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Examining the Relationships between Primary School Students' Participation in Sports and Technology Addictions

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Abstract

This study aims to determine the relationship between primary school students' technology addiction levels and their participation in sports. For this purpose, in this study, technology addiction and sports participation levels of students studying in different primary schools in Almaty were examined according to their demographic characteristics. The study was conducted with the comparative correlational screening method, one of the general screening methods. The study sample consists of 252 private and public primary school students. "Technology Addiction Scale" and "Sport Participation Questionnaire" were used as data collection tools in the study. The data obtained from the study are expressed as mean and standard deviation (SD) values. T-tests from parametric tests and Pearson Product Moments Correlation technique analyses were used in the data analysis. The findings obtained from the study showed that primary school student's participation in sports is moderate, while their technological addiction is high. While the participation of primary school students in sports did not differ according to the gender variable, significant differences were observed in their technological addictions. Similarly, students' technological addictions differ according to their school types. Finally, a significant but negative relationship was found between primary school students' sports participation and technological addiction. It was observed that the technological addiction of the participants decreased as their participation in sports increased.

Introduction

Especially with the developments in computer and internet technology, individuals in many parts of the world have started to communicate with each other more intensely and have the opportunity to access the information they want very quickly (Chayko 2008). However, these advances have led to the emergence of new problem areas. While this problem first appeared as computer and game addiction (Grüsser et al. 2006; Weinstein 2010), social media addiction has recently been added to other addiction types with the development of various social sharing

tools (Facebook, Twitter, Instagram, etc.) (Andreassen). et al. 2012, He et al., 2017, Malita 2011, Oberst et al., 2017).

There has been an increase in the number of times children use technological devices. In addition, it was observed that the dependence on technology increased. Addiction is losing control over an object or behavior that an individual uses and being unable to do without it. Technology addiction, on the other hand, is a person's inability to live without a technological device after the unconscious and uncontrolled use of technological tools. In recent years, research has been conducted on whether technological addictions such as Internet addiction, social media addiction, digital game addiction, and smartphone addiction cause behavioral addiction. Studies have observed that individuals with internet addiction, social media addiction, digital game addiction, and smartphone addiction show similar symptoms to those with other chemical or behavioral addictions (APA,2013; Griffiths,2005, Henderson,2001; Younes et al., 2016).

Technology addiction, which causes symptoms similar to substance addiction (withdrawal, desire to reach, etc.), has manifested itself in different areas, such as the internet, social media, and computer addiction over time. Especially with the emergence of smartphones, the type of addiction in which the symptoms of technology-based addiction types are seen together has been called phubbing (Sociothelism) (Davis, 2001; Karadağ et al., 2015; Karapetsas & Fotis, 2020). "Are technological addictions such as internet addiction, social media addiction, digital game addiction, and smartphone addiction a myth? Alternatively, is it behavioral addiction?" Research has been carried out to answer the question. Studies have reported that individuals with internet addiction, social media addiction, digital game addiction, and smartphone addiction show similar symptoms to those with other behavioral or chemical addictions. It has also been stated that these individuals show common characteristics, such as the inability to control their behavior or actions and the continuity of their behavior or actions despite the negative consequences (Kuss & Griffiths, 2015). Sound, image etc. owned by technology tools and enable interaction. Effects can increase the tendency to addiction.27; Sharma et al., 2021).

Technology addiction; regarding the use of the internet and technological devices, "excessive use, inability to satisfy the desire to use, neglecting activities due to excessive use, excessive use harming social relations, using it as an escape tool from negative emotions and life stress, experiencing problems in reducing and stopping use, state of being tense and irritable and lying about the duration and amount of use" (Griffiths, 1995; Kwon et al., 2013; Wartberg, L., & Kammerl, 2020; Young, 1997). Computer games (Horzum 2011), which replaced the games that children and young people used to meet and play with their friends in their neighborhoods in the past, are compared to gambling games in terms of highlighting the problems of violence and attention deficit in schools (Gentile 2009). Young and Rogers (1998), Grüsser and Thalemann (2006) stated that technology addiction has negative physical, psychological and social effects. Physical effects, such as burning in the eyes, pain in the neck muscles, disturbances in body posture, and numbness in certain parts of the body; Psychological effects, such as low academic achievement and personal, family, and school problems; and social effects such as inability to control time, difficulty in communicating, lack of self-confidence, and inability to express oneself are listed (Chen et al., 2022; Cheung & Wong, 2011; Potas et al. ., 2022; Tao, 2013).

In this study, the addiction in question was defined from a broad perspective, and the term "technology addiction," which covers the addiction types mentioned, was preferred. Technology addiction can be defined as harming a person's mental and emotional psychological state, and professional and social interactions, due to excessive use of technology (Beard, 2005). There has been a significant increase in recent studies in the field of technology addiction, which has recently emerged and is considered a mental health problem (Griffiths, 2000; Young, 2010). Technological addictions are within the scope of behavioral addictions and thus include the basic constructs of addiction (i.e., attention, mood change, tolerance, withdrawal, conflict, and relapse) (Griffiths & Widyanto, 2006).

Today, besides substance addiction, addiction to new technology and communication tools has become a fundamental problem with the advancement of technology. Just as an individual with substance addiction desires the substance and feels an irresistible desire, technological tools that create a similar feeling of addiction to the same effect can create involuntary use in people. Physical and severe traumatic symptoms are not observed in technology addiction, as in substance addiction. However, it shows significant similarities with substance addiction in terms of changes in people's mental states, affecting their social lives, and irritability and depression in situations where people stay away from technology. In technology addiction, as in other types of addiction, the individual uses technological products excessively, cannot limit himself, experiences the absence of technological tools when he cannot access them, and has to fight many adverse effects of addiction (Hill et al., 2016; Kutluoğlu Karayel, 2019).

Negative use of technology causes many health problems in children and adolescents. During childhood and adolescence, problems such as depression, anxiety, sleep problems, attention deficit, irregular diet, and physical inactivity negatively affect physical and social development (Kim et al., 2010; Nagima et al., 2022; Zhumash et al., 2021; Ospankulov et al., 2022). As the time spent on the screen increases, the risk of obesity increases with the consumption of large amounts of snacks, deterioration of nutritional balance, increased physical inactivity, decreased metabolic rate, and exposure to food advertisements (Baranowski et al., 2011). A study found that nearly 50% of obese children watch television for more than 2 hours a day, and their physical activity levels are one-third of what they should be (Decelis, Jago & Fox, 2014). Technology addiction and psychological problems were found to be associated in most studies (Ko et al., 2012). It is said that the addiction rate is higher in depressed adolescents than in healthy adolescents (Ceyhan & Ceyhan, 2011).

A study found that children between the ages of 10-17 who exhibit psychological problems spend more time on the Internet (Ybarra, Alexander & Mitchell, 2005). In a study conducted with 3034 children and adolescents in Singapore for two years, it was observed that depression and anxiety increased in those addicted to virtual games and that there was an improvement in those who were addicted to regular use (Gentile et al., 2011). In a study comparing 83 adolescents with internet addiction and 43 adolescents without addiction, 3.8 times more comorbidity was found in the addicted group (Tsitsika et al., 2011).

The abuse of technology in the sense of information technology addiction harms the person physically, mentally, and socially and negatively affects his development. When we think about physical development, the abuse of technology progresses through three life activities and poses risks. These; include sleep, food, and sports (Dinc,

2015). From the moment the abuse of technology begins to stay online for a longer time, results such as the onset of sleep disorders and less sleep, inadequate nutrition, no time for sports, or less time can occur. At the same time, excessive use of technological tools can lead to physical health risks such as musculoskeletal problems or obesity due to long-term use in certain bodily positions (Binboğa Yel and Korhan, 2015; Gökel, 2020). Many studies show that physical inactivity increases with the time spent in front of the screen technology addicts. At the same time, the risk of obesity due to unhealthy nutrition increases. 38,39 Accordingly, excessive computer and internet use in children and adolescents were associated with weight gain due to physical inactivity (Ballard et al., 2009; Fullerton et al., 2014; Kautiainen et al., 2005; Mota et al., 2006).).

The human body needs constant movement due to its innate characteristics. Movement is essential for a child's physical development. Participation in physical activities during childhood has some positive effects (Christiansen et al., 2019; Weinberg & Gould, 2003). Regular exercise is essential to children's healthy growth and development. It plays a vital role in the physical sense and spiritual, cognitive, social, and personal development. Sports provide a disciplined life for children, keep them away from diseases with a healthy body, provide mental and physical balance, increase the school success of the child, and provide stress management in adolescence (Berglund, Eriksson & Westerlund, 2005; Malm, C., Jakobsson, J., & Isaksson, 2019).

Health-related research; shows that children with high activity levels may be less affected by high blood pressure, diabetes, cancer, obesity, and cardiovascular diseases at later ages (Gül, 2011; Zorba, 2000). While Kudaş et al. (2005) stated that children's excessive television viewing was the cause of the increase in sedentary activities, Loprinzi and Cardinal (2011) stated that long-term preoccupation with technology-based tools such as computers and video games can be shown as an example of sedentary behavior. Paspastergiou (2009) states that scientific studies are showing that long-term and uncontrolled digital gaming causes many mental and physical negative effects, and according to the results of this research, excessive digital gaming pushes individuals to aggressive behaviors, reduces their daily activity levels, forces them to a sedentary lifestyle, eats unhealthy food. It also states that it causes problems such as overweight and obesity by causing consumption.

As physical activity determinants, the physical, social and biological environment play an essential role. At the same time, these determinants facilitate participation in physical activity. In addition, one of the most important factors preventing physical activity, although there is a lack of time, it is stated that physiological, psychological, and behavioral variables affect participation in physical activity. Although body composition is not a strong determinant of physical activity habits, obese individuals are generally observed to have a sedentary lifestyle (Troost, Owen, Bauman, Sallis & Brown, 2002; Kirtland et al., 2003). Some studies have been done; It has been determined that the rapid development of technology, the increase in the rate of urbanization, and economic growth lead individuals to a sedentary lifestyle, and the prevalence of physical inactivity is more common in societies with a high level of development (Branca, Nikogosian & Lobstein, 2007; Guthold, Ono, Strong, Chatterji & Morabia, 2007). 2008).

In this context, technology addiction brings with it various problems, both psychologically and physiologically. One of these problems is physical inactivity. Physical inactivity, which refers to individuals' low physical activity

levels during the day, is considered a general health problem. In the studies conducted, the factors that cause the death of individuals were identified and listed, and physical activity found its place in the top ten list Turel, Romashkin & Morrison, 2017; (Vargas, Scully, Villani, Caballero & Murray, 2019). A sedentary lifestyle is one of the most critical health problems of our age. Inactivity, musculoskeletal system disorders, especially obesity, cholesterol, cardiovascular diseases, orthopedic disorders, paralysis, vascular occlusion, fat in the body, sugar, etc., cause some discomfort such as (Cho et al., 2013; Das et al., 2017; Göksu, 2003).

The research predicted the necessity of associating 'technology addiction' with 'participation in sports' as a result of the literature review. Within the scope of the research, it is aimed to obtain valuable data on the relationship between technology addiction and children's participation in sports, in planning as a prediction, or in the analysis of time use reduced to the individual. It has been determined that there is more than one reason why this is seen as a necessity, and among the most important of them: In parallel with the rapid development of technology addiction elements, there are adverse effects as a result of rapid adaptation of individuals to current and new formations. In this context, as a research problem in the study, what level of relationship is there between the participation of primary school students in sports and their technological addictions? Moreover, do participants' participation in sports and technological addictions differ according to gender and school type? Answers to their questions were sought.

Method

In the study, which examines primary school student's participation in sports and technology addictions, primary school students' permission was obtained from the school administrators where the application would be carried out. The researcher went to the schools that the school principals deemed appropriate for the scale applications and gave information to the students who would participate in the research about the purpose of the research and how it would be conducted. In the preliminary interviews, the consent of the researcher and the families of the students who volunteered were obtained. The correlational survey model, one of the general survey model types, was used to examine the relationship between participants' participation in sports and technology addictions and determine whether these variables differ according to gender and class level.

The research universe consists of 4th-grade students studying in primary schools in Almaty in the 2022 academic year. The convenience sampling method was used in the study to represent the research universe. The sample of this research consists of 252 primary school students studying in 5 different schools. One hundred thirty-nine children in the sample group study were in public schools, and 113 were in private schools. Again, 131 of the participant students are girls, and 121 are boys. In the study, scale applications were carried out under the supervision of the student's teachers.

Data Collection Tools

Personal Information Form in the Personal Information Form, questions about the age, gender, class, number of mass media used, age of meeting the internet, time spent daily on the internet, membership in social networking

sites, the place that connects to the internet the most, the purpose of using the internet.

Technology Addiction Scale

The validity and reliability of the Technology Addiction Scale, which was developed (Young,1998) to determine the addiction level of students, was conducted by a researcher with 240 students. Consisting of four sub-dimensions: using social networks (6 items), instant messaging (6 items), playing online games (6 items), and using websites (6 items), the scale is five-point Likert-type (1-never, 2-rarely), 3-moderately, 4-very often, 5-always). The highest score that can be obtained from the scale is 30 (6×5), and the lowest is 6 (6×1). The lowest score on the Technology Addiction Scale total score is 24 (24×1), and the highest score is 120 (24×5). There is no reverse-scored item in the scale. As a result of the analyses made, the scale's reliability was calculated with internal consistency, and the Cronbach Alpha (α) value was 0.88. The internal consistency coefficients of the sub-dimensions are, respectively, social networking (0.75), instant messaging (0.74), playing online games (0.91), and using websites (0.88).

Sports Participation Scale

In this study, data were collected with the help of the "Sport Participation Questionnaire" developed by Gill et al. (1983) to determine the reasons for individuals to participate in sports and adapted by the researcher for Kazakh students aged 9-14. The scale of participation in sports is a 5-point Likert-type measurement tool. The items in the scale are "5 points (4.20-5.00)", I agree "4 points (3.40-4.19)", I agree moderately, "3 points (2.60-3.39)", I agree slightly "2 points (1.80-2.59)", I strongly disagree. It was scored as "1 point (1.00-1.79)". The scale consists of 20 items in total. As a result of the exploratory factor analysis, it was seen that the scale had a one-dimensional structure. This one-dimensional structure explains approximately 57.62% of the variance in participation in sports. The Cronbach Alpha reliability analysis of 20 questions that make up the scale was calculated as $\alpha = 0.87$, and according to this value, our study's results are valid and reliable.

Data Analysis

The data were analyzed using the SPSS 22.0 package program. As a result of the Kolmogorov-Smirnov test, it was understood that the scale of technology addiction and participation in sports for children showed a normal distribution ($p>0.05$). Independent Sample t-test, one of the parametric tests, was used to determine whether students' participation in sports and technological addictions changed according to gender groups. The significance level was taken as 0.05 in all statistical tests.

Findings

According to Table 1, it was determined that the student's participation in sports scores was 2.53 ± 1.64 points. Considering that the lowest average score to be taken from the scale is 1 and the highest average score is 5, it has been determined that the student's participation in sports scores is at a moderate level.

Table 1. Average Scores of Primary School Students for Participation in Sports

	N	Minimum	Maximum	Mean	Std. Deviation
Participation in Sports	252	1.00	5.00	2.53	1.64

According to Table 2, students' scores in the sub-dimensions of the technological addiction scale were respectively 'Using Instant Messages' 2.49±0.86, 'Using Social Networks' 3.27±0.81, 'Using Websites' 3.28±1.08, 'Playing Online Games' 3.81±1.05 and Finally, it was determined that the mean total technological addiction score was 3.21±0.63. Considering that the lowest average score to be taken from the scale is 1, and the highest average score is 5, it has been determined that the instant message usage habits of the students are low, their online gaming habits are high, while other dimensions and their total technological addiction are moderate.

Table 2. Average Scores of Primary School Students on their Technological Addiction

	N	Minimum	Maximum	Mean	Std. Deviation
Using Instant Messages	252	1.00	4.25	2.49	0.86
Using Social Networks	252	1.00	5.00	3.27	0.81
Using Websites	252	1.00	5.00	3.28	1.02
Playing Online Games	252	1.00	5.00	3.81	1.05
Total technological addiction	252	1.00	4.63	3.21	0.63
Valid N (listwise)	252				

The findings regarding the comparison of the level of participation in sports according to the gender of the students participating in the research are shown in Table 3. When the table is examined, there is a statistically significant difference between male and female participants' levels of participation in sports ($p < 0.05$). According to the group averages, it was found that male students participated in sports at a significantly higher level.

The findings regarding the comparison of the technological addictions of the students participating in the research according to their gender are shown in Table 4.

Table 3. Comparison of Participants' Levels of Participation in Sports by Gender Variable

	Gender	N	Mean	Std. Deviation	t	p
Participation in Sports	Female	120	2.31	1.54	-2.06	0.04
	Male	132	2.74	1.70		

When the table is examined, there is a statistically significant difference between male and female participants only in the level of their participation in social media ($p < 0.05$). It has been found that female students have a significantly higher level of participation in social media compared to the group averages. On the other hand, no significant difference was found in terms of gender variable in the whole of the technological proficiency scale and its other sub-dimensions.

Table 4. Comparison of Participants' Technological Addictions by Gender Variable

	Gender	N	Mean	Std. Deviation	t	p
Using Instant Messages	Female	120	2.56	0.83	1.09	0.27
	Male	132	2.44	0.89		
Using Social Networks	Female	120	3.45	0.71	-2.53	0.02
	Male	132	3.09	0.88		
Using Websites	Female	120	3.30	1.02	0.23	0.82
	Male	132	3.27	1.03		
Playing Online Games	Female	120	3.79	1.07	-0.26	0.80
	Male	132	3.82	1.04		
Total technological addiction	Female	120	3.21	0.62	-0.13	0.90
	Male	132	3.22	0.64		

The findings regarding the comparison of the level of participation in sports by the students participating in the study according to the school types they attend are shown in Table 5. When the table is examined, there is no statistically significant difference between the levels of participation in sports of students studying in public and private schools ($p < 0.05$).

Table 5. Comparison of Participants' Levels of Participation in Sports by Type of School

	School Type	N	Mean	Std. Deviation	t	p
Participation in Sports	Public	139	2.62	1.66	0.92	0.36
	Private	113	2.43	1.60		

The findings regarding the comparison of the technological addiction levels of the students participating in the study according to the school types they attend are shown in Table 6.

Table 6. Comparison of Technological Addictions of the Participants by Type of School

	School Type	N	Mean	Std. Deviation	t	p
Using Instant Messages	Public	139	2.46	0.87	-0.65	0.52
	Private	113	2.53	0.85		
Using Social Networks	Public	139	3.33	0.84	1.30	0.19
	Private	113	3.20	0.76		
Using Websites	Public	139	2.98	0.98	-5.58	0.00
	Private	113	3.66	0.95		
Playing Online Games	Public	139	3.93	1.06	2.05	0.04
	Private	113	3.66	1.03		
Total technological addiction	Public	139	3.17	0.62	-1.10	0.27
	Private	113	3.26	0.64		

When the table is examined, there is no statistically significant difference between students studying in public and private schools habits of using websites and playing online games ($p < 0.05$). Students studying in private schools use websites and play online games at a higher rate. On the other hand, no significant difference was found in the technological proficiency scale and other sub-dimensions according to the type of school.

Table 7. Analysis of the Relationships Between Technological Addictions of Participants and Their Levels of Participation in Sports

	Participation in Sports	
	r	p
Using Instant Messages	-.428**	0.000
Using Social Networks	-0.280	0.000
Using Websites	-.217**	0.001
Playing Online Games	-.474**	0.000
Total technological addiction	-.457**	0.000

** . Correlation is significant at the 0.01 level (2-tailed).

The Calculated Pearson Moments Product Correlation coefficients between primary school students' technological addiction scores and sports participation levels are shown in Table 7. According to the analysis results, a significant but negative relationship was found between the level of participation in sports and the sub-dimensions and total scores of the technological participation scale. As students' participation in sports increased, their technological addiction decreased.

Discussion and Conclusion

This study aims to examine children's technology addiction levels and participation in sports according to their demographic characteristics. In this context, it has been found that the participation of primary school students in sports is at a moderate level. When the research sample is analyzed in detail, the participation of male and female students in sports is similar. Again, no significant difference was observed between the levels of participation in sports of students studying in public and private schools. Many studies have determined that there is no significant difference between sports and physical activity and gender. Demir and Cicioğlu (2019) did not find a significant difference between the scores of men and women who continued physical activity. Similarly, the results of the study conducted by Tekkanat (2008) and Şanlı (2008) are similar to the results of this study. Sahebi (2014), on the other hand, emphasized in his study that sports and physical activity do not prevent academic success, and it is vital for students to exercise more. Sports, especially in primary school, will channel the increased body energy most appropriately and is also a socialization tool. Today, the rapid increase in urbanization and the narrowing of the movement area of people cause various physical, spiritual, and social problems. Individuals, especially young people, whose movement space is narrowed, are starting to live a virtual life in social media by isolating themselves more from society. At this point, sports emerge as an essential tool in increasing physical activity and developing social skills (Berglund, Eriksson & Westerlund, 2005).

Another dependent variable of the study is students' technological addictions. In general, it was found that the online game-playing habits of the participants were high, and their technological addictions were moderate. According to further analysis, primary school students' technological addictions differ according to gender and school type. In general, it was found that female students use social media at a higher level, whereas male students partially show a high level of addiction to digital games. In addition, students studying in private schools use websites and play online games at a higher rate. These findings are similar to research findings by Jiang (2014), Kim et al. (2006), Morahan-Martin (2005), and Willoughby (2008). Jiang (2014), in his study, shows that men are more addicted to online games. Similarly, with the results of this study, it was revealed that female students spend more time on social media (Mazman & Usluel, 2011).

The last finding of the study is about the relationship between primary school student's participation in sports and technology addictions. According to the analysis, there is a very high but inverse relationship between the two variables. It has been observed that students with high participation in sports have common technological addictions. These findings are similar to the results of studies conducted by Fan et al. (2021), Kai (2016), Kim (2013), Lissak (2018), Tang and Lee (2021), and Wnag et al. (2019). A growing body of evidence has shown that technology addiction is associated with numerous problems in children and adolescents' physical, psychological and social health (Kaj, 2016; Kim, 2013; Lissak, 2018). The health levels of individuals depend on their interactions with their social environment and social behaviors. At this point, physical education and sports activities support healthy behaviors compatible with a healthy lifestyle (Alexander & Vladislav, 2015). Sports have become a phenomenon that children remove or reduce from their lives with the motivation to use technology tools for longer (Dinç, 2015). There are many studies on the benefits of sports for developing learning and social adaptation behaviors and protecting physical and psychological health and development (Kuter & Kuter, 2012; Tang & Lee, 2021). In similar research, Toto and Strazzeri (2019) discussed the importance of sports and physical education as protection against technological addictions in their research. The negative effects of technology on health and learning processes and the significant effect of sports and physical education activities in preventing behavioral addictions have been revealed.

As a result, It can be said that there is a negative and significant relationship between technological addiction and physical activity level, the level of addiction of students who regularly do sports is lower than those who do not. One of the most effective methods of coping with technology addiction, a current problem, is to direct children to physical activities. A child who gives up sports activities to spend a longer time with technological tools is deprived of the benefits of sports, especially in terms of their importance and many harmful addictions. In this context, it is foreseen that the results of this study will be significant in confirming the status of children who are engaged in sports to lead a correct and healthy life away from technology addiction and may guide future research in this direction. In line with the research and analysis results, it has been understood that the risk of technology addiction continues in individuals who do sports. In this context, the level of addiction is not low. This situation has been associated with the fact that the risk of these types of addiction is mainly on children and young people who have seen new technologies in every aspect of their lives since they were born and who are not unfamiliar with technology. Therefore, efforts must be prioritized to protect children from technology addiction. Considering the inability to prevent young people from being intertwined with technology in the digital age, It is recommended

to support interest and participation in sports to reduce unwanted addictions. It is recommended to conduct experimental studies to test the effect of sports and exercise practices in reducing technology addiction in new studies.

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