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Abstract

The aim of the study is to examine the leisure consciousness and technology addiction of students studying in different departments of universities on a relational basis. Causal comparison and relational survey methods, which are quantitative research methods, were used in the study. The population of the study is the students who are studying in universities in Turkey in the academic year 2023-2024. The sample consisted of a total of 347 students studying at the Faculty of Education and Faculty of Tourism who were voluntarily selected from the above population through purposive sampling. Data were collected using the Technology Addiction Scale and the Recreation Awareness Scale. Unpaired t-test and ANOVA test were used to analyze the data. According to the results of the research; it was seen that the mean scores obtained from the Recreation Awareness Scale were generally high, and the overall risk of technology addiction was at a moderate level. In terms of leisure awareness, female students had higher mean scores especially in the dimensions of "pleasure-entertainment" and "self-improvement", and third and fourth grade students had higher leisure awareness scores compared to first grade students. In terms of technology addiction, male students had higher addiction scores than female students on the "instant messaging" and "online gaming" sub-dimensions, and first-year students had higher technology addiction scores than third- and fourth-year students. It was found that 5% of the total variance in technology addiction was explained by leisure consciousness. In this framework, it is recommended that researchers should include longitudinal or experimental design studies, and university administrators and student affairs units should systematically encourage students by diversifying recreational activities on campus.

Introduction

The term “concept” comes from the Latin word "recreatio" and means renewal, refreshment and revitalization (Karaküçük, 2014). Recreation includes all activities that take place in urban and rural areas in which people are involved as participants or spectators in activities at home or outside the home, in open or closed areas, at home or outside the home, for various purposes such as getting away from the difficulties and troubles of life, resting, thinking, and having fun in their free time (Yaylı, 2024). According to Hazar (2003), recreation is the activities

that individuals participate in in their free time on a completely voluntary basis, outside of their compulsory duties and responsibilities, and do not aim for financial gain. McLean and Hurd (2011) define recreation as "all activities carried out by public or private initiatives in places such as cities, towns, natural parks, sports fields, community centers, and entertainment areas".

Recreation is a process aimed at planning and organizing leisure time and implementing various activities to be carried out during this time (Özdemir et al., 2016). Recreational activities encourage individuals to take time for themselves in organized leisure periods in order to motivate them, increase their productivity, rest mentally, and protect their physical health (Demir & Koçak, 2024). Recreation includes activities that positively affect the physical and mental well-being of individuals, enable them to use their leisure time efficiently, and improve their overall quality of life (Thomas & Rosenberg, 2003; Ciccarelli, 2002).

For college-aged youth, recreation supports social, emotional, and physical development and contributes to the development of strategies to cope with possible addictions (Ekinci & Ozdilek, 2019). However, with increasing interest in the digital world, young people's interest in physical activities may decrease, which may lead them to more online environments. This cycle leads to young people's addiction to technology, while at the same time reducing their inclination to engage in real-life activities. Recent research on this topic shows that excessive time spent on digital games, social media platforms, and similar online activities among university students can lead to social isolation and negative effects on academic life (Bajwa et al., 2021; Chen et al., 2021; Topaloğlu et al., 2023).

High awareness and active participation in recreation among university youth allows for a more balanced lifestyle and may limit the overuse of technological tools (Bozavli, 2023). In this context, the level of leisure awareness among university students can be an effective factor in combating technology addiction. Psychological and social indicators of university students, such as self-confidence, social support, stress management and general happiness, are positively influenced by leisure participation (Ece et al., 2022). In the related literature, it is emphasized that excessive tendency to online games and social media can lead to consequences such as depression, anxiety, sleep disorders, and academic failure (Mei et al., 2018; Sümen & Evgin, 2021). Therefore, it is important to determine the nature of the relationship between recreational attitudes and technology addiction among college students.

The processes of emancipation and identity construction during the university period make university youth more vulnerable to possible pitfalls in the digital world. At this point, recreation awareness can contribute to keeping students' relationship with technology in a healthier framework. Individuals with high recreation awareness evaluate their leisure time in a more planned and versatile way, thus they can limit the time spent in digital environments to some extent (Dilmac & Tezcan Kardaş, 2024). Therefore, students who are deprived of the physical and mental relaxation that recreation can provide can easily become addicted to technology-based activities. This makes increasing the level of recreation awareness of university youth a strategic priority. The aim of this study is to examine the recreation awareness and technology addiction of students studying in different departments of universities on a relational basis.

University Students' Awareness of Recreation

Recreational awareness is defined as an individual's conscious recognition of leisure activities, understanding of the value of these activities, and regular participation in them. This awareness includes orientation toward social, cultural, artistic, or athletic activities, as well as freedom of choice according to an individual's personal interests (Thomas & Rosenberg, 2003). Recreational mindfulness is not only activity participation, but also has the potential to strengthen a range of skills such as self-awareness, stress management, social interaction, and creativity. In the literature, it is stated that recreational mindfulness is not only limited to physical activities, but also includes mental, emotional and social dimensions (Dilmac & Tezcan Kardaş, 2024). Since this multidimensional structure includes different forms of recreation depending on the individual, its scope is considered to be quite broad and deep. Recreational awareness of university students helps them to evaluate their leisure time in a qualified way, to get away from stress and to support their multidimensional development. Especially during the university period, when intense academic and social pressures are felt, how students organize their own time is of great importance (Yalçın & Erzeybek, 2023). Increased awareness of recreational activities strengthens individuals' motivation to participate not only in physical activities, but also in cultural, artistic, and social activities (Çolak, 2024). Such activities help students to experience mental relaxation, improve communication skills, and gain teamwork experience. In addition, students with high recreational awareness can be more conscious about the use of digital tools and show the ability to set their own limits when faced with the risk of technology addiction (Ersöz et al., 2023).

Research shows that students who devote sufficient time to recreation experience lower levels of stress, anxiety, and depression symptoms (Demirel et al., 2021). Recreation also plays a critical role in deepening friendships, building social networks, and strengthening positive social bonds. Particularly in settings such as group sports, club activities, or volunteering, students are psychosocially supported by experiencing a sense of belonging and solidarity (Griban et al., 2023). In addition to all of these benefits, it is noted that recreational awareness can also contribute to professional development. The development of skills such as teamwork, problem solving, and communication has positive implications for future working life. Thus, students can improve their quality of life by managing their leisure time in a sustainable way after graduation. However, the success of this process is directly related to the voluntary and willing adoption of leisure activities by students (Coşkun & Dilmaç, 2024). Although universities organize various recreational programs, high student participation in these programs can be achieved through individual awareness and motivation.

Recreational awareness among university students not only protects their physical health, but also positively affects their academic performance and social relationships (Ersöz et al., 2023; Funary, 2023). Discovering different activities where individuals can express themselves also increases their self-confidence and motivation (Kuş & Tunçkol, 2024). In addition, low recreational awareness can lead to undesirable consequences such as weakening of social relationships, emergence of physical health problems, and increase in psychological problems. The university period is defined as an important process in which individuals shape their social, emotional and physical development while gaining academic expertise. In this process, recreational activities contribute to students' coping with academic load and stress and improve their quality of life (Ekinci & Ozdilek,

2019). This is because recreation does not only provide physical rest or entertainment, but also provides an opportunity to experience and develop different skills of individuals. Areas such as campus gyms, outdoor activities, art workshops, and student clubs make it possible to organize various activities for students' interests (Yalçın & Erzeybek, 2023). Thus, students can keep their motivation for school life high by participating in activities that support their physical and mental well-being. This multifaceted effect of recreation positively affects not only the academic success of university students, but also their adaptation to the social environment and personality development (Kurt, 2022).

Technology Addiction

Technology addiction refers to the situation where individuals develop an uncontrollable urge to use digital tools or online platforms, and this use reaches a level that interferes with daily life activities. This type of addiction can be treated with subcategories such as internet addiction, digital game addiction, and social media addiction (Sarin et al., 2017; Şahin, 2022). Although technology addiction is different from physical substance addiction, it is noteworthy that it exhibits similar psychological and behavioral symptoms. In the literature, factors such as the rapidly developing digital ecosystem, the need for social approval, feelings of loneliness, escape motivation, and impulsivity stand out among the causes of technology addiction (Remondi et al., 20-22). This addiction, which is particularly prevalent among young adults, can cause multiple harms, including depression, anxiety, sleep problems, and conflicts in social relationships (Chen et al., 2021). In addition, technology addiction decreases academic performance, weakens work and family relationships, and may lead to more serious psychosocial problems in the long term (Sigerson et al., 2017). Therefore, technology addiction is considered a public health problem in modern societies that requires urgent solutions (Jamir et al., 2019).

The ease of access to digital tools and the attractiveness of technological innovations provide a favorable ground for the rapid development of this addiction (Moldagali et al., 2024; Tarafdar et al., 2020). Considering the benefits and opportunities offered by technology, it is clear that it is necessary to develop a balanced usage strategy rather than completely eliminate the risk of addiction (Adarkwah & Huang, 2023). Theoretical approaches place technology addiction in the class of behavioral addictions, noting the effects of such addictions on reward mechanisms and brain chemistry (Remondi et al., 2020). Some researchers use frameworks such as social cognitive theory, the use satisfaction approach, and the theory of planned behavior to explain the factors that motivate individuals to become addicted to technology (Turel et al., 2011). These frameworks attempt to explain in more detail why, how, and under what conditions technology use becomes addictive. However, each theory focuses on a different dimension of technology addiction and may not be sufficient to provide a fully comprehensive framework (Ning et al., 2024). Therefore, developing a multidimensional understanding and examining technology addiction from different perspectives is important for both diagnosis and the development of prevention strategies. Individual personality traits, social environment, cultural codes, and psychological states are seen as critical factors in the development of this addiction.

The conceptualization of technology addiction brings different approaches and focuses to the literature. Some researchers propose to treat technology addiction as an "addiction" in the classical sense, drawing similarities with

substance addiction (Mitchell, 2021). This approach points out that basic criteria of addiction, such as the development of tolerance, withdrawal symptoms, and the inability to control use, can also be observed in technology use (Sümen & Evgin, 2021). On the other hand, another group of researchers argues that technology has become almost indispensable in all areas of life, so the term "addiction" may be overgeneralized (Selwyn & Aagaard, 2021). This view suggests distinguishing between the use of technology for different purposes and between constructive and destructive use. The main difference between the different conceptualizations is when technology use reaches a pathological level and the extent to which it negatively affects an individual's life. For example, sub-branches such as social media addiction, online gaming addiction, or Internet pornography addiction may have different dynamics in terms of purposes of use and age groups affected (Buckner et al., 2012). The common denominator of technology addiction is the deterioration of time management, emotional balance and social relationships (Ozturk & Ayaz-Alkaya, 2021). The complexity of the conceptualization is also reflected in approaches to addressing technology addiction; while some experts advocate clinical treatment methods, others suggest solutions through education, awareness, and user autonomy (Chen et al., 2021). This demonstrates the multifaceted nature of technology addiction and that the solution cannot be limited to one-dimensional approaches.

Different theories to explain technology addiction address the process and maintenance of addiction from different perspectives. One such theory, behavioral addiction theory, suggests that technology use is related to conditioning principles and reward mechanisms (Wang et al., 2020). For example, likes or in-game achievements on social media platforms can trigger the release of dopamine in the user and increase addictive tendencies. Similarly, the theory of planned behavior suggests that factors such as attitudes, subjective norms, and perceived behavioral control that determine an individual's intention to use technology shape addiction (Turel et al., 2011). If an individual believes that playing online games brings social acceptance and that he/she can easily continue this behavior, the risk of addiction may increase. Social cognitive theory argues that technology addiction develops as a result of the interaction of learning through observation and personal experience (Tarafdar et al., 2020). The use of technology by others in the individual's environment may also accelerate the adoption process of addiction through a normative effect. In addition, the use satisfaction approach emphasizes that individuals prefer technology to meet specific needs, such as social interaction, entertainment, identity seeking, or stress relief, and that the continuation of this preference can lead to addiction (Buckner et al., 2012). While these theories explain the appeal of technology and the motivational processes involved in its use, each emphasizes a different dimension.

Studies examining technology addiction among college students focus on obtaining more specific results by adapting these theories to the young adult population. For example, the pressures of the social environment and the technology use habits of peers may be a driving force in the spread of addiction among college students (Remondi et al., 2020). In particular, the intense social media culture in dorm rooms or common areas on campus can lead students to imitate this behavior. On the other hand, according to the theory of planned behavior, since students often use technological tools even for educational purposes, online processes that start for academic studies may shift to social media or gaming platforms over time and start the addiction cycle (Adarkwah & Huang, 2023). Under the use satisfaction approach, the fact that university students satisfy their needs such as relief from

stress, entertainment, or social bonding with instant and easily accessible solutions provided by technology allows addiction to be sustained (Sigerson et al., 2017). Since students with high recreational awareness can turn to sports, arts, or social activities to meet the same needs in a healthier and more balanced way, their risk of becoming addicted to technology remains lower (Akçakese & Demirel, 2024).

Theoretically, it can be said that the factors that reveal technology addiction can be neutralized through leisure awareness and students' self-regulation skills can be improved (Demir & Koçak, 2024). In this sense, the risk factors of technology addiction as defined by different theories can be eliminated by increasing recreational activities. Such an approach will not only reduce technology addiction but also contribute to the physical, mental, and social development of university youth.

The Role of Recreational Activities in Reducing Technology Addiction

Numerous studies have shown that leisure activities are an effective method in the process of reducing and preventing technology addiction (Mei et al., 2018; Ozturk & Ayaz-Alkaya, 2021). The existence of alternative and attractive recreational activities for students can, of course, reduce the time spent in the digital environment. Multifaceted activities such as sports, arts, cultural excursions, outdoor activities, or volunteer projects can meet the psychological, social, and intellectual needs of students and prevent excessive use of technology (Ekinci & Ozdilek, 2019; Remondi et al., 2022; Amudhan et al., 2022; Farmer & Lloyd, 2024; Akçakese & Demirel, 2024). In addition, students who regularly participate in such activities may increase their self-confidence and self-regulatory abilities by developing skills such as teamwork, problem-solving, and leadership. These characteristics facilitate a more controlled resistance to the allure of digital tools (Tarafdar et al., 2020; Atalay et al., 2016). Because recreation also improves individuals' stress coping strategies, it provides healthier options to the need for escape or relaxation that underlies technology addiction (Uca et al., 2021). In addition, the emotional support and sense of belonging provided by face-to-face social interactions can help break digital addiction by providing students with a different source of satisfaction and happiness than the online environment. High recreational awareness allows individuals to guide themselves on how to plan their leisure time and when to step away from technology (Durhan et al., 2022). Therefore, recreational activities bring a holistic solution to the problem of technology addiction with both a protective and curative approach. In the university environment, institutional support for these activities has an even stronger effect when combined with easy accessibility on campus, active organizations of student clubs, and counseling services (Aslan, 2011; Yalçın & Erzeybek, 2023). Ultimately, recreation-based strategies play a critical role not only in reducing addiction, but also in the overall development of students and improving their quality of life.

Physical activity is seen as an effective intervention to limit time spent on technology devices and prevent addiction. Students who have a sports or exercise routine can automatically reduce the time they spend on digital devices by dedicating certain hours of the day to physical activity. This provides an option that supports physical and mental health by moving away from the constant stimulation and search for reward in digital media (Ersöz et al., 2023). In addition to sports, activities such as dance, yoga, hiking, or cycling also provide physical and mental relaxation (Uca et al., 2021). These activities increase students' motivation, self-regulation, and time management

skills. Regular physical activity triggers the release of endorphins, which contribute to a natural feeling of happiness and fulfillment in individuals (Tadpatrikar et al., 2024). This feeling can lead to a decrease in interest and addiction to technology. In addition, group sports alleviate the factors of loneliness and social isolation that are effective in turning to digital environments by providing team spirit and social interaction (Farmer & Lloyd, 2024).

From the perspective of university youth, the opportunities offered by physical education and sports units and the activities of student clubs diversify and make physical activity participation opportunities accessible. Increasing participation in such activities helps university students gain healthy living habits and limit addiction tendencies (Demirel et al., 2021). Moreover, making physical activities a regular routine can eliminate the mental fatigue triggered by technology use by allowing students to cope with stress and spend more time for themselves. Therefore, the positive effect of physical activities on digital consumption has an important place not only in the fight against addiction but also in improving the general quality of life of students (Sunarno et al., 2023). In this direction, the dissemination of physical activity-focused recreation programs within the university is considered as an effective policy option in preventing technology addiction.

Today, the concept of digital detox is becoming one of the popular approaches used to reduce the negative effects of excessive technology use. In this approach, the aim is for the individual to stay away from technological devices for a certain period of time and experience a mental purification process (Chen et al., 2021). Mindfulness and nature-based recreation stand out as effective methods in this digital detox process. Mindfulness techniques allow the person to focus on the experience they are experiencing at that moment and create a kind of mental shield against constant stimuli from the digital world (Tarafdar et al., 2020). Practices such as meditation, breathing exercises and mindful eating strengthen the individual's self-control against digital temptations and help them develop a healthier relationship with technology (Kuş & Tunçkol, 2024).

On the other hand, nature-based recreation activities take students off campus, allowing them to be in touch with nature and facilitating the process of distancing themselves from the online world. Nature walks, camping activities or ecotourism trips allow students to renew themselves physically, emotionally and socially, while also temporarily eliminating the need for “digital connection”. In this process, it is observed that individuals have the opportunity to observe themselves and reduce their stress levels with the calming effect of nature (Nopiana et al., 2022). The combination of mindfulness and nature-based recreation can transform digital detox from being just an act of staying away from technology into an experience that increases one's inner awareness and improves their quality of life. For university students, organizing such activities through clubs or student groups can create a widespread culture of mindfulness and detox on campus. In addition, nature and mindfulness-based approaches not only alleviate addiction, but also offer significant gains in the areas of stress management and personal development (Amudhan et al., 2022). Therefore, examining digital detox strategies within the framework of recreation awareness is of great importance for university youth to develop a sustainable digital usage behavior.

University-based recreation programs include sports, arts, culture, and nature activities organized on campus, helping students spend their free time with structured and useful activities. The effectiveness of these programs is

closely related to the regular participation of students and the variety of activities (Yalçın & Erzeybek, 2023). Physical infrastructures such as gyms, swimming pools, open spaces, and multi-purpose halls of universities offer students different sports and exercise options. In addition, theater clubs, music groups, photography groups, and other art-oriented activities create a wide range of interests for students (Karademir, 2023). In this way, recreation programs meet students' needs such as self-expression, socialization, and stress relief, reducing their tendency to turn to technology. University administrations, in cooperation with student clubs, linking activities to regular calendars and creating reward or certification systems that encourage participation, make these programs more sustainable (Kurt, 2022). In addition, by integrating with guidance and psychological counseling services, directing students at risk of technology addiction to these programs offers an opportunity for early intervention (Potas et al., 2022). Thus, university-based recreational activities are gaining importance not only as a general leisure time evaluation but also as a strategy to combat and prevent addiction.

Studies measuring the effectiveness of these programs show that symptoms of technology addiction decrease and academic performance increases in students who participate regularly (Akçakese & Demirel, 2024). Moreover, positive developments are also detected in areas such as developing social skills and networks, leadership, problem solving, and creativity. These developments allow students to both experience university life more fully and to be better equipped to prepare for professional life after graduation (Ersöz et al., 2023).

This study, which aims to reveal the role of recreation awareness in the rapid change and intensive use of technology brought about by the digital age among university students, also seeks an answer to the question of how students adapt to this process. Young adults live intertwined with technology due to both the ease of access to information and the appeal of social media platforms (Bajwa et al., 2021). This adaptation process, on the one hand, enables fast and practical access to information, while on the other hand, it increases the risk of technology addiction. Recreation awareness can limit possible harms by contributing to students' more conscious management of their relationship with the digital world. In this respect, the research problem covers issues such as how university students determine their ideal leisure activities, how the time they allocate to these activities affects their digital consumption time, and what differences occur in terms of technology addiction as a result. What recreation opportunities university administrations and policy makers should offer to reduce students' digital addiction levels can be seen as a practical extension of the research (Karademir, 2023). In this context, the findings to be included in the research may shed light on initiatives such as awareness-raising activities to be carried out on university campuses, designing sports and cultural activity programs, and strengthening consultancy services. The research problem also raises the questions of to what extent such practices are effective on students and to what extent they serve as a protective function against technology addiction.

In the study conducted by Akçakese and Demirel (2024), it is shown that leisure awareness reduces digital game addiction. Similarly, Ersöz et al. (2023) show that symptoms of technology addiction decrease as physical activity increases. These findings suggest that leisure and technology use may be alternative or compensatory processes. Students' active and meaningful use of leisure time may, to some extent, limit the time they spend in the digital world and reduce their psychological need for technology. This appears to be critical in supporting healthy lifestyles and keeping the relationship with technology at a more controlled level. In addition, the development of

leisure consciousness may increase participation in group activities that enhance social cohesion and communication (Kurt, 2022). Although there are many studies in the literature pointing to the positive effects of leisure mindfulness, the specific mechanism of this effect on technology addiction has not been fully elucidated (Buckner et al., 2012; Bajwa et al, 2021; Chen et al., 2021; Selwyn & Aagaard, 2021; Marin et al., 2021; Wang et al., 2021; Limone & Toto, 2021; Farmer & Lloyd, 2024; Selwyn & Aagaard, 2021; Ece et al., 2022; Bozavli, 2023; Knopf, 2023; Ersöz et al., 2023; Yıldız & Kırtepe, 2024). Therefore, this research also aims to fill this gap in the existing literature.

Universities offer recreational programs to support the academic, social, and emotional development of young people. Online courses, distance learning, and social distancing policies have increased the amount of time students spend online and increased the risk of technology addiction (Potas et al., 2022). On the other hand, the reduction or elimination of leisure activities in physical environments has also hindered the practical application of leisure awareness. Because they are in an age group that is also considered a transitional period, they experience both the effects of the social environment and the consequences of their individual choices intensely. The development of leisure consciousness during this period is also crucial to the formation of future lifestyles. In the application dimension, the majority of studies on the relationship between leisure consciousness and technology addiction use limited methods in data collection and analysis processes. In-depth analysis techniques such as qualitative interviews, focus group studies, or ethnographic observations are not sufficiently used, and thus it is not possible to reveal students' behavioral motivations in detail (Ece et al., 2022). In quantitative studies, it is noted that cross-sectional surveys or scales are generally emphasized and long-term follow-up studies are limited (Çolak, 2024). All these factors make the dynamics that increase or decrease technology dependence more complex.

In this context, the aim of the study is to examine the leisure awareness and technology addiction of students studying in different departments of universities on a relational basis. In this context, the study sought answers to five sub-problems and tested one hypothesis.

1- What is the level of leisure consciousness and technology addiction of university students?
2- Does university students' leisure consciousness differ according to gender variables?
3- Does the technology addiction of university students differ according to gender variable?
4- Does the leisure consciousness of university students differ according to their class level?
5- Do university students' technology addictions differ according to their grade level?

As a hypothesis; "Recreational awareness of university students significantly predicts their technology addiction" hypothesis was tested.

Method

Research Methodology

In this study, the relationships between university students' leisure consciousness and technology addiction were examined on a relational basis in terms of some variables. The study used causal comparison and relational survey methods based on these variables. The causal comparison model is used to compare one or more dependent

variables with respect to independent variables. The correlational survey model is used to determine if there is a change between more than one variable (Bloomfield, J., & Fisher, 2019). In both models, there is no direct intervention in the research process and the current problem and variables are described and explained.

Research Group

The population of the study is made up of the students who are studying in universities in Turkey in the academic year 2023-2024. The sample consisted of a total of 347 students studying at the Faculties of Education and Tourism who were selected from the population on a voluntary basis through purposive sampling. The sample size was determined based on the information in the literature (Campbell et al., 2020). According to this, a survey model research should be conducted on at least 30 people, and a sample of 338 people is sufficient for such a quantitative research conducted with a 5% margin of error. In this context, the sample consisted of students who are studying in the Faculties of Education and Tourism of Eskişehir Osmangazi and Anadolu Universities from the academic year 2024-2025. The study sample consisted of 183 females (52.74%) and 164 males (47.26%). Of the participating university students, 82 (23.63%) were in their first year, 149 (42.94%) were in their second year, 75 (21.61%) were in their third year, and 41 (11.82%) were in their fourth year.

Data Collection Tools

For the purpose of the study, demographic data consisting of 5 questions about gender, age, faculty, department, and grade level of university students and a questionnaire form consisting of approximately 75 questions about factors such as technology addiction and recreational awareness were collected. Measurement tools were used for each key variable and collected online with questions submitted to Google Forms.

Researchers seeking to collect primary source data can gather this information through observation, questionnaires, and experiments. A questionnaire is a survey designed to collect primary data. Its purpose is to systematically gather the information needed to test hypotheses. Survey method can be classified as face to face, telephone, mail, internet, e-mail according to the way it is applied (Wijaya et al., 2021)). In this study, the survey technique was preferred as a data collection tool because it is economical and is a highly preferred method in social sciences. Since it was considered that the survey participants could ask additional questions and provide the highest response rate, data were collected through online and face-to-face methods. The survey was administered during the first semester of the 2024-2025 academic year.

Technology Addiction Scale

Technology Addiction Scale, which was adapted by Aydın (2017) using Young's (1996) Internet Addiction Test and Griffiths' (2005) six criteria studies, measures the presence of technology addiction in individuals aged 18 and above. The scale as a whole consists of four sub-dimensions, namely 'social networking addiction', 'instant messaging addiction', 'online gaming addiction' and 'website addiction', and includes a total of 24 items. Each sub-dimension consists of 6 items. In the Social Networking Addiction sub-dimension, there are statements such as "I

am disturbed by distractions when I spend time on social networking sites. In the Instant Messaging Addiction sub-dimension, the statement is "I feel anxious when I cannot use instant messaging applications. In the Online gaming addiction sub-dimension there is the item "I want to increase the time I spend playing online games". The sub-dimension Websites Addiction includes statements such as "I neglect my classes to browse websites.

This scale is rated on a 5-point Likert scale (1 = never, 5 = always). The total score ranges from 24 to 120. The following criteria are used in the interpretation:

- 0-24 points: Not dependent
- 25-48 points: Slightly addicted
- 49-72 points: Moderately dependent
- 73-96 points: Highly dependent
- 97-120 points: Fully dependent

The Cronbach Alpha internal reliability coefficients for the subdimensions of the scale are as follows: 0.786 for social networking addiction, 0.806 for instant messaging addiction, 0.897 for online gaming addiction, and 0.861 for website addiction. These values indicate that the internal consistency of the subdimensions of the scale is high. The level of reliability (Cronbach Alpha) in this study is 0.87.

Recreation Awareness Scale (RAS)

It is a scale developed by Mannell and Kleiber (1997) under the name of "Recreational Awareness Scale" in order to make the best use of the leisure potential of the participants. The adaptation of this scale to Turkish was done by Ekinci and Özdilek (2019). The scale consists of 41 items, there are no reverse-coded questions in the scale, and the scale is a 5-point Likert scale in the form of "1- Totally disagree to 5- Totally agree" and was created with the aim of measuring the leisure awareness of individuals. The scale consists of a total of 3 sub-dimensions and 41 questions: 10 items in the Pleasure-Enjoyment sub-dimension, 18 items in the Social-Success sub-dimension, and 13 items in the Self-Improvement sub-dimension. The total internal consistency reliability of the scale was .94 and the consistency reliabilities of the sub-dimensions were found to be pleasure/enjoyment .88, social/success .90 and self-improvement .88 (Ekinci & Özdilek, 2019). The Cronbach's alpha values found as a result of the research are .86 for the pleasure/entertainment sub-dimension, .92 for the social/achievement sub-dimension, .91 for the self-development sub-dimension, and .95 for the total values. According to the analyses conducted on the sample of this study, the reliability coefficients for the sub-dimensions of the Recreation Awareness Scale vary between 0.85 and 0.94.

Data Analysis Techniques

IBM SPSS 27 package program was used for data analysis. Before the analysis, it was checked whether the collected data met the general conditions. The statistical analyses were applied to 347 participant forms. Cronbach alpha coefficients were examined for the reliability of the scales used in the study. Normality analysis was performed to determine whether the data were normally distributed (D'Agostino, 2017). Frequency analysis was

used to obtain information about the participants. Correlation analysis and multiple regression analysis were used to determine the relationships between variables. The unpaired sample t-test was used to compare the technology addiction and recreational awareness of the participating students according to their gender, and the one-way analysis of variance technique was used to compare the same variables according to their grade level.

Findings

This section presents the findings in the context of the research questions. With regard to the first research question, the descriptive results of the college students' levels of leisure awareness and technology dependence are presented in Table 1.

Table 1. Distribution of Scores on the Recreation Awareness Scale for University Students

Recreation Awareness	N	Minimum	Maximum	Mean	SD
Pleasure - Fun	347	1.00	5.00	4.16	0.68
Social Success	347	1.00	5.00	4.14	0.74
Self-development	347	1.00	5.00	4.21	0.74
Total-Recreation Awareness	347	2.00	5.00	4.17	0.49

Table 1 shows the descriptive analysis results of the university students' scores obtained from the subscales of the recreation awareness scale. When the table is examined, the mean subscale scores of the recreation awareness scale were calculated as 4.16±0.68; 4.14±0.74; 4.21±0.74 and 4.17±0.49 in the total of the measurements, respectively. The obtained values showed that the participating students had a very high level of recreation perception in the self-development subscale. It was found that the perception of recreation was at a high level in the subscales of enjoyment-entertainment, social success, and the total scale.

Table 2. Distribution of Technology Addiction Scale Scores for University Students

Technology Addiction	N	Minimum	Maximum	Mean	SD
Social Networking Addiction	347	1.00	5.00	2.94	1.41
Web Site Addiction	347	1.00	5.00	2.73	1.30
Instant Messaging Addiction	347	1.00	5.00	2.39	1.36
Online Gaming Addiction	347	1.00	5.00	2.50	1.32
Total-Technology Addiction	347	1.00	5.00	2.64	1.00

Table 2 shows the descriptive analysis results of the scores obtained by university students from the technology addiction scale and subscales. When the table is examined, the mean subscale scores of the technology addiction scale were calculated as 2.94±1.41; 2.73±1.30; 2.39±1.36; 2.50±1.32; and 2.64±1.00 in total measurements, respectively. The obtained scores indicated that the participating students had a low level of technology addiction in the instant messaging subscale. However, it was observed that technology addiction was at a medium level in the subscales of social network addiction, website addiction, and online game addiction, as well as in the total scale.

Table 3. Comparison of Recreation Awareness Scale Scores of University Students by Gender

	Gender	**N**	**Mean**	**Sd**	**t**	**p**
Pleasure-Fun	Female	183	4.22	0.67	1.98	0.05*
	Male	164	4.08	0.69		
Social Success	Female	183	4.15	0.73	0.39	0.70
	Male	164	4.12	0.74		
Self-development	Female	183	4.30	0.64	2.48	0.01*
	Male	164	4.10	0.83		
Total-Recreation	Female	183	4.23	0.46	2.36	0.02*
Awareness	Male	164	4.10	0.53		

Table 3 shows the results of comparing the recreation awareness scale scores of university students according to gender. According to the unpaired samples t-test analyses, the mean scores of the Recreation Awareness Scale calculated on the pleasure-entertainment and self-improvement scales and the total of the measurement tool showed a significant difference according to the gender variable ($p<0.05$). It was understood that female students obtained higher mean scores than their male counterparts in these two subscales and the total of recreation awareness. On the other hand, no significant difference was found in the "social success" sub-dimension of the Recreational Awareness Scale with respect to the gender variable ($p>0.05$).

Table 4. Comparison of Recreation Awareness Scale Scores of University Students by Gender

	Gender	**N**	**Mean**	**Sd**	**t**	**p**
Social Networking	Female	183	2.96	1.44	0.35	0.73
Addiction	Male	164	2.91	1.39		
Web Site Addiction	Female	183	2.66	1.35	-1.07	0.29
	Male	164	2.80	1.24		
Instant Messaging	Female	183	2.25	1.22	-2.47	0.04
Addiction	Male	164	2.55	1.46		
Online Gaming Addiction	Female	183	2.34	1.28	-2.36	0.02
	Male	164	2.67	1.34		
Total-Technology	Female	183	2.53	1.00	-2.16	0.03
Addiction	Male	164	2.76	1.00		

Table 4 shows the results of comparing the Technology Addiction Scale scores of university students by gender. According to the unpaired samples t-test analysis, the mean scores calculated on the "instant messaging" and "online game addiction" subscales of the Technology Addiction Scale and the total of the measurement tool showed a significant difference according to the gender variable ($p<0.05$). It was understood that male students obtained higher mean scores than their female counterparts in these two subscales and the total Technology Addiction Scale. On the other hand, no significant difference was found in the other subscales of the Technology Addiction Scale with respect to the gender variable ($p>0.05$).

Table 5. Comparison of University Students' Recreation Awareness Scale Scores According to Class Level

Recreation Awareness	Class Level	N	Mean	Sd	F	p
Pleasure-Fun	1	82	4.10	0.73	2.73	0.04*
	2	149	3.95	0.64		
	3	75	4.12	0.57		
	4	41	4.26	0.86		
Social Success	1	82	4.06	0.69	1.16	0.33
	2	149	4.16	0.83		
	3	75	4.24	0.67		
	4	41	4.02	0.52		
Self-development	1	82	3.99	0.88	4.16	0.01*
	2	149	4.20	0.70		
	3	75	4.19	0.61		
	4	41	4.34	0.75		
Recreation Awareness Total	1	82	4.03	0.51	3.95	0.01*
	2	149	4.09	0.51		
	3	75	4.18	0.43		
	4	41	4.26	0.46		

Table 5 shows the comparison results of college students' recreation awareness scale scores according to grade level. According to the F-test analysis, the mean scores calculated on the subscales of "enjoyment of recreation", "self-development", and the total of the recreation awareness scale showed a significant difference according to the grade level variable ($p<0.05$). In these two subscales and the total recreation awareness, it was understood that the participants in the third and fourth grades obtained higher mean scores than the students studying in the first grades. On the other hand, no significant difference was found in the "social success" sub-dimension of the Recreation Awareness Scale with respect to the grade level variable ($p>0.05$).

Table 6. Comparison of University Students' Technology Addiction Scale Scores According to Class Level

Technology Addiction	Class Level	N	Mean	Sd	F	p
Social Networking Addiction	1	82	3.40	1.36	4.39	0.00*
	2	149	2.77	1.44		
	3	75	2.92	1.30		
	4	41	2.63	1.46		
Web site addiction	1	82	3.22	1.31	5.39	0.00*
	2	149	2.59	1.27		
	3	75	2.57	1.23		
	4	41	2.51	1.31		
Instant Messaging Addiction	1	82	2.71	1.46	3.37	0.02*
	2	149	2.44	1.42		
	3	75	2.13	1.04		

Technology Addiction	Class Level	N	Mean	Sd	F	p
	4	41	2.05	1.32		
Online gaming addiction	1	82	2.85	1.39	2.74	0.04*
	2	149	2.36	1.26		
	3	75	2.41	1.26		
	4	41	2.44	1.38		
Total technology addiction	1	82	3.05	1.06	6.40	0.00*
	2	149	2.54	1.01		
	3	75	2.51	0.82		
	4	41	2.41	0.98		

Table 6 shows the comparison results of university students' Technology Addiction Scale scores according to grade level. According to the F-test analysis, the mean scores calculated on all subscales of the Technology Addiction Scale and the total score of the measurement tool showed a significant difference according to the grade level variable ($p<0.05$). According to the further analysis, it was understood that especially the students studying in the first grades obtained higher mean scores of technology addiction than the participants in the third and fourth grades.

Table 7. Regression Analysis Results to Determine the Level of Recreation Awareness Predicting Technology Addiction

	Unstandardized Coefficients		Standardized Coefficients		
	β	Std. Error	β	t	Sig.
(Constant)	4.516	0.448		10.078	0.000*
Recreation Awareness	-0.451	0.107	-0.222	-4.223	0.000*

$R=0.24$; $R^2=0.05$; $F=17.83$; $p<0.05$

a. Dependent Variable: Technology Addiction Total

According to the regression analysis conducted to determine the relationship between recreation awareness levels of university students and their technology addiction in Table 7, it is seen that recreation awareness is an effective factor on the technology addiction of the participant students and decreases this addiction by 0.22 units. In addition, leisure consciousness explains about 5% of the technology addiction. In this respect, we can say that the increase in leisure awareness reduces technology addiction and has a decreasing effect.

Discussion and Conclusion

This study examined the relationships between university students' recreation awareness and technology addiction. The research findings show that the mean scores obtained from the recreation awareness scale are generally high. It is seen that the mean scores of the "pleasure-fun" and "social success" sub-dimensions approach the level of 4, and the level of 4.21 is reached in the "self-development" dimension. These data suggest that

students generally approach recreational activities positively and evaluate these activities consciously. However, it is revealed that the mean scores of the technology addiction scale are low (2.39) in the "instant messaging" sub-dimension, and moderate (2.94 and 2.73) in the "social networks" and "website addiction" sub-dimensions. Therefore, it is observed that the general addiction risk of students regarding technology is at a moderate level, but there are differences between the sub-dimensions. Trends approaching high levels in social network addiction in some places, and a mean of 2.50 in online game addiction indicate that there is a moderate level of participation. The findings show that recreation awareness is generally strong, but technology addiction does not remain at a completely low level. Although instant messaging addiction is relatively low, it is noteworthy that interaction via social networks and websites poses a moderate addiction risk. The findings obtained for the first research question reveal that both recreation awareness and technology addiction risk are common among students, but these two dimensions are at different levels. Thus, it is understood that although students are prone to recreation, potential threats continue to exist in their relationships with technology.

The findings regarding the first research question reveal that students have the potential to evaluate their free time with both physical and social activities, but they cannot completely break away from the appeal of digital platforms. Indeed, technology competes with different types of recreation by offering an easily accessible entertainment and communication area for students. Intense academic and social pressures cause university youth to turn to quick relaxation or socialization methods. Therefore, although physical recreational activities are valuable, online applications that offer instant feedback and participation also remain attractive for students. It is emphasized that students with high recreational awareness can manage their digital usage time more balancedly, but this does not completely eliminate the risk of addiction. In particular, the fact that the time spent on social networks points to an "above average" category suggests that face-to-face interactions are being replaced by technology. This picture also raises the question of whether recreational activities are truly internalized. The fact that students place a high value on recreation contradicts the translation of this value into action. Therefore, the most important interpretation of the first finding is that awareness alone is not sufficient, and concrete participation and behavioral change must be supported. At this point, if the depth, continuity and motivation sources of students' recreation preferences are examined, a more comprehensive picture can be drawn. In general, the first finding proves that the relationship between recreation awareness and technology addiction is complex and multidimensional.

The research results are also parallel to the research results in the existing literature. While Ekinci and Özdilek (2019) state that the recreation awareness of university students is generally high, Tarafdar et al. (2020) also emphasize that social media use continues intensively among young adults. This situation shows that the concept of "recreation awareness" is not the only determining factor in the relationship that students establish with technology. Similarly, Chen et al. (2021) state that the instant gratification and socialization opportunities offered by technology attract the attention of the young population and therefore the risk of addiction has not been eliminated. The dichotomy revealed by the first finding is similar to the "struggle" situation emphasized by Aziz et al. (2021); in the study in question, it is determined that students both actively participate in sports and cultural activities and use digital environments intensively. In this context, the common message of different study results shows that recreation awareness alone is not sufficient to reduce the intensive use of technology and that additional

support mechanisms and awareness programs should be put into practice. Although some studies suggest that addiction to digital games or social media, in particular, partially declines when a "recreation alternative" is offered (Akçakese and Demirel, 2024), there is little definitive data on whether this decline is permanent. At the same time, Bozavli (2023) argues that students' use of technology is inevitable even during the foreign language learning process, and therefore an absolute "staying away from technology" approach is unrealistic. In general, the literature conveys the message that recreation and technology use are not opposite poles, but two elements that need to be balanced together.

Gender and Grade Level Differences in Recreation Awareness

When it is examined whether gender and class level variables differentiate recreation awareness; the results show that female students have higher averages especially in the dimensions of "pleasure-fun" and "self-development". This situation indicates that female participants have developed a higher level of interest or awareness towards recreational activities. This finding is interpreted as female students planning their leisure time more systematically or in a more versatile way. When examined in terms of class level, it is revealed that third and fourth year students have higher recreation awareness scores compared to first year students. This finding shows that students who adapt to university life and spend longer time in the campus environment give more importance to recreational activities in later periods. It is thought that interest in recreational activities may be lower in the first years due to adaptation and academic intensity, while leisure time management skills develop in later grade levels. This differentiation can be explained by factors such as students joining various clubs, taking part in sports activities and expanding their social circles over time. As a result, it is seen that both gender and class level play a significant role in the context of recreation awareness. However, the absence of a significant gender difference in the "social success" dimension indicates that social gains in recreational activities are similar for both genders. However, further analyses require a detailed investigation of how this finding is shaped among students from different faculties. As a result, the results regarding the second research question reveal that recreation awareness varies depending on certain demographic variables.

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Gender and Class Level Differences in Technology Addiction

The effect of gender and class variables on the level of technology addiction was another subject of the study. The data obtained show that male students obtained higher addiction scores than female students in the "instant messaging" and "online gaming" sub-dimensions. This finding indicates that male students tend to spend more time on online games and instant messaging tools. At the same time, the fact that the total technology addiction score was higher in male students suggests that digital activities are internalized more intensely among males. This result suggests that addiction to the entertainment aspect of technology may be more common among males. This situation reveals the fact that competition in digital media is strong even if recreation awareness is high. The prevalence of online game addiction among male students is frequently emphasized in studies such as Chen et al. (2021) and Tarafdar et al. (2020). In addition, Akçakese and Demirel (2024) state that digital game addiction in young people has not completely disappeared even in groups with high recreation awareness, but has decreased somewhat.

When examined in terms of grade level, it is understood that first-year students have higher technology addiction scores compared to third and fourth-year students. This result is interpreted as students who have just started university tend to online platforms more during the adaptation process and try to meet their need for social connection and entertainment. It is assumed that students in upper grades can establish their own social and academic networks over time and bring technology use to a more balanced level. In addition, the increase in participation in recreational activities and the level of adaptation to the campus environment is considered as a factor that reduces technology addiction. These results show that gender and grade level variables are important differentiators in terms of technology addiction. The finding regarding high technology addiction in first-year students in particular brings to the agenda that universities should pay more attention to this issue in their orientation programs. The high technology addiction level of first-year students suggests that individuals who have just stepped onto campus try to solve their stress and adaptation problems by turning to online environments. Students who cannot find sufficient social support during the orientation process or who have difficulty getting used to the university environment may prefer to close these gaps on digital platforms.

The high addiction level of first-year students is attributed to the adaptation process defined as "orientation syndrome" in the literature (Bajwa et al., 2021). It is also stated in the literature that students who have just started university seek support and escape from online environments when faced with factors such as living alone in a different city, a new circle of friends, and academic difficulties (Selwyn and Aagaard, 2021). This finding is parallel to the decrease in technology addiction in upper grades and reflects a trend confirmed by Ersöz et al. (2023) (Cantekin and Ozen, 2024). Therefore, the view that differences in gender and grade level have an effect on technology addiction has broad literature support. Although some researchers suggest that social media addiction may be higher in female students (Sümen and Evgin, 2021), the fact that no statistically significant

difference was found in this study can be explained by the sample characteristics.

Recreation Awareness Predicting Technology Addiction

The research results show that recreation awareness significantly reduces technology addiction. It is found that each unit of increase in recreation awareness reduces technology addiction by 0.22 units. This situation reveals that participation in leisure activities and understanding the value of these activities can prevent students from excessively turning to digital media. The model suggests that 5% of the total variance in the dependent variable is explained by recreation awareness. In this context, the hypothesis put forward is accepted. Although the explained variance seems low, considering that multiple factors come into play in the field of social sciences, this effect is considered statistically significant. Because different variables that can affect technology addiction (personality, family support, academic pressure) are also involved in the process and recreation awareness alone may not be able to explain all the variance. Nevertheless, this result confirms that recreation awareness plays a functional role in managing students' technology addiction. This finding indicates that students should be encouraged to make more efficient use of their leisure time and that recreational activities should be diversified within the campus. Thus, recreation awareness acts as a buffer mechanism in preventing the destructive effects of excessive use of digital devices.

It should not be forgotten that many variables such as family structure, group of friends, academic success anxiety, and personality traits can have an effect on technology addiction, in addition to recreation awareness. Mechanisms such as meeting psychological needs in healthy ways, physiological energy discharge, and face-to-face reinforcement of social support explain the buffering effect of recreation against technology addiction. Therefore, it can be argued that students with low recreation awareness can become addicted to digital devices more easily. On a theoretical level, this finding also shows that recreation can be considered as an “alternative reward source” within behavioral addiction models. Indeed, the rapidly obtained pleasure and instant gratification frequently experienced in digital environments can be balanced with the more sustainable and multidimensional satisfaction of recreational activities. The original value of the study stems from the fact that the relationship between these two concepts does not remain at the level of correlation alone, but rather gives the impression that it has a partially causal dimension. However, it is also emphasized that longitudinal or experimental designs are needed to fully verify the claim of causality. All in all, the fourth finding significantly supports the theoretical assumptions of the study and encourages further in-depth investigations.

Akçakese and Demirel (2024) state that digital game addiction weakens as recreational diversity increases. In addition, Tarafdar et al. (2020) state that recreation awareness can alleviate technology addiction thanks to its function of creating a “behavioral alternative”, referring to social cognitive theory. Similarly, it is emphasized that recreation participation acts as a “protective factor” against technology, even when demographic or psychological variables are taken into account (Chen et al., 2021). Therefore, a variable such as recreation awareness provides an important buffer mechanism, although it does not eliminate all forms of addiction. Demirel et al. (2021) also state that as university students' recreation participation levels increase, their psychological and social well-being improves, and as a natural result, excessive dependence on technology may decline. All these studies directly or

indirectly overlap with the fourth finding. Theoretically, when recreation awareness is examined within the framework of "positive psychology", it is frequently stated that it is an element that increases the quality of life of individuals and reduces addiction tendencies (Yıldız & Kırtepe, 2024). Therefore, this finding of the study confirms that recreation awareness is a critical factor on technology addiction, consistent with the general acceptance in the literature.

The results of this research present significant contributions both theoretically and practically by revealing the interaction between university students' recreation awareness and technology addiction in different dimensions. The application of this study reminds university administrations that activities should be planned in which students can use their free time more consciously. The fact that male students and the first-year group are especially at risk necessitates the design of focused programs for these segments. Introducing recreation and making club-activity opportunities visible during orientation processes is considered a preliminary step towards reducing young people's excessive dependence on technology. Thus, it becomes possible to create a more active social atmosphere on campus and direct students to activities where they will discover themselves. Such measures support the multifaceted development of students during undergraduate education and contribute to public health in the long term. As a result, the intersection of recreation awareness and technology addiction underlines the concept of "online-offline balance" for both researchers and practitioners. This balance not only increases student satisfaction but also leaves positive reflections on mental health and academic success.

In addition, the findings of the study show that in the digital age, higher education institutions should not only provide academic content but also systematically design programs that will increase the quality of life of students. In institutional policies and strategies, it is important to strengthen the "guidance unit-student club" cooperation and expand recreational activities (Ersöz et al., 2023). Especially in the post-pandemic period, with the increase in the speed of digitalization, the risk of technology addiction has increased and it is frequently emphasized in the literature that universities should take more comprehensive measures in this regard (Guven Ozdemir and Sonmez, 2021). In this sense, increasing recreation awareness, on the one hand, enables students to focus on physical and social activities, and on the other hand, it can reduce the time spent in digital environments to a healthy level.

The findings obtained in the study indicate that some methodological and sample-based limitations should be taken into consideration. First of all, the study only includes students studying in certain faculties (Education and Tourism), and the results may differ when students from different disciplines are included. In addition, the cross-sectional design of the data collection process limits the full determination of changes and causal relationships over time. In addition, the use of online and face-to-face survey methods together can make it difficult to equalize the participants' motivation to respond. The multidimensional nature of technology addiction requires that each sub-dimension be evaluated separately, but in this study, categories such as digital games, websites, and social media are measured with a limited number of items. The fact that psychological and family factors are not evaluated beyond demographic factors indicates that other components affecting technology addiction are excluded.

As a result, this study on the interaction between recreation awareness and technology addiction both enriches the

theoretical literature and offers applicable suggestions for educational institutions. Consciously structuring leisure time management can build an important resistance mechanism against digital temptations in students. The role of gender, class level and other demographic characteristics in this relationship draws attention to the need to produce customized solutions when designing comprehensive programs across universities.

The findings of the study show that recreation is an alternative and multifaceted method in combating technology addiction, providing a strategic opening in educational policies and institutional management. In addition, adopting a perspective that considers the physical, emotional and social development of students in the university ecosystem helps future adults to assume healthier and more productive roles in the digital world. Current findings show that it is difficult to eliminate technology addiction all at once, but a recreation-based approach can create a sustainable balance in the long term. In this context, universities encouraging extracurricular activities, supporting club activities and including recreational opportunities in orientation programs will ensure that students turn to the understanding of "controlled use" instead of "addiction". Thus, the higher education experience of the new generation is not limited to academic success but is combined with a multidimensional quality of life goal.

Recommendations

In future studies, it would be useful to adopt longitudinal or experimental designs to more clearly determine the effect of recreation awareness on technology addiction. At the same time, it is possible to understand students' motivations and expectations in detail with techniques such as qualitative interviews, focus group studies or participant observation using mixed methods. In particular, it is necessary to clarify the role of variables such as gender and grade level, socioeconomic status, family structure, personality traits and academic achievement level in this relationship. Thus, the mechanisms that trigger or reduce technology addiction can be explained more comprehensively. In addition to the recreation awareness scale, it is also recommended to use more detailed addiction scales for specific types of digital platforms (e.g. social media, online games, mobile applications). In this way, it becomes more clear which type of digital content is associated with which level of addiction and how recreation awareness intervenes in this effect.

Longer-term and multidimensional research approaches seem indispensable to deeply understand the interaction between recreation awareness and technology addiction. In terms of implementation, it is recommended that university administrations and student affairs units systematically encourage students by diversifying on-campus recreational activities. Gyms, outdoor activities, cultural activities and club activities provide opportunities to evaluate free time meaningfully and naturally limit the time spent on digital media. In the promotion of these activities, it is useful to organize campaigns that focus on groups where technology addiction is felt more intensely, especially first-years and male students. At the same time, recreational activities should be made continuous with financial and institutional support to be provided to student clubs. In line with university policy, adding seminars and workshops explaining the importance of recreation to orientation programs can reduce the high addiction risk in first-years. Similarly, increasing the information and guidance activities of guidance and psychological counseling units regarding technology addiction contributes to the early detection of risky groups.

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