational design was used. Correlational design includes gathering data to determine whether and to what degree two or more quantifiable variables are associated. Although correlational design does not give a cause-effect relationship, it aims to provide opportunity to predict dependent variable while independent variable is known. Finally, correlation studies ensure understand the comprehending of relevant variables (Karasar, 2006). In this study, the mediating role played by digital addiction in the relationship between academic motivation and life satisfaction in the context of the correlational design was hypothesized as in figures 1, 2 and 3.

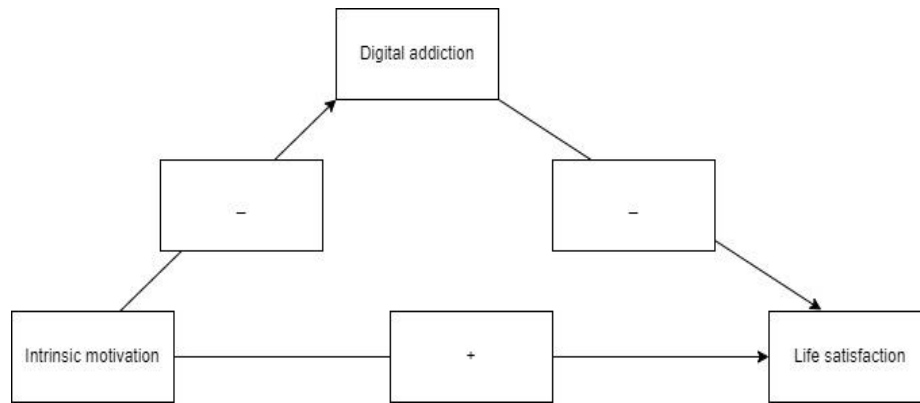


Figure 1. Hypothesized model for the relationship between intrinsic motivation, digital addiction, and life satisfaction

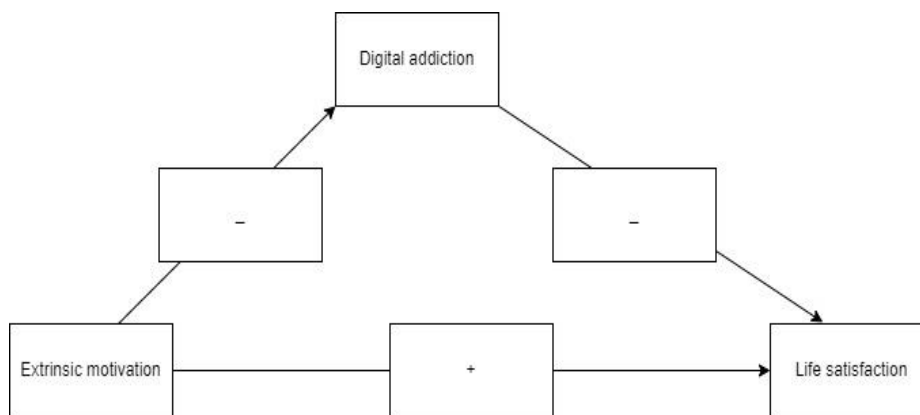


Figure 2. Hypothesized model for the relationship between extrinsic motivation, digital addiction, and life satisfaction

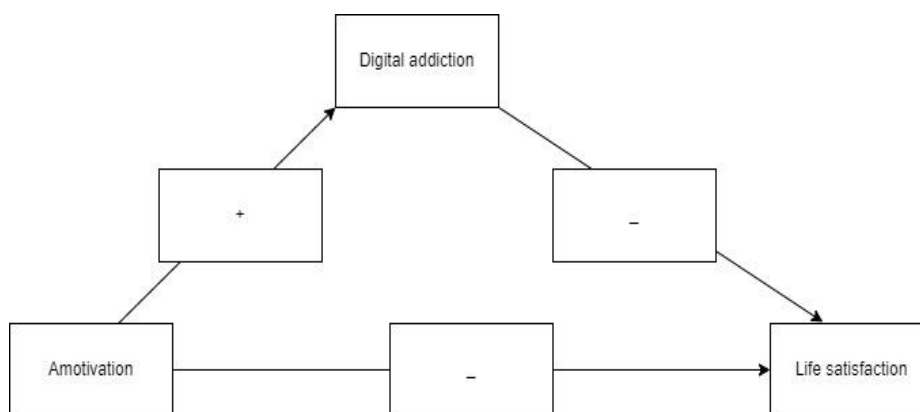


Figure 3. Hypothesized model for the relationship between amotivation, digital addiction, and life satisfaction

### Research Group

The current study was conducted with 191 university students selected by convenience sampling method. In the convenience sampling method, the researcher aims to carry out his/her research with a sample that provides convenience in terms of time and accessibility. In

this context, the data in this study were collected from university students who were taught by the researchers. 25.1% (48) of the participants were male and 74.9% (143) of the participants were female. Their ages ranged from 18 to 45 years old ( $M=20.94$ ,  $SD=3.34$ ). The G\*Power (Faul, Erdfelder, Buchner, & Lang, 2009) program was used to calculate the required sample size. The results obtained from this analysis revealed that the sample size of 59 people was sufficient for the four predictor variables with 95% real power, four predictors, an alpha level of 0.5, a power ratio  $(1-\beta) = .95$ , and a medium effect size. This value showed that the sample size of 191 people was sufficient to calculate the statistics of this study. In addition, according to the results of the power analysis, it can be said that the effect size is medium (Cohen  $f^2 = .34$ ) (Cohen, 1992).

Research data was collected through Google forms. The survey link was shared with the participants during the face-to-face and virtual lessons by the researchers, and in this way, the participants were provided to fill in the measurement tools. Informed consent was obtained from the participants before starting the study. After obtaining informed consent, a form containing questions related to their sociodemographic characteristics was administered to the participants. After this form, the participants were asked to fill in the link containing the scales. The research was designed in such a way that participants could leave the research at any time. Only fully filled measuring instruments were included in the analysis. Therefore, there is no missing data in the study.

### **Data Collection Tools**

#### *Academic Motivation Scale*

The scale developed by Vallerand et al. (1992) was adapted to Turkish culture by Ünal Karagüven (2012). The scale consists of 28 items. The scale includes seven sub-dimensions, three of which are intrinsic motivation, three are extrinsic motivation, and one is amotivation, each with four items. These are respectively; Intrinsic Motivation to Know-IMTK, Intrinsic Motivation to Accomplish-IMTA, Intrinsic Motivation to Experience Stimulation-IMES, Extrinsic Motivation External Regulation-EMER, Extrinsic Motivation Introjected Regulation-EMIN, Extrinsic Motivation Identified Regulation-EMID, and Amotivation-AMOS sub-dimensions. Scores from sub-dimensions range from 4 to 28. Since the subscales were evaluated separately, the values close to 28 obtained for each subscale indicate that dimension is high in the individual. At the beginning “Why are you going to school?” question and the phrase “Because...” right below it was provided. Participants were asked to complete the “because” statement with the next time and mark the appropriate option. The application is carried out by marking over seven degrees between 1 (not all agree) and 7 (completely agree) in the continuation of the statements. The statements in the motivation sub-dimension are opposite compared to the other sub-dimensions, as in the example of “I don’t know, I couldn’t understand what I was doing at school anyway”. However, while scoring, items in the amotivation sub-dimension are scored like the items in other sub-dimensions. In other words, there is no reverse scored item in the scale (Ünal Karagüven, 2012). In this research, the scale; it is discussed in three sub-dimensions as intrinsic motivation, extrinsic motivation, and amotivation. The internal consistency coefficients were found to be .87 for the intrinsic motivation sub-dimension, .83 for the extrinsic motivation sub-dimension, and .87 for the amotivation sub-dimension.

### ***Digital Addiction Scale (DAS)***

The scale, developed by Dilci (2019) with the participation of 450 university students, consists of five sub-dimensions, namely “Deprivation”, “Impulsivity”, “Low Performance”, “Low Self-Perception” and “Social Isolation”, and a total of forty items. The scale was prepared in a five-point Likert type and was graded as “I strongly disagree (1)”, “I do not agree (2)”, “I am undecided (3)”, “I partially agree (4)”, and “I totally agree (5)”. The highest score that can be obtained from the scale is 200, and the lowest score is 40. An increase in the score obtained from the scale indicates a high level of addiction (Dilci, 2019). In this study, the internal consistency coefficient of the scale was found to be .95.

### ***Life Satisfaction Scale***

The scale, originally developed by Diener, Emmons, Larsen, and Griffin (1985), was adapted into Turkish by Durak, Şenol-Durak, and Gencoz (2010). The scale is a 7-point Likert-type self-report scale consisting of 5 items. Participants indicate their level of agreement with the scale items using a Likert-type rating scale ranging from “I strongly disagree (1)” to “I totally agree (7)”. The scale is a measurement tool that measures global life satisfaction. Scores from the scale range from 0 to 35. As the score obtained from the scale increases, life satisfaction increases. In this study, the internal consistency coefficient of the scale was found to be .83.

### ***Data Analysis***

Statistical analyzes were carried out in two stages. First, the means, standard deviations, skewness and kurtosis coefficients of the variables and correlation coefficients between the variables were calculated. In the second stage, it was examined whether digital addiction plays a mediating role in the relationship between academic motivation and life satisfaction. The PROCESS macro model 4 (Hayes, 2018) was used to examine this role. In the analyzes made to examine the mediation of digital addiction, 5000 resampling options were preferred with the bootstrap technique. In mediation analyzes made with the bootstrap technique, the values in the 95 % confidence interval obtained because of the analysis should not contain zero to support the research hypothesis (Gürbüz, 2019).

### ***Ethics***

Research data were collected from volunteer participants online. Informed consent was obtained from the participants before the application. Finally, the participants were informed that they could leave the study at any time.

### ***Findings***

#### ***Descriptive Statistics***

The means, standard deviations, skewness, and kurtosis coefficients of the variables examined in the study, and Pearson correlation coefficients between the variables are shown in Table 1.



**Table 1.** Descriptive statistics and correlation coefficients between variables

Variables	M	SD	Skw.	Kur.	1	2	3	4	5
1. Intrinsic motiv.	59.23	11.35	-.31	-.21					
2. Extrinsic motiv.	60.13	11.58	-.52	.12	.68**				
3. Amotivation	10.04	5.84	1.08	.50	-.21**	-.30**			
4. Digital addiction	102.33	25.87	.36	.33	-.21**	-.15*	.32**		
5. Life satisfaction	19.72	6.51	-.21	-.83	.26**	.19*	-.30**	-.25**	

\*\*p<.01, \*p<.05

According to Table 1, intrinsic motivation was positively correlated with extrinsic motivation ( $r=.68$ ,  $p<.01$ ) and life satisfaction ( $r=.26$ ,  $p<.01$ ), and negatively correlated with amotivation ( $r=-.21$ ,  $p<.01$ ) and digital addiction ( $r=-.21$ ,  $p<.01$ ). Extrinsic motivation was positively associated with life satisfaction ( $r=.19$ ,  $p<.05$ ), negatively correlated with a motivation ( $r=-.30$ ,  $p<.01$ ) and digital addiction ( $r=-.15$ ,  $p<.05$ ). Amotivation was found to be positively associated with digital addiction ( $r=.32$ ,  $p<.01$ ), and negatively associated with life satisfaction ( $r=-.30$ ,  $p<.01$ ). Finally, it was determined that digital addiction was negatively associated with life satisfaction ( $r=-.25$ ,  $p<.01$ ).

### Statistical Assumption Tests

Before starting the analysis, the assumptions of multivariate statistics were tested. Tabachnick and Fidell (2013) state that skewness and kurtosis values between  $\pm 1.5$  are sufficient to meet the normality assumption. Therefore, it can be said that the variables were normally distributed. The multicollinearity problem was examined through VIF and tolerance values. The fact that the VIF values are less than 10 and the tolerance values are above .10 (Field, 2013) indicates that there is no multicollinearity problem. The autocorrelation was examined with the Durbin Watson (DW) coefficient and the calculated DW=1.94 value revealed that there was no autocorrelation problem.

### Simple Mediation Analysis

The role of digital addiction in the relationship between intrinsic motivation, extrinsic motivation, amotivation and life satisfaction, which are the sub-dimensions of academic motivation, was examined with a simple mediation analysis.

First, the role of digital addiction in the relationship between intrinsic motivation and life satisfaction was examined. In this context, the findings showed that the total effect of intrinsic motivation on life satisfaction is significant,  $B=.15$ ,  $t=3.62$ ,  $p<.01$ . In addition, it was determined that the effects of intrinsic motivation on digital addiction ( $B=-.47$ ,  $t=-2.91$ ,  $p<.01$ ) and digital addiction on life satisfaction ( $B=-.05$ ,  $t=-2.90$ ,  $p<.01$ ) were significant. 95 % bias corrected confidence intervals revealed that digital addiction mediated the relationship between intrinsic motivation and life satisfaction,  $B=.02$ , %95 CI (.004, .05). However, when the effect of digital addiction is controlled, it is seen that the effect of intrinsic motivation on life satisfaction continues,  $B=.12$ ,  $t=3.01$ ,  $p<.01$ . This indicates partial mediation (Baron & Kenny, 1986). Partial mediation shows that despite the mediating effect of digital addiction, intrinsic motivation continues to directly predict life satisfaction. The findings regarding the mediation analysis are shown in Figure 4.

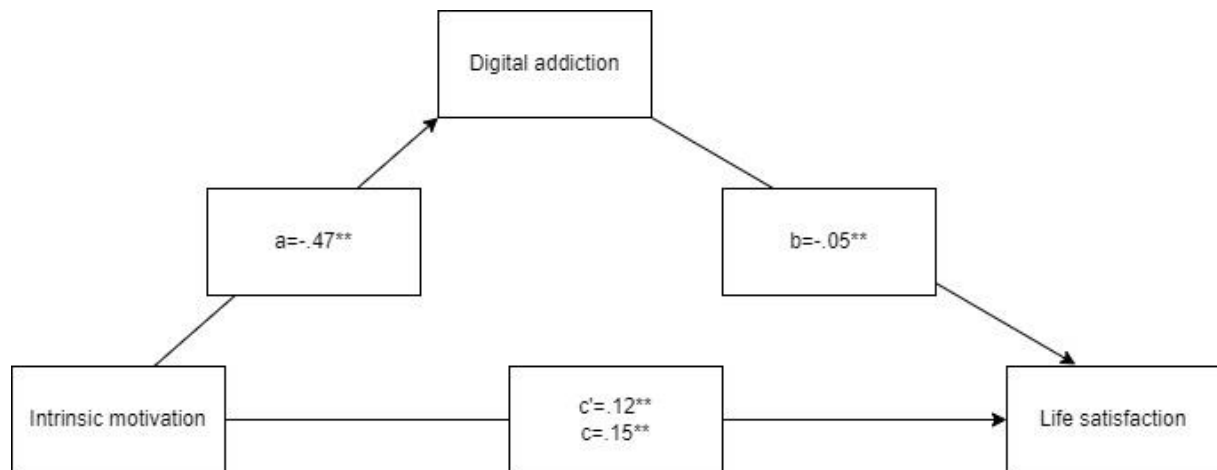


Figure 4. The results of simple mediation analysis, \*\* $p < .01$ , Values are shown unstandardized coefficients.

Secondly, the role of digital addiction in the relationship between extrinsic motivation and life satisfaction was examined. In this context, the findings showed that the total effect of extrinsic motivation on life satisfaction is significant,  $B = .10$ ,  $t = 2.60$ ,  $p < .05$ . In addition, it was determined that the effects of extrinsic motivation on digital addiction ( $B = -.33$ ,  $t = -2.08$ ,  $p < .05$ ) and digital addiction on life satisfaction ( $B = -.06$ ,  $t = -3.20$ ,  $p < .05$ ) were significant. 95 % bias corrected confidence intervals revealed that digital addiction mediated the relationship between extrinsic motivation and life satisfaction,  $B = .02$ , %95 CI (.001, .04). However, when the effect of digital addiction is controlled, it is seen that the effect of extrinsic motivation on life satisfaction continues,  $B = .12$ ,  $t = 3.01$ ,  $p < .05$ . This indicates partial mediation (Baron & Kenny, 1986). Partial mediation shows that despite the mediating effect of digital addiction, extrinsic motivation continues to directly predict life satisfaction. The findings regarding the mediation analysis are shown in Figure 5.

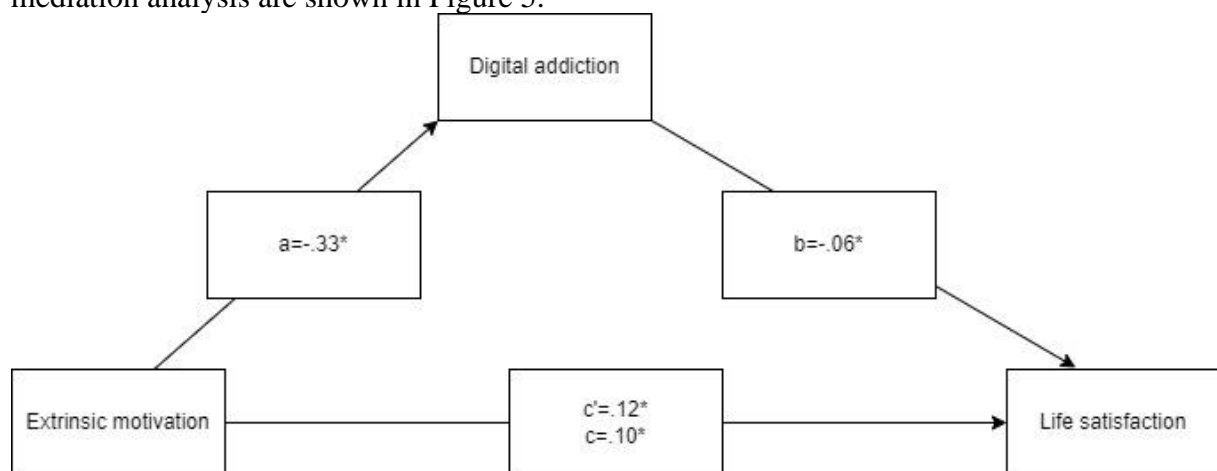


Figure 5. The results of simple mediation analysis, \* $p < .05$ , Values are shown unstandardized coefficients.

Finally, the role of digital addiction in the relationship between amotivation and life satisfaction was examined. In this context, the findings showed that the total effect of amotivation on life satisfaction is significant,  $B = -.33$ ,  $t = -4.24$ ,  $p < .05$ . In addition, it was determined that the effects of amotivation on digital addiction ( $B = 1.41$ ,  $t = 4.66$ ,  $p < .05$ ) and digital addiction on life satisfaction ( $B = -.04$ ,  $t = -2.37$ ,  $p < .05$ ) were significant. 95 % bias corrected confidence intervals revealed that digital addiction mediated the relationship between amotivation and life satisfaction,  $B = -0.06$ , %95 CI (-.13, -.006). However, when the

effect of digital addiction is controlled, it is seen that the effect of amotivation on life satisfaction continues,  $B=-.27$ ,  $t=-3.31$ ,  $p<.05$ . This indicates partial mediation (Baron & Kenny, 1986). Partial mediation shows that despite the mediating effect of digital addiction, amotivation continues to directly predict life satisfaction. The findings regarding the mediation analysis are shown in Figure 6.

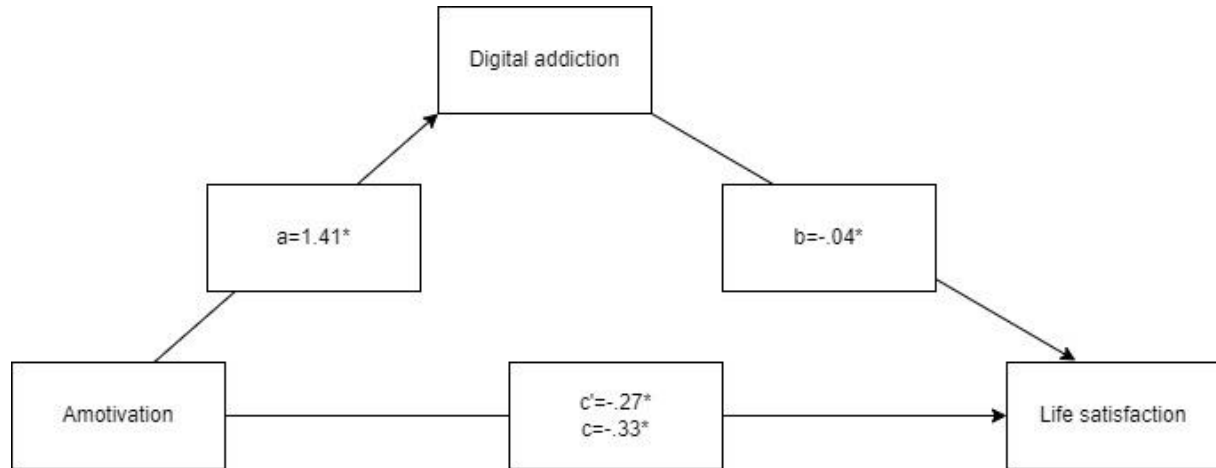


Figure 6. The results of simple mediation analysis, \* $p<.05$ , Values are shown unstandardized coefficients.

### Discussion, Conclusions and Recommendations

This study examined the mediating role of digital addiction in the relationship between academic motivation (intrinsic, extrinsic, amotivation) and life satisfaction. The study results determined that there is a positive direct relationship between the intrinsic and extrinsic motivation sub-dimensions of academic motivation and life satisfaction, and a negative direct relationship between amotivation sub-dimension and life satisfaction. In addition, we can conclude that there is a negative direct relationship between intrinsic and extrinsic motivation and digital addiction, and a positive direct relationship between amotivation and digital addiction. In addition to these results, the study also revealed that digital addiction negatively predicted life satisfaction. Finally, digital addiction plays a partial mediating role in the relationship between academic motivation and life satisfaction.

In the first hypothesis of the study, it was predicted that there was a positive relationship between intrinsic and extrinsic motivation and life satisfaction, and a negative direct and significant relationship between amotivation and life satisfaction. As a result of the analysis, H1 was confirmed. Demir-Güdül (2015) created three motivation profiles as high, medium, and low and found that students with a high motivation profile have higher life satisfaction than other groups, and students with a moderate motivation profile have a significantly higher life satisfaction than students with a low motivation profile have. The researcher evaluated the students' intrinsic, extrinsic and amotivation scores while creating their motivation profiles. It was determined that both intrinsic and extrinsic motivation scores of the students with a high motivation profile were higher than the other groups, and the amotivation scores of the students with a low motivation profile were higher than the other groups. Therefore, the current research findings are consistent with Demir-Güdül's (2015) research findings. The findings of this research study show that intrinsic (Bailey & Phillips, 2016; Çelenlioğlu, 2020; Koç, 2018; Tulunay-Ateş, 2021) and extrinsic motivation (Koç, 2018; Tulunay-Ateş, 2021)

positively affect life satisfaction, and amotivation (Bailey & Phillips, 2016) is partially consistent with the research findings revealing that it predicts negatively. In studies that deal with academic motivation in two dimensions as autonomous and controlled motivation (Guo, 2018; Ozer & Schwartz, 2020), autonomous types of intrinsic and extrinsic motivation have been identified as autonomous motivation and controlled types of extrinsic motivation. In these studies, it was found that while autonomous motivation had a positive effect on life satisfaction, controlled motivation had no effect on life satisfaction. It can be said that the findings obtained in the current study support the results of these studies (Guo, 2018; Ozer & Schwartz, 2020). According to the self-determination theory, while intrinsic motivation and autonomous types of extrinsic motivation affect individuals' well-being positively, amotivation negatively affects them (Deci & Ryan 1985; Ryan & Deci, 2017). From a theoretical standpoint, current research findings provide additional evidence for the views of self-determination theory. In a large-scale study (Salinas-Jiménez, Artés, & Salinas-Jiménez, 2010), it was found that there was a significant increase in life satisfaction as we progressed from extrinsic motivation to intrinsic motivation. According to the findings of the current study, the contribution of extrinsic motivation to life satisfaction is .19, while intrinsic motivation is .26. This result is in line with the study of Salinas-Jiménez et al. (2010). In a single study in which the structural equation model was used (Yoo & Marshall, 2022), different results were obtained from the findings of this study. In the study examining the effect of academic motivation (intrinsic, extrinsic and amotivation) on life satisfaction through stress and school satisfaction, it was concluded that intrinsic/extrinsic motivation did not have a significant effect on life satisfaction directly or indirectly through stress and school satisfaction. On the other hand, amotivation was found to be directly related to stress positively and negatively to school satisfaction and indirectly to life satisfaction negatively. According to the current research findings, amotivation negatively affects life satisfaction both directly and indirectly through digital addiction. Therefore, it can be said that the present study is partially consistent with the studies of Yoo and Marshall (2022).

In the second hypothesis of the study, it was assumed that intrinsic motivation might be negatively related to digital addiction, and extrinsic motivation and amotivation might be positively related. According to the findings of the research, it has been revealed that both intrinsic and extrinsic motivation affect digital addiction negatively, and amotivation positively. It can be said that H2 is partially confirmed. The difference in the research findings may be due to the sociocultural structure in Türkiye. Young people in Türkiye can be influenced by their environment even in important decisions such as choosing a profession (Atasever, 2021). Therefore, it can be said that young people in Türkiye are more affected by external guidance (family, teachers, relatives, friends, etc.) than young people who grow up in different cultures. As a matter of fact, in a study in Israel where many of the participants were students of Jewish origin (Alt, 2015), it was found that social media participation and FoMO (Fear of Missing Out) had a positive and significant relationship with extrinsic motivation and amotivation. It has been determined that there is a negative but meaningless relationship with intrinsic motivation. In a study conducted in Türkiye (Bayram et al., 2019), it was found that nomophobia (the lack of smartphones) positively affects the internal motivation of university students. Researchers interpreted this result as that sanctions such as preventing the use of smart phones in educational environments will increase the intrinsic motivation of students. The findings of the present study are consistent with this study. According to the self-determination theory, the motivation process starts with amotivation and progresses to the controlled types of extrinsic motivation (external and introjected regulations) and from there to autonomous types of extrinsic motivation (identified and integrated regulations), and finally, intrinsic motivation is reached (Ryan & Deci, 2017, 2020). In order not to interrupt





academic activities in educational environments, students can be kept away from technological products by using controlled types of extrinsic motivation (such as rewards and punishments). Then, students can be supported to internalize and adopt the rules by providing training on conscious use of technology. Thus, it may be possible for students to control their own behaviors independently over time and to use technology for learning and development purposes. Self-determination theory suggests that to develop motivation in students, the basic psychological needs (autonomy, competence, relatedness) must be satisfied first. Many studies have shown that because of adequately meeting the psychological needs of students by their parents and teachers, autonomous motivation types (autonomous types of intrinsic and extrinsic motivation) develop in students over time (Ryan & Deci, 2020). While satisfying basic psychological needs positively affects the development of autonomous motivation, it also reduces problematic internet and social media use. As a matter of fact, the internet, especially social media, has become channels where people try to meet their psychological needs (Özteke Kozan, Baloğlu, Kesici, & Arpacı, 2019). Meeting these needs, especially the sense of belonging and commitment in educational environments, may prevent students from turning to digital environments.

These research findings are in line with previous research findings revealing the negative relationship between smartphone addiction (Bae, 2015) and internet addiction (Arian et al., 2018; Demir & Kutlu, 2018; Kandemir, 2014; Rohani & Tari, 2012) and academic motivation. At the same time, academic burnout (Hosseinpour et al., 2016) and academic procrastination (Hayat et al., 2020; Narci, 2022; Yang et al., 2019) and subtypes of digital addiction (mobile phone addiction, internet addiction) resulting from the lack of motivation of the current research. It can be said that it supports the studies that show a positive relationship between.

Another finding obtained because of the analyzes is that digital addiction affects life satisfaction negatively, as predicted in the third hypothesis. This result is in line with the research results revealing the negative impact of subtypes of digital addiction on life satisfaction (Ergün & Meriç, 2020; Göldağ, 2019; Narci, 2022; Sahin, 2017; Verduyn et al., 2017; Yang et al., 2019; Yukay Yüksel et al., 2020) show parallelism. Similarly, it can be said that the current study supports the studies (Senol-Durak & Durak, 2011; Longstreet & Brooks, 2017) that reveal that high life satisfaction reduces digital addiction. This study also supports the findings of research (Hinsch & Sheldon, 2013), which found that internet addicted students' life satisfaction increases because of reducing their internet use. There are also studies in the literature that show that there is no relationship between digital addiction and life satisfaction (Çat et al., 2021; Çırak & Dost, 2022; Himmetoğlu & Ayhan, 2021; Lepp et al., 2014; Samaha & Hawi, 2016), or that there is a positive relationship between them (Pittman & Reich, 2016; Srivastava, 2015; Taşlıyan et al., 2018), unlike the current study. Many factors affect the results of the research: the purpose of the research, the characteristics of the research group, the measurement tools used in the research, the analysis methods, etc. For this reason, studies have yielded quite different results from each other. However, as mentioned above, digital environments have turned into a medium where individuals satisfy their psychological needs (Özteke Kozan et al., 2019). According to a study, university students become prone to become addicted to the internet if they can meet their psychological needs (power need, need for challenge, social need, avoiding reality need) on the internet (Deng, Fang, Wan, Zhang, & Xia, 2012). In addition to satisfying their psychological needs, university students also use digital media to meet their needs in many areas of life, such as obtaining information, having fun, communicating on academic issues, and handling banking affairs (Gezgin, 2019). For this reason, it would be more accurate to approach the relationship

between digital addiction and life satisfaction from a multidimensional perspective. However, as mentioned above, if students' psychological needs (autonomy, competence, relatedness) can be adequately met in educational environments, they can consciously use digital environments to increase their life satisfaction. As a matter of fact, in his study, Guo (2018) revealed that satisfaction of basic psychological needs positively affects students' participation in academic activities and life satisfaction and increases the positive effect of autonomous motivation on student participation and life satisfaction. Similarly, Demir-Güdül (2015) found that students with a high motivation profile had higher levels of psychological need satisfaction and life satisfaction than students with a medium and low motivation profile. For this reason, as emphasized in the self-determination theory, it would be appropriate for educators to focus primarily on meeting the psychological needs of students to increase students' academic motivation and life satisfaction and reduce their digital addiction.

In the last hypothesis of the study, it was assumed that digital addiction had a mediating role between academic motivation and life satisfaction. As a result of the analysis, it was determined that H4 was accepted. Digital addiction mediated the relationships between all sub-dimensions of academic motivation (internal, extrinsic, amotivation) and life satisfaction. In other words, while digital addiction reduces the positive effects of intrinsic and extrinsic motivation on life satisfaction, it increases the negative effect of amotivation on life satisfaction. From this point of view, digital addiction negatively affects students' academic functionality and overall satisfaction with their lives. The authorities responsible for education policies and all education practitioners in general should be aware of this harmful effect and take various precautions.

To create happy societies, education systems must first raise happy individuals. For the arrangements to be made in the education systems, it is important to investigate how satisfied the students are with their lives and to determine the relevant factors. In this study, the effect of students' academic motivation, which is very effective on their academic life, on their general life satisfaction was examined through digital addiction, which again constitutes an important risk group for students. It is thought that the findings of this study make an important contribution to the literature, since no study has been found in which the relationship between these three variables has been examined before. However, the small size of the study group limits the generalizability of the study. In future studies, the variables of the research can be examined with a larger participant group. However, conducting qualitative and longitudinal studies at different universities and education levels may contribute to revealing the relationships between the variables more clearly. In addition, as Ryan and Deci (2020) emphasized, the results obtained by investigating the extent to which the psychological needs of students can be met in different educational environments can be examined in relation to the variables of the research. In addition, the extent to which other addictions (substance addiction, gambling addiction, alcohol addiction, etc.) mediate the relationship between students' academic motivation and life satisfaction can be investigated by researchers who want to conduct research in the future.

## REFERENCES

- Adair, J. (2009). *Effective Motivation: How to Get the Best Results from Everyone*. London: Pan Books.
- Ali, R., Jiang, N., Phalp, K., Muir, S., & McAlaney, J. (2015, March). The emerging requirement for digital addiction labels. *In International Working Conference on*



- Requirements Engineering: Foundation for Software Quality* (pp. 198-213). Springer, Cham.
- Alrobai, A., McAlaney, J., Phalp, K., & Ali, R. (2019). Exploring the risk factors of interactive e-health interventions for digital addiction. In I. Management Association (Ed.), *Substance Abuse and Addiction: Breakthroughs in Research and Practice* (pp. 375-390). IGI Global. <https://doi.org/10.4018/978-1-5225-7666-2.ch020>
- Alt, D. (2015). College students' academic motivation, media engagement and fear of missing out. *Computers in Human Behavior*, 49, 111-119. <https://doi.org/10.1016/j.chb.2015.02.057>
- Anderman, E. M. (2020). Achievement motivation theory: Balancing precision and utility. *Contemporary Educational Psychology*, 61, 101864. <https://doi.org/10.1016/j.cedpsych.2020.101864>
- Antaramian, S. (2015). Assessing psychological symptoms and well-being: Application of a dual-factor mental health model to understand college student performance. *Journal of Psychoeducational Assessment*, 33(5), 419-429. <https://doi.org/10.1177/0734282914557727>
- Antaramian, S. (2017). The Importance of very high life satisfaction for students' academic success. *Cogent Education*, 4(1), 1307622. Doi:10.1080/2331186X.2017.1307622
- Arian, M., Bagher Oghazian, M., Amini, Z., Khosravipur, A., & Abaszadeh, F. (2018). The relationship between internet addiction and social network with academic motivation in students, Bojnord University of Medical Science. *Journal of Nursing Education*, 7(2), 62-69. Doi:10.21859/jne-07028
- Atasever, A. N. (2021). *A model test on university students' career adaptability* (Unpublished doctoral dissertation). Ankara University, Ankara.
- Ayhan, Ş. (2022). *An investigation of academic motivations of university students during covid-19 pandemic process* (Unpublished master's thesis). Hacettepe University, Ankara.
- Aziz, N., Nordin, M. J., Abdulkadir, S. J., & Salih, M. M. M. (2021). Digital addiction: Systematic review of computer game addiction impact on adolescent physical health. *Electronics*, 10(9), 996. Doi:10.3390/electronics10090996
- Bae, S. M. (2015). The relationships between perceived parenting style, learning motivation, friendship satisfaction, and the addictive use of smartphones with elementary school students of South Korea: Using multivariate latent growth modeling. *School Psychology International*, 36(5), 513-531. <https://doi.org/10.1177/0143034315604017>
- Bailey, T. H., & Phillips, L. J. (2016). The influence of motivation and adaptation on students' subjective well-being, meaning in life and academic performance. *Higher Education Research & Development*, 35(2), 201-216. Doi:10.1080/07294360.2015.1087474
- Baron, R.M., & Kenny, D. A. (1986). The moderator-mediator variables distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-82. Doi: 10.1037//0022-3514.51.6.1173.
- Baturay, MH and Toker, S. (2019). Internet addiction among college students: Some causes and effects. *Education and Information Technologies*, 24 (5), 2863-2885. Doi:10.1007/s10639-019-09894-3
- Bayram, A., Yılmaz, E. Z., Sözen, Ç., & Bayer, N. (2019). Effects of nomophobia (smart phone deprivation) to intrinsic motivation: Sample of students in Giresun University. *The Journal of Business Science*, 7(1), 105-130. <https://doi.org/10.22139/jobs.484598>

- Besalti, M., & Satici, S. A. (2022). Online learning satisfaction and internet addiction during covid-19 pandemic: A two-wave longitudinal study. *TechTrends*, 1-7. Doi:10.1007/s11528-022-00697-x
- Cao, F., & Su, L. (2007). Internet addiction among Chinese adolescents: Prevalence and psychological features. *Child: care, health, and development*, 33(3), 275-281. Doi:10.1111/j.1365-2214.2006.00715.x.
- Chang, F. C., Chiu, C. H., Lee, C. M., Chen, P. H., & Miao, N. F. (2014). Predictors of the initiation and persistence of Internet addiction among adolescents in Taiwan. *Addictive Behaviors*, 39(10), 1434-1440. <https://doi.org/10.1016/j.addbeh.2014.05.010>
- Chaudhury, P., & Tripathy, H. K. (2018). Study on impact of smartphone addiction on academic performance. *International Journal of Engineering & Technology*, 7(2-6), 50-53. Doi:10.14419/ijet.v7i2.6.10066
- Chen, Y. L., Chen, S. H., & Gau, S. S. F. (2015). ADHD and autistic traits, family function, parenting style, and social adjustment for Internet addiction among children and adolescents in Taiwan: A longitudinal study. *Research in developmental disabilities*, 39, 20-31. doi: 10.1016/j.ridd.2014.12.025
- Cohen, J. (1992). A Power Primer. *Psychological Bulletin*, 112(1), 155-159. Doi: 10.1037//0033-2909.112.1.155
- Çat, A. K., Koçak, M. C., & Toprak, Ö. (2021). Field research on the effect of social media addiction level on life satisfaction. *Communication Theory & Research*, 2021(56), 185-202. <https://doi.org/10.47998/ikad.999223>
- Çelenlioğlu, Ş. (2020). *Intermediary role of flow in the relationship between academic motivation and academic performance and their effect on satisfaction with life and psychological well-being* (Unpublished master's thesis). İstanbul Medipol University, İstanbul.
- Çırak, M., & Dost, M. T. (2022). Nomophobia in university students: The roles of digital addiction, social connectedness, and life satisfaction. *Turkish Psychological Counseling and Guidance Journal*, 12(64), 35-52. Doi: 10.17066/tpdrd.1095905
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological inquiry*, 11(4), 227-268. [https://doi.org/10.1207/S15327965PLI1104\\_01](https://doi.org/10.1207/S15327965PLI1104_01)
- Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology / Psychologie canadienne*, 49(3), 182-185. <https://doi.org/10.1037/a0012801>
- Demir-Güdül, M. (2015). *The Relationship between university students' academic motivation profiles and psychological needs, academic procrastination, and life satisfaction* (Unpublished doctoral dissertation). Anadolu University, Eskişehir.
- Demir, Y., & Kumcağız, H. (2019). Investigating the effects of several variables on university students' social media addiction. *Turkish Psychological Counseling and Guidance Journal*, 9(52), 23-42. Retrieved from <https://dergipark.org.tr/tr/pub/tpdrd/issue//44557/550132>
- Demir, Y., & Kutlu, M. (2018). Relationships among Internet addiction, academic motivation, academic procrastination, and school attachment in adolescents. *International Online Journal of Educational Sciences*, 10(5). Doi:10.15345/iojes.2018.05.020
- Deng, L. Y., Fang, X. Y., Wan, J. J., Zhang, J. T., & Xia, C. C. (2012). The relationship of psychological needs and need gratification with Internet addiction among college students. *Journal of Psychological Science*, 35(1), 123-128. Retrieved from <http://www.psyci.org/EN/Y2012/V35/I1/123>

- Dilci, T. (2019). A study on validity and reliability of digital addiction scale for 19 years or older. *Universal Journal of Educational Research*, 7(1), 32-39. Doi:10.13189/ujer.2019.070105
- Duffy, R. D., Allan, B. A., & Bott, E. M. (2012). Calling and life satisfaction among undergraduate students: Investigating mediators and moderators. *Journal of Happiness Studies*, 13(3), 469-479. Doi:10.1007/s10902-011-9274-6
- Durak, M., Senol-Durak, E., & Gencoz, T. (2010). Psychometric properties of the satisfaction with life scale among Turkish university students, correctional officers, and elderly adults. *Social Indicators Research*, 99(3), 413-429. Doi:10.1007/s11205-010-9589-4
- Ergün, G., & Meriç, M. (2020). Examining the relationship, Internet use, happiness, and life satisfaction of university students. *Journal of Anatolia Nursing and Health Sciences*, 23(2), 233-240. Doi:10.17049/ataunihem.524124
- Ertemel, A. V., & Aydın, G. (2018). Technology addiction in the digital economy and suggested solutions. *Addicta-The Turkish Journal on Addictions*, 5(4), 683-690. <https://dx.doi.org/10.15805/addicta.2018.5.4.0038>
- Evcı, V. Y. (2022). An evaluation on the problem of digital addiction in youth. *Journal of Social Sciences and Education*, 5(1), 115-134. <https://doi.org/10.53047/josse.1092958>
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G\* Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149-1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics*. Los Angeles: Sage Publication.
- Foroughi, B., Griffiths, M. D., Iranmanesh, M., & Salamzadeh, Y. (2021). Associations between Instagram addiction, academic performance, social anxiety, depression, and life satisfaction among university students. *International Journal of Mental Health and Addiction*, 1-22. Doi:10.1007/s11469-021-00510-5
- Ganji, B., Tavakoli, S., Baniasadi Shahr-e Babak, F., & Asadi, S. (2016). Surveying the relationship between Internet addiction and academic engagement of students. *Education Strategies in Medical Sciences*, 9(2), 150-155. Retrieved from <http://edcbmj.ir/article-1-1014-en.pdf>
- Gezgin, D. M. (2010, March). Socio-psychological effects of developing technology on university students. In *XI. IBANESS Congress Series*, pp. 238-242.
- Göldağ, B. (2019). The investigation of the relationship between smartphone addiction and perceived stress and life satisfaction. *Turkish Studies-Information Technologies and Applied Sciences*, 14(2), 193-212. Doi: 10.29228/TurkishStudies.22753
- Guo, Y. (2018). The influence of academic autonomous motivation on learning engagement and life satisfaction in adolescents: The mediating role of basic psychological needs satisfaction. *Journal of Education and Learning*, 7(4), 254-261. Doi:10.5539/ijel.v8n5p254
- Gürbüz, S. (2019). *Sosyal Bilimlerde Aracı, Düzenleyici ve Durumsal Etki Analizleri [Mediation, Moderation, and Conditional Analysis in Social Sciences]*. Ankara: Seçkin Publ.
- Hassell, M., & Sukalich, M. (2015, August). *Digging deeper into the outcomes of social media use among college students: The mediating effect of academic self-efficacy*. Paper presented 21st AMCIS, Puerto Rico. Abstract retrieved from <https://aisel.aisnet.org/amcis2015/AdoptionofIT/GeneralPresentations/42>
- Hattie, J., Hodis, F. A., & Kang, S. H. (2020). Theories of motivation: Integration and ways forward. *Contemporary Educational Psychology*, 61, 101865. <https://doi.org/10.1016/j.cedpsych.2020.101865>

- Hayat, A. A., Kojuri, J., & Mitra Amini, M. D. (2020). Academic procrastination of medical students: The role of Internet addiction. *Journal of Advances in Medical Education & Professionalism*, 8(2), 83-89. Doi:10.30476/JAMP.2020.85000.1159
- Hayes, A. F. (2018). *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*. New York: Guilford Publications.
- Himmetoğlu, A., & Ayhan, A. (2021). An investigation of the relationship between social media use of motivation, leisure satisfaction and life satisfaction: A case of Akdeniz University. *Mehmet Akif Ersoy University Journal of Economics and Administrative Sciences Faculty*, 8(2), 1141-1174. <https://doi.org/10.30798/makuiibf.910695>
- Hinsch, C., & Sheldon, K. M. (2013). The impact of frequent social Internet consumption: Increased procrastination and lower life satisfaction. *Journal of Consumer Behaviour*, 12(6), 496-505. <https://doi.org/10.1002/cb.1453>
- Hosseinpour, E., Asgari, A., & Ayati, M. (2016). The relationship between Internet and cell-phone addictions and academic burnout in university students. *Information and Communication Technology in Educational Sciences*, 6(4 (24)), 59-73.
- Hotaman, D. (2018). Motivasyonun Gerekliliği [Necessity of Motivation]. In M. Yapıcı (Ed.), *Doğumdan Ölüme Psikolojik Süreçler – Psikoloji [Psychological Processes from Birth to Death]* (pp.261-284). Ankara: Eğiten Publ.
- Jiang, J., Phalp, K. T., & Ali, R. (2015). *Digital addiction: Gamification for precautionary and recovery requirements, European project*. Academic Press.
- Jiang, Q. (2014). Internet addiction among young people in China: Internet connectedness, online gaming, and academic performance decrement. *Internet Research*, 24(1), 2-20. <https://doi.org/10.1108/IntR-01-2013-0004>
- Kandell, J. J. (1998). Internet addiction on campus: The vulnerability of college students. *Cyberpsychology & Behavior*, 1(1), 1-17. doi:10.1089/cpb.1998.1.1
- Kandemir, M. (2014). Predictors of academic procrastination: Coping with stress, Internet addiction and academic motivation. *World Applied Sciences Journal*, 32(5), 930-938. Doi: 10.5829/idosi.wasj.2014.32.05.60
- Karasar, N. (2006). Bilimsel Araştırma Yöntemi [Scientific Research Method]. Ankara: Nobel Publ.
- Karatepe, H. (2019). *High school students' academic motivation, school attachment and basic psychological needs at school and investigation of the relations between them* (Unpublished master's thesis). İnönü University, Malatya.
- Kesici, A., & Tunç, N. F. (2018). Investigating the digital addiction level of the university students according to their purposes for using digital tools. *Universal Journal of Educational Research*, 6(2), 235-241. Doi:10.13189/ujer.2018.060204
- Koç, K. (2018). Investigation of the relationship between life satisfaction levels and academic motivation levels of the students of the faculty of sport sciences. *The Journal of Turkish Sport Sciences*, 1(2), 58-65. Retrieved from <https://dergipark.org.tr/tr/pub/tsbd/issue/36534/470165>
- Koenka, A. C. (2020). Academic motivation theories revisited: An interactive dialog between motivation scholars on recent contributions, underexplored issues, and future directions. *Contemporary Educational Psychology*, 61, 101831. <https://doi.org/10.1016/j.cedpsych.2019.101831>
- Lepp, A., Barkley, J. E., & Karpinski, A. C. (2014). The relationship between cell phone use, academic performance, anxiety, and satisfaction with life in college students. *Computers in Human Behavior*, 31, 343-350. <https://doi.org/10.1016/j.chb.2013.10.049>
- Li, L., Gao, H., & Xu, Y. (2020). The mediating and buffering effect of academic self-efficacy on the relationship between smartphone addiction and academic

- procrastination. *Computers & Education*, 159, 104001. <https://doi.org/10.1016/j.compedu.2020.104001>
- Longstreet, P., & Brooks, S. (2017). Life satisfaction: A key to managing internet & social media addiction. *Technology in Society*, 50, 73-77. <https://doi.org/10.1016/j.techsoc.2017.05.003>
- Narci, M. (2022). *The relationship between problematic internet use and academic procrastination and life satisfaction of university students* (Unpublished doctoral dissertation). University of Alabama, Alabama.
- Ojeda, L., Flores, L. Y., & Navarro, R. L. (2011). Social cognitive predictors of Mexican American college students' academic and life satisfaction. *Journal of Counseling Psychology*, 58(1), 61. Doi:10.1037/a0021687
- Ozer, S., & Schwartz, S. J. (2020). Academic motivation, life exploration, and psychological well-being among emerging adults in Denmark. *Nordic Psychology*, 72(3), 199-221. Doi:10.1080/19012276.2019.1675088
- Özteke Kozan, H. İ., Baloğlu, M., Kesici, Ş., & Arpacı, İ. (2019). The role of personality and psychological needs on the problematic Internet use and problematic social media use. *Addicta: The Turkish Journal on Addictions*, 6, 203-219. Doi:10.15805/addicta.2018.6.2.0029
- Parmaksız, İ. (2022). The mediating role of personality traits on the relationship between academic self-efficacy and digital addiction. *Education and Information Technologies*, 1-20. Doi:10.1007/s10639-022-10996-8
- Pavot, W., & Diener, E. (2008). The satisfaction with life scale and the emerging construct of life satisfaction. *The Journal of Positive Psychology*, 3(2), 137-152. <https://doi.org/10.1080/17439760701756946>
- Pavot, W., & Diener, E. (2009). Review of the satisfaction with life scale. In E. Diener (Ed.), *Assessing Well-being* (pp. 101-117). Dordrecht: Springer.
- Pittman, M., & Reich, B. (2016). Social media and loneliness: Why an Instagram picture may be worth more than a thousand Twitter words. *Computers in Human Behavior*, 62, 155-167. <https://doi.org/10.1016/j.chb.2016.03.084>
- Renshaw, T. L., & Cohen, A. S. (2014). Life satisfaction as a distinguishing indicator of college student functioning: Further validation of the two-continua model of mental health. *Social Indicators Research*, 117(1), 319-334. <https://doi.org/10.1007/s11205-013-0342-7>
- Rohani, F., & Tari, S. (2012). A study of the relationship between the rate of addiction to internet with academic motivation and social development among high school students in Mazandaran Province. *Information and Communication Technology in Educational Sciences*, 2(2), 19-34.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25(1), 54-67. <https://doi.org/10.1006/ceps.1999.1020>
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. New York, NY: Guilford Press.
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 61, 101860. <https://doi.org/10.1016/j.cedpsych.2020.101860>
- Sahin, C. (2017). The predictive level of social media addiction for life satisfaction: A study on university students. *Turkish Online Journal of Educational Technology-TOJET*, 16(4), 120-125. Retrieved from <https://eric.ed.gov/?id=EJ1160611>

- Salinas-Jiménez, M. D. M., Artés, J., & Salinas-Jiménez, J. (2010). Income, motivation, and satisfaction with life: An empirical analysis. *Journal of Happiness Studies*, 11(6), 779-793. DOI:10.1007/s10902-010-9185-y
- Samaha, M., & Hawi, N. S. (2016). Relationships among smartphone addiction, stress, academic performance, and satisfaction with life. *Computers in Human Behavior*, 57, 321-325. <https://doi.org/10.1016/j.chb.2015.12.045>
- Schunk, D. H., Meece, J. R., & Pintrich, P. R. (2012). *Motivation in education: Theory, research, and applications*. Pearson Higher Ed.
- Schimmack, U., Diener, E., & Oishi, S. (2002). Life-satisfaction is a momentary judgment and a stable personality characteristic: The use of chronically accessible and stable sources. *Journal of Personality*, 70(3), 345– 384. <https://doi.org/10.1111/1467-6494.05008>
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55(1), 5–14. <https://doi.org/10.1037/0003-066X.55.1.5>
- Senol-Durak, E., & Durak, M. (2011). The mediator roles of life satisfaction and self-esteem between the affective components of psychological well-being and the cognitive symptoms of problematic Internet use. *Social Indicators Research*, 103(1), 23-32. Doi:10.1007/s11205-010-9694-4
- Srivastava, A. (2015). The effect of Facebook use on life satisfaction and subjective happiness of college students. *The International Journal of Indian Psychology*, 2(4), 204-216. Doi:10.25215/0204.078
- Tabachnick, B. G. & Fidell, L. S. (2013). *Using Multivariate Statistics*. Needham Heights, MA: Allyn and Bacon.
- Taylor, G., Jungert, T., Mageau, G. A., Schattke, K., Dedic, H., Rosenfield, S., & Koestner, R. (2014). A self-determination theory approach to predicting school achievement over time: The unique role of intrinsic motivation. *Contemporary Educational Psychology*, 39(4), 342-358. <https://doi.org/10.1016/j.cedpsych.2014.08.002>
- Taşlıyan, M., Hırlak, B., Güler, B., & Gündoğdu, E. (2018). The relationship between Internet addiction, life satisfaction and some demographic variables. *Osmaniye Korkut Ata University Journal of Economics and Administrative Sciences*, 2(2), 166-179. Retrieved from <https://dergipark.org.tr/tr/pub/oskaiibfd/issue/42203/463140>
- Turel, Y., & Toraman, M. (2015). The relationship between Internet addiction and academic success of secondary school students. *Anthropologist*, 20(1-2), 280-288.
- Ünal-Karagüven, H. (2012). The adaptation of Academic Motivation Scale to Turkish. *Educational Sciences: Theory & Practice*, 12(4), 2611-2618.
- Vallerand, R. J., & Blssonette, R. (1992). Intrinsic, extrinsic, and amotivational styles as predictors of behavior: A prospective study. *Journal of Personality*, 60(3), 599-620. <https://doi.org/10.1111/j.1467-6494.1992.tb00922.x>
- Verduyn, P., Ybarra, O., Résibois, M., Jonides, J., & Kross, E. (2017). Do social network sites enhance or undermine subjective well-being? A critical review. *Social Issues and Policy Review*, 11(1), 274-302. Doi:10.1111/sipr.12033
- Verhoven, J. C., Heerwegh, D., & De Wit, K. (2010). Information and communication technologies in the life of university freshmen: An analysis of change. *Computers & Education*, 55(1), 53-66. Doi: 10.1016/j.compedu.2009.12.002
- We Are Social and Hootsuite (2022). Digital 2022 Global Overview Report. Retrieve from <https://wearesocial.com/uk/blog/2022/01/digital-2022-another-year-of-bumper-growth-2/>
- Wentzel, K. R., & Wigfield, A. (2009). Introduction. In K. R. Wentzel & A. Wigfield (Eds.), *Handbook of Motivation in School* (pp.1-9). USA: Routledge.



- Wigfield, A., & Koenka, A. C. (2020). Where do we go from here in academic motivation theory and research? Some reflections and recommendations for future work. *Contemporary Educational Psychology*, 61, 101872. <https://doi.org/10.1016/j.cedpsych.2020.101872>
- Yang, S. C., & Tung, C. J. (2007). Comparison of Internet addicts and non-addicts in Taiwanese high school. *Computers in Human Behavior*, 23(1), 79-96. <https://doi.org/10.1016/j.chb.2004.03.037>
- Yang, Z., Asbury, K., & Griffiths, M. D. (2019). An exploration of problematic smartphone uses among Chinese university students: Associations with academic anxiety, academic procrastination, self-regulation, and subjective wellbeing. *International Journal of Mental Health and Addiction*, 17(3), 596-614. Doi:10.1007/s11469-018-9961-1
- Yengin, D. (2019). Digital addiction as technology addiction. *Turkish Online Journal of Design Art and Communication*, 9(2), 130-144. Retrieved from <https://dergipark.org.tr/tr/pub/tojdac//issue/44330/5489>
- Yoo, H. J., & Marshall, D. T. (2022). Examining the relationship between motivation, stress, and satisfaction among graduate students. *Journal of Further and Higher Education*, 46(3), 409-426. <https://doi.org/10.1080/0309877X.2021.1962518>
- Yukay Yüksel, M., Çini, A., & Yasak, B. (2020). Investigation of social media addiction, loneliness, and life satisfaction in young adults. *Journal of Kazım Karabekir Education Faculty*, 40, 66-85. <https://doi.org/10.33418/ataunikkefd.676402>
- Zhai, B., Li, D., Li, X., Liu, Y., Zhang, J., Sun, W., & Wang, Y. (2020). Perceived school climate and problematic internet use among adolescents: Mediating roles of school belonging and depressive symptoms. *Addictive Behaviors*, 110, 106501. <https://doi.org/10.1016/j.addbeh.2020.106501>