The Mediating Effect of Social Emotional Learning between Relationship on Basic Psychological Needs and Technology Addiction

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Article Info	Abstract
	This study was aimed at testing the hypothetical model, which included technology addiction, basic psychological needs, and social emotional learning skills (SEL). The study also examined whether there is a mediating effect of SEL in the relationship between basic psychological needs and technology addiction. For this purpose, data were collected from a sample of 592 participants [424 (71.6%) females and 168 (28.1%) males] aged between 18 and 27 years. Demographic Information Form, Basic Psychological Needs Satisfaction and Inhibition Scale, Social Emotional Learning Scale-Young Adult Form (SELS-YF), and Technology Addiction Scale (TAS) were used to collect the data. Equation Modeling (SEM) was used to analyze the data, and the results supported the hypothetical model. There was a negative correlation between technology addiction and the satisfaction of basic psychological needs and SEL. There was a positive correlation between the satisfaction of basic psychological needs and SEL. Another finding was that SEL indirectly effected the relationship between satisfaction of basic psychological needs and technology addiction. In addition, the model explained about 14% of the total variance in technology addiction.

Introduction

The rapidly developing and widespread internet and mobile technologies have become an integral part of our lives. An intense impact of technology has been observed in almost all our daily activities (Patrikakou, 2016). With the widespread use of smartphones, using social media, playing online games, sending instant messages, and browsing websites have become our daily routines. This has also led to an increase in the use of digital technologies.

According to the results of the TURKSTAT Household Information Technologies Usage Survey, it was observed that 94.1% of households had access to the Internet from home in 2022 (this rate was 92.0% last year). While the rate of internet usage among individuals aged 16–74 was 82.6% in 2021, it became 85.0% in 2022 (TURKSTAT, 2022). These trends are also observable on a global scale. By the end of March 2022, the number of people actively using the internet had reached 5.4 billion (approximately 67.8% of the total population) (Internet World Stats, 2023). An important factor in the emergence of this situation was the COVID-19 pandemic.

Social distance and quarantine have become the new norms worldwide during the COVID-19 pandemic. This has caused people to spend more time at home and on the Internet (Sun et al., 2020). Many employees conducted their business by working from home. People have turned to activities such as playing online games, using social media and shopping online to reduce their anxiety and stress levels. All these activities led to the increased use of information and communication technologies during this period (Kiraly et al., 2020). According to International Telecommunication Union (ITU) data, there was a 13.3% increase in internet use in 2020, the first year of the pandemic (ITU, 2021). Steam, the largest digital gaming platform, announced that it has reached the highest number of users in its history, with the number of users exceeding 20 million in COVID-19 (Perez, 2020).

During the pandemic, the rate of online gaming increased by 75% in the USA (Javed, 2020). It was also reported that during the pandemic, there was an increase of approximately 50% in internet shopping (McKinsey & Company, 2020) and an increase of approximately 60% in internet traffic (OECD, 2020). However, the excessive use of the internet during the COVID-19 pandemic brought along another problem. Researchers have reported an increased risk of technology addiction during the pandemic (Kiraly et al., 2020).

Technology Addiction

Technology addiction is a type of behavioral addiction associated with excessive and uncontrolled use of technology. In this type of addiction, users show a desire to be constantly busy with technological devices, a feeling of relaxation during use, tension, irritability, and depressive symptoms when they are away (Chen, 2018; Turel et al., 2011). The scope of technology addiction is quite wide and includes various types of addiction such as internet addiction, social network addiction, instant messaging addiction, online gaming addiction, and smartphone addiction.

Technology addiction can have many physiological, mental, social, emotional, and behavioral negative effects (Ağırkan, 2022). These effects can be in the environmental dimension (family relations, friendship relations, relations with others) as well as in the individual dimension. In the literature, these negative effects are listed as low academic achievement (Adiele & Olatokun, 2014; Kim et al., 2010), depression and anxiety (Cho et al., 2013; Zheng et al., 2015), loneliness (Simcharoen et al., 2018), sleep problems (Cheung & Wong, 2011; Zhang et al., 2017), obesity (Sanders et al., 2016), and negative relationships with the environment (Tsitsika et al., 2014; Volpi, 2012).

Some researchers have defined technology addiction as the epidemic of the twenty-first century (Serenko & Turel, 2020). At this point, it is important to determine the risk factors related to technology addiction and plan preventive interventions. The risk factors contain personality-related factors (excitement seeking, low self-esteem), social factors (low parental support, peer norms), and digital factors (inappropriate online applications, online sites) (Anderson et al., 2017). Considering these factors, it is very important that the basic psychological needs of individuals are adequately satisfied.

Technology Addiction and Basic Psychological Needs

Basic psychological needs are based on self-determination theory. According to this theory, there are three basic psychological needs: autonomy, competence, and relatedness (Ryan & Deci, 2000). Autonomy is the ability to take initiative for actions and to have self-regulation skills. Competence is confidence in one's abilities and belief in being able to face challenges. Relatedness is establishing reliable and satisfying relationships with others in a social environment (Deci & Ryan, 2000).

Self-determination theory assumes that people are naturally prone to psychological growth, learning, and connecting with others (Ryan & Deci, 2020). However, individuals need to receive support for their basic psychological needs to ensure their healthy development (Ryan et al., 2019). When individuals have opportunities to satisfy these three basic psychological needs in a social environment, their motivation, performance, and development are maximized (Deci et al., 1996). When psychological needs are not adequately satisfied, individuals try to satisfy them in different ways (Vansteenkiste et al., 2004).

Many internet applications are designed to provide opportunities and incentives to satisfy users' motivations (Nadkarni & Hofmann, 2012; Sheldon et al., 2011). Basic psychological needs that are not adequately satisfied are the main source of individual motivation in the internet environment. Individuals tend to become more active on the internet to compensate for their needs when their needs are not adequately satisfied (Allen & Anderson, 2018; Kardefelt-Winther, 2014). These compensatory behaviors prepare a suitable ground for the development of technology addiction.

According to studies, dysfunctional coping (Kuss et al., 2017), loneliness and low social support (Subrahmanyam & Lin, 2007), getting away from real-life stressors (Leiner et al., 2014), a need for socialization (Griffiths et al., 2004), and a behavioral response to stressful life events (Jun & Choi, 2015) are among the causes of technology addiction. Therefore, not satisfying basic psychological needs is an important factor that causes technology addiction. Many studies have reported a negative relationship between satisfaction with basic psychological needs and technology addiction (Allen & Anderson, 2018; Gugliandolo et al., 2019; Lin et al., 2014; Yu et al., 2015).

The Role of SEL in the Relationship Between Technology Addiction and Basic Psychological Needs

SEL consists of five basic skills: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, 2020). Self-awareness is the ability to recognize one's feelings, thoughts,

and behaviors and to know one's strengths and weaknesses. Self-management is the ability to regulate one's thoughts, feelings, and behaviors. Social awareness is the ability to consider and empathize with the perspectives of others. Relationship skills are the ability to listen effectively, communicate clearly, and maintain. Responsible decision-making is one's ability to make constructive choices regarding different environments and social interactions (CASEL, 2013). Both self-determination theory and SEL emphasize the importance of social environments that support social development and personal well-being and assume that people have natural growth tendencies (Durlak et al., 2011; Ryan & Deci, 2000). Therefore, basic psychological needs are compatible with SEL skills. It is important to consider the satisfaction of basic psychological needs when understanding SEL skills. Satisfying the need for autonomy, which is the freedom to make one's own decisions, fosters the development of self-management and responsible decision-making. Satisfying the need for competence, the belief in confidence in one's abilities, and the ability to face challenges enable the development of self-awareness. The satisfaction of the need for relatedness, which is the experience of feeling appreciated and being able to take care of others, provides the basis for the development of social awareness and relationship skills. In summary, the satisfaction of basic psychological needs also supports the development of SEL skills.

A large body of literature emphasizes that the development of SEL skills contributes to people developing positive relationships with their environment, engaging in prosocial behaviors, increasing their level of well-being, and reducing behavioral disorders (CASEL, 2020). Therefore, the development of SEL skills is likely to have a positive effect on technology addiction, which is a kind of behavioral disorder. Research results in the literature support this idea. Studies show that SEL skills are negatively related to internet addiction (Chen et al., 2021; Yu & Zhou, 2021); online game addiction (Fox, 2021); and social media addiction (Affouneh, 2021; Aftab et al., 2015; Atın, 2022).

Aim of Study

Based on the literature, SEL skills may be an important variable in the relationship between satisfaction of basic needs and technology addiction. Basic psychological needs that are not adequately satisfied may also prevent the development of SEL skills. Insufficient development of SEL skills may cause problems in people's relationships with themselves and their environment. As a way to make up for this deficiency, people can isolate themselves from their social environment and turn to virtual environments. The tempting possibilities of virtual environments may lead to more technology use and cause technology addiction. Based on these assumptions, this study aimed to seek answers to the following research question:

RQ_1: Does the hypothetical model that includes basic psychological needs and SEL skills predict technology addiction?
RQ_2: Does social emotional learning have a mediating effect on the relationship between technology addiction and basic psychological needs?

Method

Participants and Procedure

According to the power analysis, it was sufficient to reach a minimum of 400 people for .80 statistical power at the 95% confidence interval and a .05 significance level for the hypothetical model (Soper, 2023). Nevertheless, data were collected from one and a half times the minimum number of participants, as there may be a lack of data. The study sample consisted of 592 participants, including 424 females (71.6%) and 168 males (28.4%). The ages of the participants ranged from 18 to 27 years (M = 20.7, SD = 1.51). Ethics committee approval was obtained from the Erzincan Binali Yıldırım University Human Research Educational Sciences Ethics Committee for the study. In addition, informed consent was obtained from all participants before the study.

Instruments

Demographic Information Form

Demographic Information Form was developed by the researcher to determine the sociodemographic characteristics (gender and age) of the participants.

Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS)

Basic Psychological Need Satisfaction and Frustration Scale was developed to determine the satisfaction and frustration levels of three basic psychological needs (autonomy, competence, and relatedness) as defined in Self-Determination Theory (Chen et al., 2015) and was adapted to Turkish culture by Selvi & Bozo (2020). The scale consists of six sub-dimensions (autonomy satisfaction, competence satisfaction, relatedness satisfaction, autonomy frustration, competence frustration, and relatedness frustration) and 24 questions. Each sub-dimension consists of four items, and the items are rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). In this study, the sub-dimensions of autonomy satisfaction, competence satisfaction, and relatedness satisfaction of the scale were discussed. The Cronbach's alpha coefficients for the scale were calculated as .88 for the total scale and 0.80, 0.83, and 0.72 for the sub-dimensions, respectively.

Social Emotional Learning Scale-Young Adult Form (SELS-YF)

Social Emotional Learning Scale-Young Adult Form was developed by Karacan-Özdemir & Büyükçolpan (2021) to measure the SEL skills of young adults. The scale consists of 20 items and five sub-dimensions (self-awareness, self-regulation, social awareness, responsible decision-making, and relationship skills). The dimensions of self-awareness consist of six items; relationship skills consist of four items; responsible decision-making consists of four items; self-regulation consists of three items; and social awareness consists of three items. Items are rated on a 5-point Likert-type scale ranging from 1 (never) to 5 (always). In this study, the Cronbach Alpha coefficients were calculated as .87 for the total scale, .86 (self-awareness), .78 (self-regulation), .77 (social awareness), .75 (responsible decision-making), and .72 (relationship skills) for the sub-dimensions.

Technology Addiction Scale (TAS)

Technology Addiction Scale (TAS) was developed by Aydın (2017) to measure technology addiction levels. The scale consists of 24 items and four sub-dimensions (social network addiction, instant messaging addiction, online gaming addiction, and website addiction). Each sub-dimension consists of six items, and items are rated on a 5-point Likert-type scale ranging from 1 (never) to 5 (always). In this study, the Cronbach Alpha coefficients were calculated as .79 for the sum of the scale, .73 for social network addiction, .76 for instant messaging addiction, .90 for online gaming addiction, and .89 for website addiction sub-dimensions.

Data Analysis

SPSS v25.0 (IBM Corporation, Armonk, NY, USA) and Mplus v8.7 (Muthén & Muthén, Los Angeles, CA, USA) were used for data analysis. Before the analyses, assumptions that missing data, univariate and multivariate outliers, normality, linearity, homogeneity, and multicollinearity (Tabachnick & Fidell, 2013) were examined. No missing data were found in the data set. For the univariate normality criterion, the scores obtained from the measurements were converted into standard z scores, and z scores that were not within ±3 (n=26) were excluded from the data set. The Mahalonobis distance value was used for the multivariate normality criterion, and the data that did not meet the criterion (n=2) were removed from the data set. Afterward, the skewness and kurtosis values of the variables were examined, and it was seen that all values were within acceptable ranges (±1.5) (Tabachnick & Fidell, 2013).

The Durbin-Watson method was used to test for multicollinearity between the variables, and it was found that the value of 2.05 was within the acceptable reference interval. In addition, the condition index (CI) value (19.501), variance inflation factor (VIF) value (1.72), and tolerance value (.58) were examined, and all values were found to be within the accepted reference ranges (Field, 2013). Before the analyses, a data set of 592 observations that met the assumptions was created.

The hypothetical model that includes basic psychological needs, SEL skills, and technology was analyzed by structural equation modeling (SEM). Before SEM analysis, confirmatory factor analysis (CFA) was performed to analyze the factor structures of the variables. The chi-square values ($\chi2$), the root mean square error of approximation (RMSEA; <.08), the standardized root mean square residual (SRMR; <.08), the comparative fit index (CFI; >.90), and the Tucker-Lewis fit index (TLI; >.90) were used as criteria for evaluating the model fit (Brown, 2015). The method developed by Hayes (2018) was used to test the indirect effect of the model. Indirect effects and standard errors were calculated using 2000 bootstrapping with 95% confidence intervals.

Results

Descriptive Statistics

The means, standard deviations, Cronbach's alphas, and Pearson product-moment correlation coefficients between scale scores are presented in Table 1.

Table 1. Means, standard deviations, internal reliability, and Pearson product-moment correlation coefficients.

	1	2	3
1. Satisfaction of Basic Psychological Needs	—		
2. Social Emotional Learning (SEL)	.647 [a]	—	
3. Technology Addiction	-.284 [a]	-.292 [a]	—
Mean (x̄)	45.62	77.25	46.37
Min. - Max.	12 - 60	20 - 100	24 - 120
Standard deviation	6.86	11.69	12.01
Skewness	.110	-.154	.358
Kurtosis	-.547	-.620	-.410
Cronbach Alpha	.88	.87	.79

Table 1 shows that there are statistically significant relationships between all variables in the hypothetical model. There are negative relationships between technology addiction and satisfaction of basic psychological needs [$r = -.284$; $p<.01$] and SEL [$r = -.292$; $p<.01$]. There is a positive relationship between satisfaction of basic psychological needs and SEL [$r = .647$, $p<.01$].

Measurement Model

Before testing the hypothetical model, the measurement model was tested. The fit values of the measurement model [$\chi2(n = 592) = 208.46$, $df = 51$, $p = .00$, $\chi2 /df = 4.08$, $RMSEA = .07$, $SRMR = .04$, $CFI = .95$, $TLI = .93$] were found to be sufficient (Brown, 2015). Since the fit values were sufficient, no modification was made to the measurement model.
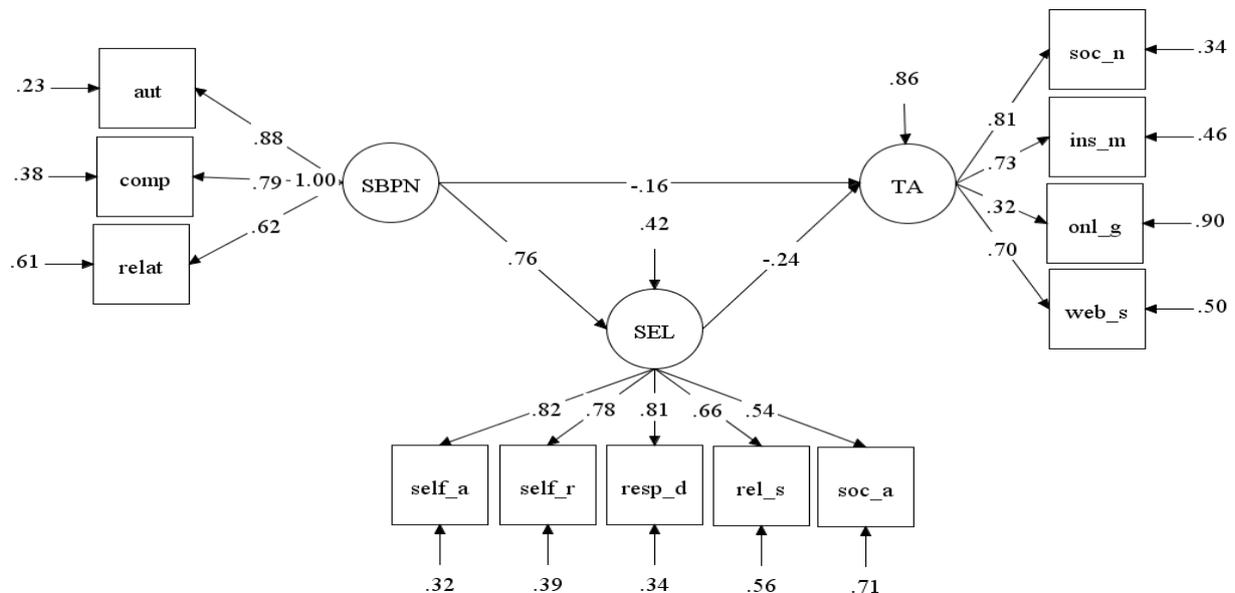
Structural Model

Figure 1. Structural model

Note. [a]= p<.01, SBPN= Satisfaction of Basic Psychological Needs, aut= autonomy, comp= competence, relat= relatedness, SEL= Social Emotional Learning, self_a= self-awareness, self_r= self-regulation, resp_d= responsible decision making, rel_s= relationship skills, soc_a= social awareness, TA= Technology Addiction, soc_n= social network addiction, ins_m= instant messaging addiction, onl_m= online gaming addiction, web_s= web site addiction.

After the measurement model was tested, the structural model was tested, and the model fit values [χ^2 (n = 592) = 208.46, df = 51, p =.00, χ^2 /df = 4.08, RMSEA = .07, SRMR = .04, CFI =.95, TLI = .93] were found to be adequate (Brown, 2015). The relationships between latent variables in the model were examined by considering t values and standardized beta coefficients. Although the fit values of the model were acceptable, the standardized beta coefficient between the satisfaction of basic psychological needs and technology addiction was not significant (β = -.156, p>.05) (Table 2).

Table 2. Standardized direct effects and t values for Structural Model

Structural Relations			B	S.E	t	p
SBPN	→	TA	-.156	.084	-1.86	.066
SBPN	→	SEL	.758	.026	29.63	.000
SEL	→	TA	-.244	.008	-2.94	.004

Note. SBPN= Satisfaction of Basic Psychological Needs, SEL= Social Emotional Learning, TA= Technology Addiction.

Therefore, the direct path between the satisfaction of basic psychological needs and technology addiction was removed from the model, and the alternative model was created by considering the theoretical framework (Figure 1).
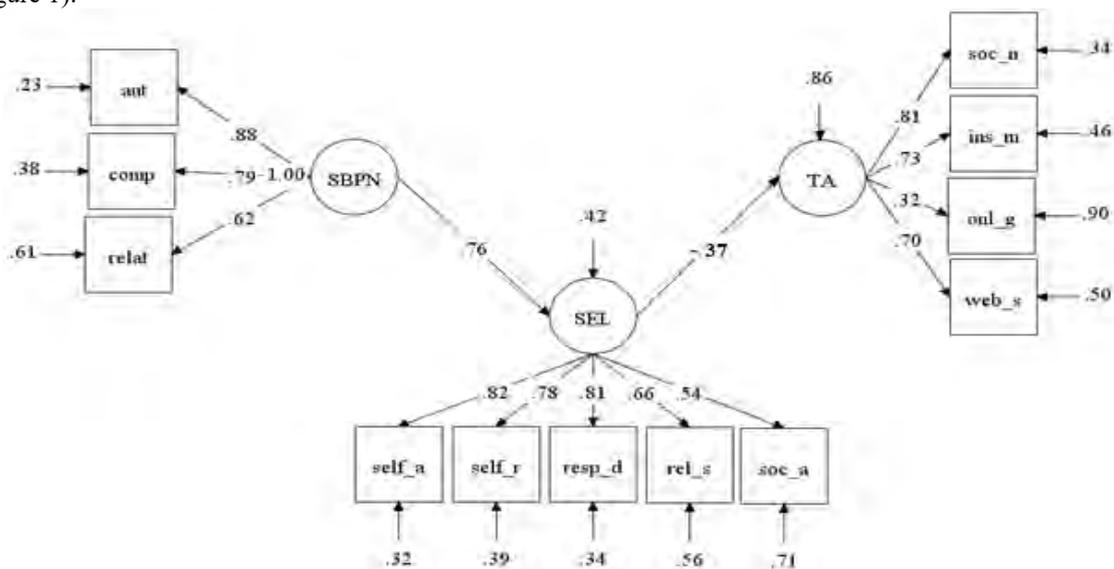

Figure 2. Alternative model

Note. ª= p<.01, SBPN= Satisfaction of Basic Psychological Needs, aut= autonomy, comp= competence, relat= relatedness, SEL= Social Emotional Learning, self_a= self-awareness, self_r= self-regulation, resp_d= responsible decision making, rel_s= relationship skills, soc_a= social awareness, TA= Technology Addiction, soc_n= social network addiction, ins_m= instant messaging addiction, onl_m= online gaming addiction, web_s= web site addiction.

After the direct path between the satisfaction of basic psychological needs and technology addiction was removed from the model, partial improvements were observed in the fit values. The fit values of the alternative model [χ^2(n = 592) = 211.84, df = 52, p = .00, χ^2 /df = 4.07, RMSEA = .07, SRMR = .04, CFI = .95, TLI = .93] were better. The most appropriate model between the structural model and the alternative model was decided by looking at the Bayesian Information Criterion (BIC) value. A decrease of two or more units in the BIC value is an appropriate criterion for choosing between models (Raftery, 1995). The BIC value was calculated as 33828.734 for the structural model and 33825.728 for the alternative model. It was decided that the alternative model was the appropriate model due to a decrease of approximately three units. The statistical significance of the relationships between the latent variables in the model was interpreted by looking at the t-values and standardized beta coefficients (Table 3).

Table 3. Standardized direct effects and t values for Alternative Model

Structural Relations			B	S.E	t	p
SBPN	→	SEL	.762	.025	30.11	.000
SEL	→	TA	-.373	.043	-8.64	.000

Note. SBPN= Satisfaction of Basic Psychological Needs, SEL= Social Emotional Learning, TA= Technology Addiction.

Satisfaction of basic psychological needs directly predicted SEL (β = .762, t = 30.11, p<.01), and SEL directly predicted technology addiction (β = -.373, t = -8.64, p<.01). Moreover, SEL had an indirect effect on the relationship between satisfaction of basic psychological needs and technology addiction. To test the indirect effect, the method developed by Hayes (2018) was used, and the indirect effect and standard error were calculated using 2000 bootstrapping at 95% confidence intervals. The absence of zero in the confidence intervals showed that the indirect effect was statistically significant (Table 4).

Table 4. Indirect effects among latent variables

Structural Relations	B	S.E	t	p	R^2	95% GPA	
						Lower	Upper
SBPN ⟶ SEL ⟶ TA	-.351	.053	-6.588	.000	.139	-.456	-.248

Note. SBPN= Satisfaction of Basic Psychological Needs, SEL= Social Emotional Learning, TA= Technology Addiction.

Satisfaction of basic psychological needs predicted technology addiction via SEL (β = -.351, 95% CI = -.456, -.248, p<.01) (Table 4). Moreover, the model explained approximately 14% of the total variance in technology addiction.

Discussion

This study aimed to test the hypothetical model, including technology addiction, basic psychological needs, and SEL skills. The results of the analysis supported the model. According to one finding of the study, there was a negative relationship between technology addiction and satisfaction of basic psychological needs. In other words, the increase in the level of technology addiction was related to the insufficient satisfaction of autonomy, competence, and relatedness needs. One reason for this result may be real-life social environments. According to self-determination theory, the satisfaction of basic psychological needs is essential for personal development, well-being, and self-actualization (Vansteenkiste & Ryan, 2013), and the social environment plays an important role in supporting the healthy development of individuals (Ryan & Deci, 2017).

If individuals' basic psychological needs are not satisfied in one social context, they become maladaptive and are motivated to seek satisfaction in other social contexts (Deci & Ryan, 2000). This leads to the encouragement of rigid behavior patterns and compensatory behaviors (Vansteenkiste & Ryan, 2013), and the individual may turn to an activity that offers the best at that moment (Deci & Ryan, 2011). In the literature, it is stated that unmet psychological needs in real life are one of the main causes of technology addiction (Allen & Anderson, 2018; Casale & Fioravanti, 2015; Gugliandolo et al., 2019; Li et al., 2016; Scerri et al., 2018; Wong et al., 2015; Wu et al., 2013; Yu et al., 2015).

Another reason may be the attractiveness of online environments. Online games and social media platforms are examples of this. Online games are designed to intensively satisfy basic psychological needs (Rigby & Ryan, 2011). Griffiths et al. (2004) state that the most attractive aspect of online games is sociability. As individuals level up in online games, they chat, build relationships, achieve success and competence, and gain autonomy and freedom by accessing the virtual environment they want without restrictions (Allen & Anderson, 2018; Griffiths et al., 2004). People have a natural tendency to seek new challenges in games just to experience a sense of competence, even when there is no external reward to be gained (Oliver et al., 2016). Performance-based rewards in games, such as rankings, tiers, badges, leaderboards, etc., fulfill a sense of competence. The interaction with teammates fulfills a sense of social connectedness (Sailer et al., 2017). Similarly, social media platforms offer individuals the opportunity to have fun, maintain relationships, express themselves, and communicate with others without the need for real identity information (Nadkarni & Hofmann, 2012; Park & Lee, 2014).

Another finding is that SEL has an indirect effect on the relationship between satisfaction of basic psychological needs and technology addiction. In other words, the satisfaction of basic psychological needs predicts technology addiction via SEL. Moreover, the model explained about 14% of the total variance in technology addiction. This result may be due to the content of SEL skills. SEL skills consist of self-awareness, social awareness, self-management, responsible decision-making, and relationship skills. These skills are highly associated with supporting healthy development and reducing behavioral problems (Ağırkan, 2021; Ağırkan & Ergene, 2021).

Social and emotional inadequacies such as the inability to express their emotions in real life, loneliness, the inability to socialize, etc. are among the causes of technology addiction. According to Yao & Zhong, (2014),

people try to share their emotions with others in the virtual world due to their insufficient social connections in the real world. Similarly, researchers have found that people spend more time on social networks to express their emotions (Lin et al., 2014), socialize and spend their leisure time (Kesici & Şahin, 2009), or escape from their negative emotions (Ümmet & Ekşi, 2016). Therefore, the development of SEL skills contributes to the establishment and maintenance of positive relationships in real environments. Therefore, it may have a regulatory effect on technology addiction.

Findings from a large body of research have emphasized the importance of developing SEL skills and the positive effects of SEL-based interventions. These interventions are effective in both increasing positive behaviors such as well-being and prosocial behavior, etc., and decreasing negative behaviors such as behavioral problems and emotional distress, etc. (Ağırkan & Ergene, 2022; Durlak et al., 2011; Taylor et al., 2017). Therefore, SEL skills are likely to be effective in preventing or reducing technology addiction, which is a type of behavioral disorder. The negative relationships between SEL skills and internet addiction (Chen et al., 2021), social media addiction (Affouneh, 2021; Atın, 2022), and digital game addiction (Tilki, 2021) also support this idea.

People who recognize their emotions, are sensitive to their environment, take initiative, build positive relationships with others, and make effective decisions are not engaged in addictive behaviors. These positive behaviors are evidence of developed SEL skills. Symptoms of technology addiction, such as withdrawal, excessive preoccupation, lack of control, etc. (Zhou et al., 2014), are not consistent with the content of SEL skills. Individuals with high technology addiction have low levels of decision-making ability (Pawlikowski & Brand, 2011), empathy (Lachmann et al., 2018), social support (Varol-Afo & Mortan-Sevi, 2019), self-esteem (Aydm & San, 2011), and social competence, self-esteem, and loneliness (Lemmens et al., 2011). This indicates that SEL skills are not sufficiently developed in these individuals. Similarly, behavioral problems in individuals with high technology addiction (Cho et al., 2013; Gerçel & Çağlar, 2016; Volpi, 2012) are not consistent with the positive outcomes of SEL skills. Therefore, this result of the study supports the idea that SEL skills have a determining effect on technology addiction, which is a type of behavioral problem.

Implications and Recommendations

With the development of online applications, time spent in front of a screen has increased significantly. This has caused significant changes in interpersonal communication both in the family and in society. It is known that both personal and social variables are effective among the causes of technology addiction. Therefore, it is important to raise awareness about the use of technology.

Research reports that awareness or education could be an effective factor in preventing technology addiction and reducing its harm. At this point, digital parenting practices regarding technology use can be effective. Parents could take a more active role in creating an environment where their children's basic psychological needs are satisfied. Moreover, they could provide positive, supportive, and trusting family relationships that will enable their children to develop SEL skills. Based on the effectiveness of SEL-based programs in preventing addiction, researchers and educators could carry out interventions for individuals in the risk group.

Limitations and Future Directions

This study had several limitations. First, the findings were based on participants' self-reported data. This may cause participants to fall into personal bias when scoring the scales. Therefore, future studies could support self-reported data with participants' observations. Another limitation was the type of sample used in the study. The fact that the participants were only in a certain age range (18–27 years old) suggested that the findings could be generalized to groups with similar characteristics. Finally, another limitation was that the findings were limited to cross-sectional data. Therefore, future studies can increase the reliability of their results by collecting longitudinal data.

Scientific Ethics Declaration

The author declares that the scientific ethical and legal responsibility of this article published in JESEH journal belongs to the author.

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