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PREDICTIVE RELATIONSHIPS RELATED TO THE LEVELS OF CYBERLOAFING IN THE EDUCATIONAL SETTINGS AND GAME ADDICTION OF UNIVERSITY STUDENTS

Abstract

This study reviewed the predictive relationships between university students' cyberloafing behavior in educational settings and digital gaming addiction levels concerning resilience, demographic, and technology usage variables. A total of 472 students attending universities in Turkey participated voluntarily in the study. Data were collected using the resilience scale, online game addiction scale, cyberloafing scale in educational settings, and a personal information form. The results showed that male students had higher digital gaming addiction and gaming cyberloafing levels. In contrast, female students exhibited more social cyberloafing. Daily game playing time predicted positively both digital gaming addiction and gaming cyberloafing. Playing games of chance was the most prominent predictor of digital gaming addiction among the types of games played, while action games were an essential predictor of gaming cyberloafing. Higher digital gaming addiction levels were associated with increased social and gaming cyberloafing. Resilience negatively predicted DGA but positively predicted academic cyberloafing. Another limitation of this study is that the results may not be generalizable to other cultural contexts since the participants were only from Turkey. Further research in diverse cultural contexts could reveal culture-specific influences.

Keywords: Cyberloafing; Gaming Addiction; Educational Settings; Resilience.

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ÜNİVERSİTE ÖĞRENCİLERİNİN EĞİTİM ORTAMLARINDA SİBER AYLAKLIK VE OYUN BAĞIMLILIĞI DÜZEYLERİ İLE İLGİLİ YORDAYICI İLİŞKİLER*

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Öz

Bu çalışmada, üniversite öğrencilerinin eğitim ortamlarında siber aylaklık ve dijital oyun bağımlılığı düzeyleri arasındaki yordayıcı ilişkiler, kendini toparlama gücü, demografik ve teknoloji kullanımı değişkenleri açısından incelenmiştir. Türkiye'deki üniversitelerde eğitimine devam eden 472 öğrenciden oluşan bir örneklem çalışmaya gönüllü olarak katılmıştır. Veriler, kendini toparlama gücü ölçeği, çevrimiçi oyun bağımlılığı ölçeği, eğitim ortamlarında siber aylaklık ölçeği ve kişisel bilgi formu kullanılarak toplanmıştır. Sonuçlar, erkek öğrencilerin daha yüksek dijital oyun bağımlılığı ve oyun amaçlı siber aylaklık seviyelerine sahip olduğunu göstermiştir. Buna karşılık, kadın öğrenciler daha fazla sosyal siber aylaklık sergilemiştir. Günlük oyun oynama süresi hem dijital oyun bağımlılığını hem de oyun amaçlı siber aylaklığı olumlu yönde yordamıştır. Şans oyunları oynamak, oynanan oyun türleri arasında dijital oyun bağımlılığının en öne çıkan yordayıcısıyken, aksiyon oyunları ise oyun amaçlı siber aylaklığının öne çıkan önemli bir yordayıcısıydı. Daha yüksek dijital oyun bağımlılığı, artan sosyal ve oyun siber aylaklığı ile ilişkilendirilmiştir. Kendini toparlama gücü dijital oyun bağımlılığını negatif yönde, akademik siber aylaklığı ise pozitif yönde yordamıştır. Bu çalışmanın en önemli sınırlamaları, zaman içindeki nedensel ilişkilerle ilgili sonuçları engelleyen kesitsel tasarıma sahip olması ve verilerin öz bildirime dayalı araçlarla toplanmasıdır. Gelecekteki araştırmalar boylamsal tasarımlar kullanabilir ve öz bildirim raporlarını davranışsal gözlemlerle birleştirebilir. Bu çalışmanın bir diğer sınırlılığı katılımcıların sadece Türkiye'den katılımcılar içermesi nedeniyle sonuçlarının başka kültürel bağlamlara genellenememesidir. Farklı kültürel bağlamlarda yapılacak araştırmalar kültüre özgü etkileri ortaya çıkarabilir.

Anahtar Kelimeler: siber aylaklık; oyun bağımlılığı; eğitim ortamları; kendini toparlama gücü.

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Geniş Özet

Eğitimde bilişim teknolojilerinin yaygın kullanılması sonucunda artan siber aylaklık davranışlarının endişe verici bir hal aldığı söylenebilir (Baturay ve Toker, 2015). Öğrencilerin en sık gösterdikleri siber aylaklık davranışlarının mesajlaşmak, sosyal medya sitelerinde dolaşmak, içerik paylaşmak, haber sitelerinde gezinmek, video izlemek, alışveriş sitelerinde gezinme, fotoğraf çekmek ve oyun oynamak olduğu görülmektedir (Bağrıaçık Yılmaz, 2017; Koay, 2018; Ugrin, vd., 2007). Dijital oyun oynama eğitim ortamlarında en sık karşılaşılan siber aylaklık davranışlarından birisidir (Torun ve arkadaşları, 2015; Ugrin vd., 2007). Neredeyse her yaşa hitap eden dijital oyunlara özellikle gençlerin ilgisi gün geçtikçe daha çok artmaktadır (Gentile, 2009). Bireylerin aşırıya kaçmadan dijital oyunlar oynamaları; onların rahatlamasını, stresten uzaklaşmasını sağlamaktadır (Green ve Bavelier, 2003; Prot vd., 2014). Granic vd. (2014) oyunların bireyler için sosyal, bilişsel ve duygusal katkılarının olduğunu belirtmiştir.

* Bu çalışma, birinci yazarın ikinci yazarın danışmanlığında yürüttüğü yüksek lisans tezinden türetilmiştir.

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Ancak bireylerin dijital oyunlara olan ilgisinin artması sonucunda bu davranışın kontrolsüz bir hal alması, günlük ve sosyal yaşantılarını aksatmalarına ve neticede oyun bağımlılığı geliştirebilecekleri söylenebilir (Griffiths ve Davies, 2005). Oyun bağımlılığı olan bireyler günün büyük bölümünü oyunlara ayırma (Mustafaoğlu ve Yasacı, 2018), oyun oynarken kendini kontrol edememe, engellenme durumunda sert tepki gösterme, öfkelenme, görevlerini veya işlerini aksatma, ihtiyaçlarını erteleme (Lermi ve Afat, 2020) gibi davranışlar sergilemektedirler. Dijital oyunların sorunlu kullanımı giderek artan bir durumdur. Bu bağlamda oyun bağımlılığı davranışının öncülleri, ilişkili olduğu yapılar ve sonuçlarının incelemesi oldukça önemli bir hal almıştır.

Üniversite öğrencilerinin günlük BİT araçlarını kullanım süresi bakımından öne çıktığı düşünüldüğünde; dijital oyun bağımlılığı ve eğitim ortamlarında siber aylaklık davranışları sergileme açısından göreceli olarak önemli bir risk grubu oldukları söylenebilir (Blau vd., 2006; Tanrıverdi ve Karaca, 2018). Buna göre üniversite öğrencilerinin siber aylaklık ve dijital oyun bağımlılıkları düzeylerinin belirlenmesi ve ilişkili olduğu değişkenlerin tespit edilmesinin önemli olduğu düşünülmektedir. Bu bağlamda, öğrencilerin eğitim ortamlarında gösterdikleri siber aylaklık davranışlarının ve oyun bağımlılığı düzeylerinin kendini toparlama gücü, demografik ve teknoloji kullanımı ile ilgili değişkenlerle arasındaki ilişkiyi belirlemek bu çalışmanın odağını oluşturmaktadır.

Bu çalışmada, üniversite öğrencilerinin eğitim ortamlarında siber aylaklık davranışları ve oyun bağımlılık düzeylerinin, demografik özellikleri, BİT kullanım alışkanlıkları ve kendini toparlama gücü arasındaki ilişkiyi belirlemek için korelasyonel bir araştırma modeli olan tahmin deseni kullandık. Tahmin deseni, hangi bağımsız değişkenlerin bağımlı değişkeni yordadığını belirlemeye yönelik bir araştırma modelidir (Creswell, 2012).

Bu çalışmaya gönüllülük esasına dayalı olarak Türkiye'de lisans öğrenimine devam eden %68.86'sı kadın ve %31.14'ü erkek olmak üzere toplamda 472 üniversite öğrencisi katılmıştır. Katılımcıların yaşlarına bakıldığında %20.76'sı 19 yaş ve altında, %24.15'i 20 yaşında, %20.13'ü 21 yaşındaki katılımcılardan oluşmaktadır. Sınıf düzeyi bakımından en fazla katılım %33.26 ile 1. sınıf ve %29.66 ile 2. sınıf düzeyindedir.

Bu çalışmada veri toplamak için kişisel bilgi formu ve 3 farklı ölçek (kişisel bilgi formu, online oyun bağımlılığı ölçeği, kendini toparlama gücü ölçeği ve eğitim ortamlarında siber aylaklık ölçeği) kullanılmıştır. Bu çalışma çerçevesinde gönüllü üniversite öğrencilerinden veri toplamak amacıyla çevrimiçi form oluşturulmuş ve sosyal medya ortamlarında paylaşılarak hedef kitleye ulaşılmıştır. Paylaşılan ortamlarda forma 472 üniversite öğrenci dönüş yapmıştır.

Elde edilen veriler, tanımlayıcı analizler ve doğrusal hiyerarşik regresyon analizi kullanılarak çözümlenmiştir. Hiyerarşik regresyon analizi iki veya daha çok bağımlı, bağımsız değişken arasındaki ilişkiyi ölçmek için kullanılan analiz yöntemidir. Hiyerarşik regresyonda yordayıcı değişkenler araştırmacının düzenlediği sıra doğrultusunda analize dahil edilir. Her değişken bağımlı değişkene olan katkısına bakılarak değerlendirilir. Hiyerarşik regresyon için veri setinin uygunluğu test edilmiş ve gerekli tüm varsayımları sağladığı tespit edilmiştir. Oyun bağımlılığı ile ilgili oluşturulan hiyerarşik modelde VIF değerinin 1.03- 3.94 arasında, tolerans değerinin 0.25-0.97 arasında bulunduğu görülmüştür. Eğitim ortamlarında siber aylaklık ile ilgili oluşturulan hiyerarşik modellerde ise VIF değerinin 1.03- 3.93 arasında, tolerans değerinin 0.25-0.97 arasında bulunduğu görülmüştür. Bu değerlere göre ele alınan değişkenler arasında çoklu bağlantılılık problemi bulunmadığı ve hiyerarşik regresyon analizi varsayımlarını karşıladığı söylenebilir. Analiz esnasında bağımlı değişken ile ilişkili olduğu düşünülen bağımsız

değişkenler bloklar haline regresyon analizine eklenirler. Eklenen her blok kendinden sonra eklenen blok için kontrol değişkeni olarak değerlendirilir. Dâhil edilecek bağımsız değişkenlerin ekleneceği sıra alan yazın taraması sonucunda belirlenmiştir.

Bu çalışma kapsamında üniversite öğrencilerinin oyun bağımlılığı ile ilişkili değişkenleri belirlemek için 6 model ve eğitim ortamlarında gösterdikleri siber aylaklık davranışları ile ilişkili değişkenleri belirlemek için 6 model olmak üzere toplamda literatür bağlamında 12 model oluşturulmuştur. Bu modellerle ilişkili olarak ele alınan 18 hipotez test edilmiştir. Araştırma sonucuna göre öğrencilerin dijital oyun bağımlılığı düzeylerinin orta düzeyde olduğu görülmektedir. Siber aylaklık davranışlarına bakıldığında ise orta düzeyde olduğu, alt boyutlarından oyun amaçlı siber aylaklık düzeylerinin düşük, akademik ve sosyal amaçlı siber aylaklık davranışlarının ise orta düzeyde olduğu görülmektedir.

Oyun bağımlılığı üzerinde etkilerine göre değişkenler sırasıyla günlük oyun oynama süresi, oyun amaçlı siber aylaklık, şans oyunları türünde oyun oynama, cinsiyet, kendini toparlama gücü ve yaştır. Siber aylaklık davranışlarının alt boyutlarına bakıldığında sosyal amaçlı siber aylaklık davranışlarına etkilerine göre değişkenler sırasıyla oyun bağımlılığı, cinsiyet, Youtube uygulamasını en sık kullananlar, günlük İnternet kullanım süresidir. Oyun amaçlı siber aylaklık davranışlarına etkilerine göre değişkenler sırasıyla aksiyon türünde oyun oynama, bulmaca türünde oyun oynama, şans oyunu türünde oyun oynama, cinsiyet, günlük oyun oynama süresi ve oyun bağımlılığı düzeyidir. Akademik amaçlı siber aylaklık davranışlarına etkilerine göre değişkenler sırasıyla demografik değişkenler, oyun türü, günlük İnternet kullanım ve oyun oynama süresi, kendini toparlama gücü, en sık kullanılan uygulama ve oyun bağımlılığıdır.

Bu çalışmanın en önemli sınırlılıkları, zaman içindeki nedensel ilişkilerle ilgili sonuçları engelleyen kesitsel tasarıma sahip olması ve verilerin öz bildirime dayalı araçlarla toplanmasıdır. Gelecekteki araştırmalar boylamsal tasarımlar kullanabilir ve öz bildirime dayalı veriler davranışsal gözlemlerle birleştirebilir. Bu çalışmanın bir diğer sınırlılığı çalışma örnekleminin sadece Türkiye'den katılımcılar içermesi nedeniyle sonuçlarının başka kültürel bağlamlara genellenememesidir. Farklı kültürel bağlamlarda yapılacak araştırmalar kültüre özgü etkileri ortaya çıkarabilir.

Introduction

The accessibility of mobile devices and the Internet has led to the prevalence of cyberloafing in educational settings (Saritepeci, 2020; Yıldız Durak & Saritepeci, 2019). These behaviors constitute a substantial obstacle to the effective use of technology in education (Saritepeci, 2020; Yıldız Durak, 2019; Wu et al., 2018). In the relevant literature, some variables examined in the relationship between cyberloafing are academic anxiety and procrastination (Yang et al., 2019), cognitive involvement level (Tanrıverdi & Karaca, 2018), educational level (Bağrıaçık Yılmaz, 2017), academic success, (Wu et al., 2018), class participation (Soh et al., 2018), internet usage time (Okoroma & Okafor, 2018), school type (Akgün, 2020), social media usage (Alan, 2019), social support and stress (Gökçearslan et al., 2018), and smartphone addiction (Saritepeci, 2020). Cyberloafing behaviors that have increased with the widespread use of information and communication technologies (ICT) in education have become worrying (Baturay & Toker, 2015). The most common cyberloafing behaviors that students demonstrate are texting, browsing social media sites, sharing content, surfing news sites, watching videos, browsing shopping sites, taking photos, and playing games (Bağrıaçık Yılmaz,

2017; Koay, 2018; Ugrin et al., 2007). Playing digital games is a typical cyberloafing behavior in educational settings (CBES) (Torun et al., 2015; Ugrin et al., 2007). The interest of young people in digital games that appeal to almost all ages is increasing daily (Gentile, 2009). Playing digital games without going overboard helps individuals relax and get away from stress; thus, games have social, cognitive, and emotional contributions to individuals (Granic et al., 2014; Green & Bavelier, 2003; Prot et al., 2014). However, with the increase in the time spent playing digital games, individuals lose control over playing games, and as a result, disrupting their daily and social lives may cause them to become game addicts (Griffiths & Davies, 2005).

Digital gaming addiction (DGA) is defined as the behavior of playing games intensely and frequently, alone or with other players, for a long time without control (Lemmens et al., 2009). Game-addicted individuals exhibit behaviors such as devoting most of the day to games (Mustafaoğlu & Yasacı, 2018), not being able to control themselves while playing, reacting harshly in case of frustration, getting angry, disrupting their tasks or work and delaying their needs (Lermi & Afat, 2020).

Increased access to the internet leads to the more frequent observation of cyberloafing behaviors in work and educational settings and an upward trend in problematic digital gaming behavior. According to the Digital 2023 report, the average daily internet usage is 6H 37M in the 16-64 age range (We Are Social, 2023). The highest usage is in the 16-24 age range, with 7H 9M in males and 7H 28M in females. Again, the rate of playing digital games with any device among individuals in this age range is 87.3% for females and 89.7% for males. The preferred device in games is primarily smartphones. Individuals in this age range are high school and university students. In this context, behaviors such as cyberloafing and problematic game-playing are more likely to be observed with this intensive use at the high school and university levels.

Considering that university students stand out in their daily use of ICT tools, they are a relatively important risk group regarding digital game addiction and cyberloafing in educational settings (Blau et al., 2006; Tanrıverdi & Karaca, 2018). Accordingly, it is substantial to determine the relationship between cyberloafing and DGA levels of university students and relevant variables. In this context, this study intends to confine the relationship between students' CBES and game addiction levels with variables related to resilience, demographics, and technology usage status.

Conceptual Framework

Cyberloafing

Cyberloafing emerged in workplaces where Internet access was much earlier than in other environments. Accordingly, the first definition includes the description of the concept of cyberloafing within the framework of responsibilities in the working environment. For example, Greengard (2000) defines cyberloafing or cyberslacking as employees' use of the Internet for personal purposes outside of their tasks during work hours. Ugrin et al. (2007) defined cyberloafing as using the Internet for personal purposes or inefficiently during the hours defined for work by employees in the workplace. O'Neill et al. (2014) similarly explained cyberloafing as using ICT tools and the Internet for personal purposes instead of the tasks of an institution's employees during working hours.

The relevant literature divides cyberloafing behavior into minor and serious (Blanchard & Henle, 2008). Minor cyberloafing behaviors can be ignored, such as making personal phone

calls and chatting with colleagues, which can increase employees' work efficiency (Blanchard & Henle, 2008). However, serious cyberloafing includes behaviors that will reduce productivity in the workplace and harm the company in terms of reputation and cost (Lim & Teo, 2005; Mercado et al., 2017; Ugrin et al., 2007). In the workplace, minor and serious cyberloafing categorization does not have similar characteristics in educational settings. Minor or harmless cyberloafing in educational settings is the learner's use of ICT tools to answer a question about any relevant information, concept, or content. However, serious or damaging cyberloafing covers all activities other than learning. In this study, we handled cyberloafing in educational settings using ICT tools and services for purposes other than learning-teaching (Saritepeci, 2020; Varol & Yıldırım, 2018).

The cyberloafing of the students during the lesson causes their interest and attention toward the course to decrease, making it difficult to reach the lesson outcomes. The decrease in learners' motivation and attention levels increases the frequency of their cyberloafing behavior. Classroom management, teaching methods, and course content lose their importance in a classroom dominated by cyberloafing. It becomes difficult to convey the targeted achievements in such a class (Şenel et al., 2019).

Demographics and Cyberloafing

Gender is one of the variables whose relationship with CBES is one of the most discussed variables. Although some studies show that men are involved in cyberloafing activities more than women (e.g., Metin-Orta & Demirtepe-Saygılı, 2023; Twum et al., 2021), many studies are reporting that cyberloafing behaviors in education or work environment do not differ by gender or that women exhibit more cyberloafing behaviors (e.g., Dursun et al., 2018; Gökçearslan et al., 2018; Saritepeci, 2020; Toker & Baturay, 2021). In terms of cyberloafing, while men's cyberloafing behaviors for gaming and gambling purposes stand out (Akbulut et al., 2017), women's cyberloafing for social purposes is more prominent. Accordingly, although cyberloafing behaviors of men and women have some similarities, their behavior patterns differ (Akbulut et al., 2017).

The other two demographic variables considered in this study are age and grade level. Studies show that different age and grade level cyberloafing behaviors have different patterns. In addition, the frequency of cyberloafing behaviors also varies according to age and grade level. While middle and high school students exhibit CBES, including sharing, online content access, and gaming activities, behaviors such as gaming, gambling, or shopping are less common at this level (e.g., Akbulut et al., 2016; Akgün, 2020; Dereli & Şahin İzmirli, 2022; Saritepeci, 2020). However, the frequency of CBES may vary according to the grade level and age of the student. Dereli and Şahin İzmirli (2022) reported that 8th-grade or 14-year-old students exhibited more cyberloafing behaviors compared to other grades and age levels in their study of secondary school students.

At the university level, cyberloafing behaviors for socializing come to the fore, but behaviors such as gaming, gambling, and shopping are also repeated more frequently (e.g., Heidari et al., 2023). In studies conducted with university students, prominent cyberloafing behaviors other than socializing differ (e.g., Dursun et al., 2018; Heidari et al., 2023; Toker & Baturay, 2021; Varol & Yıldırım, 2018). This may be because university education has a broader age range compared to other levels of education and different grade level student weights in different studies. Accordingly, age and grade level may be important variables in understanding the cyberloafing behaviors of university students.

ICT Usage and Cyberloafing

The increasing prevalence of ICT tools, easy access of students to mobile devices, and high Internet usage levels (Saritepeci, 2020; Şenel et al., 2019) have increased the incidence of CBES (Baturay & Toker, 2015). It observes that students engage in cyberloafing by performing behavior testing (Şenel et al., 2019), visiting sports websites (Vitak et al., 2011), surfing on social media (Koay, 2018; Okoroma & Okafor, 2018), browsing shopping sites (Akbulut et al., 2018), playing online games, i.e., that they frequently display in their daily lives. Students who mostly exhibit cyberloafing behavior and spend less time on the internet and social media platforms generally exhibit minor cyberloafing behavior, while students who spend more time exhibit serious cyberloafing behavior that should be avoided (Alan, 2019).

The duration of gaming may result in increased time spent on gaming in different settings. This increase in time may cause individuals to neglect other work or educational tasks. In addition, multiplayer online games, which have become popular in recent years, may encourage individuals to engage in behaviors such as cyberloafing due to intense in-game interaction. Considering that more than 60% of individuals play games with mobile devices (We Are Social, 2023), the risk of continuing this behavior in work and school environments emerges.

Resilience and Cyberloafing

Resilience expresses that an individual stays psychologically strong despite adverse experiences (Herrman et al., 2011). Although there is no agreed definition in the literature on resilience, when we look at the general points in the descriptions, trauma can be expressed as successfully coping with difficult living conditions, adapting to events healthily, or developing competence (Doll & Lyon, 1998; Garmezy et al. al., 1984; Herrman et al., 2011; Masten & Reed, 2002). Resilience is defined not only as a specific ability or a personal power that enables individuals to protect themselves despite adversity but also as the ability to recover from trauma (Howard et al., 1999; Luthar & Zigler, 1991). Indeed, Agarwal (2019) defined resilience as a positive adjustment despite adversity. Agarwal discussed the relationship between cyberloafing and resilience in this context: "…Cyberloafing is not in the category of positive adaptations and therefore are unlikely by those high in resilience."

In contrast, Zhou et al. (2023), in their study with employees, predicted that resilience would reduce cyberloafing; however, the results showed that the relationship between resilience and cyberloafing was insignificant. However, the limited number of studies on the relationship between resilience and cyberloafing makes this relationship ambiguous.

Individuals with high resilience adapt proactively rather than negatively despite difficulties (Agarwal, 2019; King et al., 2016). In this context, we claim that cyberloafing behavior in an educational setting can be considered a negative adaptation behavior, and therefore, individuals with high resilience levels will exhibit lower CBES.

Digital Gaming Addiction

Concepts are used interchangeably in the literature to express digital game addiction: e-game addiction, internet game addiction, game addiction, digital game addiction, and online game addiction. In this study, we used the concept of game addiction.

Digital games contribute to developing high-level competencies such as problem-solving, logical thinking, deducing, and strategic thinking (Kim & Smith, 2015), as well as hand-eye coordination and psychomotor skills (Lin & Hou, 2015). However, digital games have

become an obsession for individuals. Therefore, health problems such as excessive nervousness, a tendency to violence, and inactivity may occur in individuals who play for a long time (Lewis, 2005). Problems such as alienation from social life, eye disorders, failure, monotony, boredom, lying, and lack of mental development may also occur (Wang & Chiou, 2006).

If the individual cannot prevent the desire to play and control it, which changes his emotional and social life, it can cause a problem or addiction (Griffiths & Davies, 2005; Young, 2009). Although it causes social and emotional problems, it is defined as game addiction when individuals play games for too long and cannot stop themselves from the game (Lemmens et al., 2009). DGA is a combination of behavior excessive use of games (Charlton & Danforth, 2007), obsessive behavior while playing games (Grüsser et al., 2007), morbid gaming behavior (Chiu et al., 2004), and problematic gaming (Desai et al., 2010).

The American Psychiatric Association addressed the issue of "Internet Gaming Disorders" in the Handbook of Mental Disorders (DSM V) and reported to have nine indicators (American Psychiatric Association, 2013): (1) Individuals' minds are constantly busy with games. (2) Irritable behaviors are observed in individuals who stay away from the game. (3) The time devoted to game use is increasing. (4) While playing the game, control is lost, and the individual cannot stop playing the game even though he wants to quit. (5) Although playing games causes psychological problems in individuals, they cannot be separated from them. (6) Enjoyed behaviors are replaced by game-playing behavior. (7) Playing games as an escape route to get rid of the problems in daily life. (8) Not give up playing games despite being warned by their family and loved ones. (9) That they do not take advantage of the considerable work, relationships, and opportunities in their lives while playing games.

DGA and Cyberloafing

The widespread use of mobile devices can be considered a reason for the increase in the time individuals spend on digital games (Saritepeci, 2020; Yıldız Durak & Saritepeci, 2020). Students are inclined to display more game-playing behavior due to a lack of motivation and boredom in the environment. Because of this, as students have easier access to mobile devices in the educational environment, they exhibit cyberloafing behavior by playing digital games. (Blanchard & Henle, 2008).

Demographics and DGA

Understanding how demographics influence DGA is crucial in addressing and developing effective interventions for specific populations. The two prominent demographic variables associated with DGA are gender and age. A significant number of studies examining the effect of gender on DGA show that DGA is more prevalent among males. Indeed, two different meta-analysis studies (Fam, 2018; Kim et al., 2022) point to a higher prevalence of DGA among men. Fam's study reports an average prevalence of 6.8% in men and 1.3% in women, while Kim et al. report an average prevalence of 8.5% in men and 3.5% in women. These findings suggest that males may be more vulnerable to developing DGA than females.

Age is another crucial factor for DGA. Indeed, Kim et al. (2022) study shows that the prevalence of DGA differs in different age groups. According to this meta-analysis study, the riskiest groups are children-adolescents and adolescents-young adults. Accordingly, university students have a significant risk for the development of DGA. The fact that the age range among university students is more comprehensive than other educational levels may be an essential

indicator for the development of DGA among university students. In addition, grade level is another critical factor to be considered. Students in their first year of university are primarily involved in a new social environment and living environment away from their family and social environment. Therefore, students in their first year may have a higher tendency to show problematic behaviors such as DGA, problematic social media, or internet use to socialize, relax, and relieve loneliness.

ICT Usage Behavior and DGA

Many studies have examined the relationship between individuals' ICT usage and game addiction levels (Muslu & Aygün, 2020; Rajab et al., 2020; Zorbaz et al., 2015). Of these, there is a significant relationship between game addiction and the duration of Internet use (Kweon & Park, 2012; Muslu & Aygün, 2020), the duration of computer use (Bilge, 2012; Zorbaz et al., 2015), the duration of smartphone use (Rajab et al., 2019).

Gaming playing time and addiction levels have also been positively correlated (Skripkauskaite et al., 2022). Extended gaming sessions are correlated with higher levels of game addiction. However, it is essential to note that not all individuals who spend significant time playing games develop addictive behaviors. While research suggests a positive correlation between gaming time and addiction levels, it does not imply causation.

Resilience and DGA

Resilience is defined as the ability of an individual to stand sturdy despite the problems he or she encounters in his or her life, overcome these problems with minimum damage, and recover quickly (Ramirez, 2007). Individuals with low resilience tend to run away from problems, tend to problematic behavior, and have adjustment problems (Lee & Cranford, 2008).

There are many studies in the relevant literature on the relationship between variables such as family support (Pinkerton, 2007) and self-esteem (Dearden, 2004), which positively affect individuals' resilience and the level of game addiction of variables such as stress (Dearden, 2004) and attachment anxiety (Grajewski & Dragan, 2020) that negatively affect them. In the literature, game addiction has a negative relationship with variables that positively affect resilience, such as family support (Chang & Kim, 2020; Han et al., 2012; Viriyapong & Sookpiam, 2019; Zorbaz et al.,2015), social support (Seok et al., 2018), self-esteem (Chang & Kim, 2020). Based on these indirect findings, we argue that there is a negative relationship between resilience level and DGA.

Hypotheses

The hypotheses related to this study, which aims to determine the predictive relationships between university students' CBES and DGA, are as follows:

- H1: Gender is a predictor of the CBES.
- H2: Younger participants have higher levels of CBES.
- H3: First-year participants who have just started university education have higher CBES than other grades.
- H4: Daily Internet usage time is a predictor of the CBES.
- H5: Daily game playing time is a predictor of the CBES.
- H6: The most played mobile game category (MP-MGC) is a predictor of the CBES.
- H7: The most frequently used mobile application (MFUMA) is a predictor of the CBES.

- H8: DGA is a predictor of CBES.
- H9: Resilience is a predictor of the CBES.
- H10: Males have higher levels of DGA.
- H11: Younger participants have higher levels of DGA.
- H12: First-year participants who have just started university education have higher DGA than other grades.
- H13: Those with high daily Internet usage time have higher levels of DGA.
- H14: Those with high daily game playing time have higher DGA than others.
- H15: MFUMA predictor of the DGA.
- H16: MP-MGC is a predictor of the DGA.
- H17: Resilience is a predictor of the DGA.
- H18: CBES is a predictor of the DGA.

Method

Research Method

In this study, we used a prediction design -a correlational research model- to determine the relationship between the demographic characteristics of university students' CBES and their level of game addiction, ICT usage habits, and resilience. A prediction design is a research model to determine which independent variables predict the dependent variable (Creswell, 2012). Figure 1 presents the relationship between the hypotheses determined for this study and the variables.

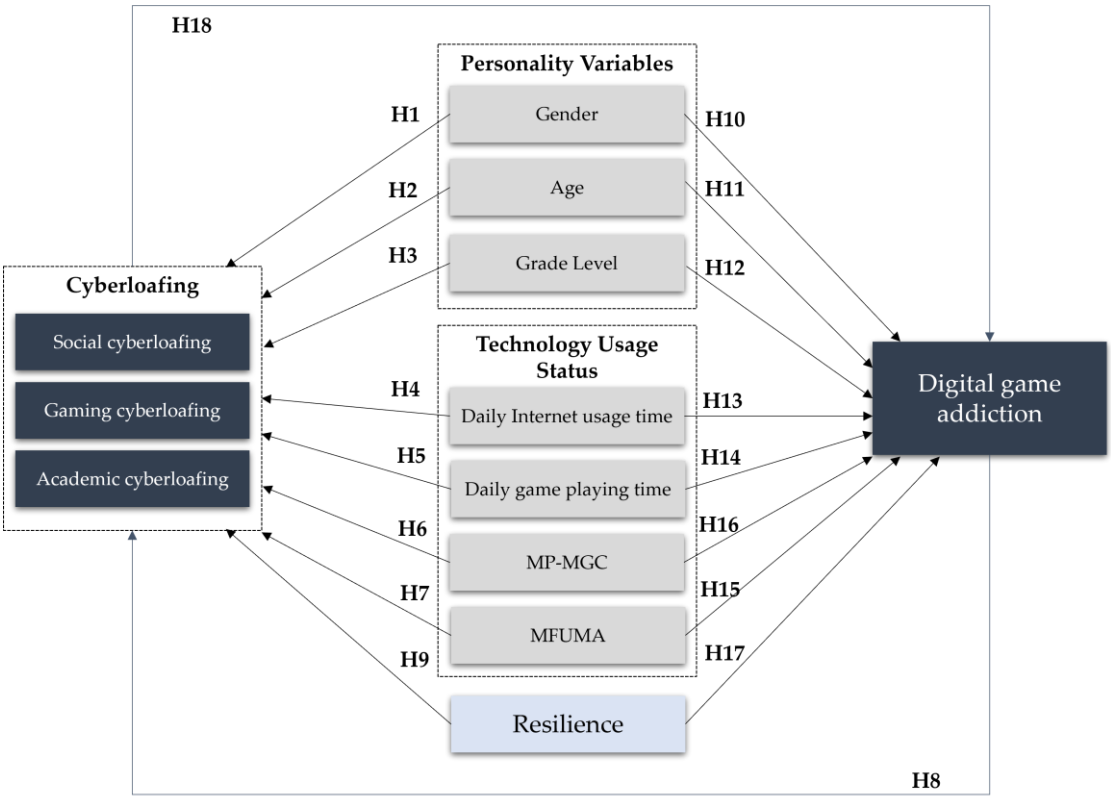

Figure 1. Default Research Model

Participants

A total of 472 university students, 68.86% female and 31.14% male, who continued their undergraduate education in Turkey, voluntarily participated in this study (See Table 1). 20.76% of the participants are 19 years old and under, 24.15% are 20 years old, and 20.13% are 21 years old. According to grade level, the highest level of participation was 33.26% in the 1st grade and 29.66% in the 2nd grade.

Table 1. Demographic characteristics of the participants

		f	**%**
Cinsiyet	Female	325	68.86
	Male	147	31.14
	Total	472	100
Age	19 and younger	98	20.76
	20	114	24.15
	21	95	20.13
	22	71	15.04
	23 and older	94	19.92
Grade	English Preparatory	23	4.87
	1	157	33.26
	2	140	29.66
	3	67	14.19
	4	85	18.02

From the mobile game playing habits of the participants, 51.69% of them stated that they played mobile games. 29.92% play 101Plus, a game of chance, and 28.28% play Pubg, an action game (see Table 2). Looking at the categories of mobile games played by the participants, 32.38% play games of action, 29.51% play games of chance, and 20.90% play puzzle games.

Considering the computer games played by the participants, 67.37% of them do not play computer games. 24.03% of the participants playing computer games play League of Legends in the Role game category, and 19.48% play FIFA in the Sports game category. Taking cognizance of the categories of computer games played by the participants, 29.87% play sports, and 28.57% action and role-playing games. Daily digital game playing time (DDGPT) varies between 0 and 12 hours. The average playing game time is 1.32 hours.

Looking at the most frequently used mobile application, 40.25% of participants use WhatsApp, and 39.98% use Instagram. The participants' daily internet usage time (DIUT) vary between 1 and 16 hours. The average internet usage time is 5.53 hours.

Table 2. Digital game playing habits of participants

		f	%
Mobile Game Playing Status	I play	244	51.69
	I don't play	228	48.31
Computer Game Playing Status	I play	154	32.63
	I don't play	318	67.37
Most Played Mobile Game (MP-MG)	101Plus	73	29.92
	Pubg	69	28.28
	CandyCrush	19	7.79
	Travian	14	5.74
	Mobil legends	12	4.92
	Kelimelik	12	4.92
	Others	45	18.44
Most Played Computer Game (MP-CG)	League of Legends	37	24.03
	Fifa	30	19.48
	Grand Theft Auto	18	11.69
	Pro Evolution Soccer	16	10.39
	Others	53	34.42
Most Played Mobile Game Category (MP-MGC)	Action	79	32.38
	Games of chance	72	29.51
	Crossword	51	20.90
	Strategy	14	5.74
	Role Play	12	4.92
	Sport	10	4.10
	Simulation	6	2.46
Most Played Computer Game Category (MP-CGC)	Sport	46	29.87
	Action	44	28.57
	Role Play	44	28.57
	Simulation	8	5.19
	Crossword	7	4.55
	Strategy	5	3.25
Most Frequently Used Mobile Application	Whatsapp	190	40.25
	İnstagram	184	38.98
	Youtube	62	13.14
	Twitter	22	4.66
	Facebook	14	2.97
Daily Internet Usage Time (DIUT) (Hours)	Min= 1. Max=16. M=5.53. Sd=22.96		
Daily Digital Game Play Time (DDGPT) (Hours)	Min= 0. Max=12. M=1.32. Sd=1.72		

When we look at the purposes for which the participants use the Internet, it is used for social interaction (380), messaging (349), watching TV series and movies (281), reading the news (150), playing games (125), video calls (118), shopping (111), lessons, and business purposes (40) in social media.

Instruments

This study used four instruments to collect data: The personal information form, the online game addiction scale, the resilience scale, and the cyberloafing scale in educational settings.

The Personal Information Form contains questions to determine the various demographic characteristics of the participants, as well as their Internet usage and gaming habits. This form covers 12 items for information about gender, age, university, department, grade, Internet access, daily Internet usage time, most frequently used application, Internet usage purposes, daily game playing time, and most frequently played mobile and computer games.

The Scale of Online Game Addiction was developed by Lemmens et al. (2009) and adapted to Turkish by Baysak et al. (2016) and consists of 7 sub-dimensions and 21 items. Items in the 5-point Likert type were rated never (1), rarely (2), sometimes (3), often (4), and very often (5). A minimum of 7 points and a maximum of 35 points were taken from the scale.

The Resilience Scale was developed by Marcus (1991) and adapted to Turkish by Haktanır et al. (2016) and consists of 6 items. The 5-point Likert scale items were scored as strongly disagree (1), disagree (2), undecided (3), agree (4), and strongly agree (5). A minimum of 6 points and a maximum of 30 points were taken from the scale.

The Scale of Cyberloafing in Educational Settings (CSE) was developed by Sarıtepeci and Sert (2021). The scale consists of 3 sub-dimensions and 13 items. Items in the 5-point Likert scale were scored as never (1), rarely (2), sometimes (3), often (4), and always (5). They can get at least 13 points and 65 points from the scale. The sub-dimensions of the scale were **"**Social cyberloafing**," "**Gaming cyberloafing**,"** and **"**Academic cyberloafing**."**

Data collection and analysis

Within the framework of this study, we created an online form to collect data from volunteer university students. We reached the target audience by sharing it on various social media platforms. Four hundred seventy-two university students answered the form on shared platforms. We stated the purpose of using the collected data in the "Consent Statement Regarding Research Participation" section at the beginning of the form and obtained the consent of the participants.

The data were analyzed using descriptive analysis and linear hierarchical regression analysis. Hierarchical regression analysis is an analysis method used to measure the relationship between two or more dependent and independent variables. In hierarchical regression, predictor variables are added to the analysis in the order arranged by the researcher. Each variable is evaluated by looking at its contribution to the dependent variable. In hierarchical regression analysis, assumptions include sufficient sample size, multiple linear correlations, singularity, extreme values, and normal distribution of values (Seçer, 2013). As a result of the analysis of the collected data, it was seen that the VIF value was between 1.03-3.94, and the tolerance value was between 0.25-0.97 in the model created about online game addiction.

Additionally, in the models created about cyberloafing in education, it has been observed that the VIF value is between 1.03 and 3.93, and the tolerance value is between 0.25-0.97. Accordingly, there was no multicollinearity problem among the variables, and it met the hierarchical regression analysis assumptions. The dependent variables were added to the regression analysis as blocks. Each added block was treated as a control variable for the block added after it.

During the analysis, gender, grade level, and game categories were transformed into dummy variables. In the gender categorical variable, the male was coded as “1,” and the female category was coded as “0” and transformed into a dummy variable. In the grade level categorical variable, the grade level of the students in the 1st grade was coded as "0," and the grade level of the other students was coded as "1" and converted into an artificial variable. Three dummy variables (Instagram, WhatsApp, YouTube) were created in the most frequently used application category. Similarly, three dummy variables (Action, Chance, Puzzle) were formed according to the participants' type of game.

Results

Descriptive Findings

In this study, “Cyberloafing Scale in Educational Settings,” “Online Game Addiction Scale” and “Scale of Resilience” were 5-point Likert-type scales used to examine university students’ game addiction levels and cyberloafing in educational settings. In this study, descriptive statistical information about the answers given by the participants to the data collection tools is presented in Table 3.

Table 3. Descriptive Findings

	k	Min	Max	M	M/k	Sd
CSE	13	15	60	32.33	2.5	14.56
Social cyberloafing	7	8	35	20.6	2.83	10.11
Gaming cyberloafing	3	3	15	4.84	1.61	3.74
Academic cyberloafing	3	3	15	8.26	2.76	3.83
Game Addiction	7	6	30	18.61	2.66	4.75
Resilience	6	7	33	12.11	2.02	5.92

**k: number of items*

According to Table 3, the cyberloafing scale average score of the university students was 32.33. It is 20.60 for the dimension of cyberloafing for social purposes, 4.84 for cyberloafing for gaming, and 8.26 in the dimension of cyberloafing for academic purposes. The average score of the participants on the game addiction scale was 18.61. Additionally, the average score of the participants on the Resilience Scale was 12.11.

Examining the Variables Related to Game Addiction

We used hierarchical regression analysis to specify the variables related to DGA and presented findings in Table 4.

Table 4. DGA Linear Multiple Hierarchical Regression Analysis

	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6		
	β	**t**	**p**	**β**	**t**	**p**	**β**	**t**	**p**	**β**	**T**	**P**	**β**	**t**	**p**	**β**	**t**	**p**
Gender	0.33	7.54	0.00*	0.33	7.26	0.00*	0.32	7.10	0.00*	0.14	3.16	0.00*	0.10	2.34	0.02*	0.12	2.81	0.01*
Age	0.02	0.39	0.70	0.02	0.37	0.71	0.05	1.08	0.28	0.08	1.71	0.09	0.09	2.04	0.04*	0.09	1.99	0.04*
Grade	-0.06	-1.08	0.28	-0.06	-1.11	0.27	-0.07	-1.38	0.17	-0.06	-1.42	0.16	-0.05	-1.21	0.23	-0.06	-1.31	0.19
MFUMA-Instagram				-0.06	-0.71	0.48	-0.11	-1.41	0.16	-0.03	-0.46	0.65	0.00	-0.03	0.98	-0.01	-0.08	0.93
MFUMA-Whatsapp				-0.04	-0.49	0.62	-0.07	-0.90	0.37	-0.01	-0.10	0.92	0.00	-0.02	0.99	0.01	0.10	0.92
MFUMA-Youtube				-0.04	-0.63	0.53	-0.09	-1.35	0.18	-0.02	-0.38	0.71	-0.03	-0.49	0.63	-0.03	-0.50	0.62
MP-MGC-Games of Chance							0.26	5.86	0.00*	0.17	4.25	0.00*	0.14	3.57	0.00*	0.14	3.61	0.00*
MP-MGC- Crossword							0.11	2.42	0.01*	0.04	0.99	0.32	0.01	0.18	0.86	0.01	0.18	0.86
MP-MGC-Action							0.25	5.65	0.00*	0.08	1.95	0.05*	0.05	1.13	0.26	0.05	1.13	0.26
DIUT										0.02	0.50	0.62	0.03	0.70	0.48	0.01	0.31	0.76
DDGPT										0.46	9.64	0.00*	0.42	9.23	0.00*	0.43	9.46	0.00*
Social cyberloafing													-0.05	-1.12	0.27	-0.04	-0.99	0.32
Gaming cyberloafing													0.28	6.24	0.00*	0.27	6.17	0.00*
Academic cyberloafing													-0.02	-0.47	0.64	-0.01	-0.28	0.78
Resilience																-0.11	-2.92	0.00*
R	0.340			0.342			0.461			0.599			0.645			0.653		
R^2	0.116			0.117			0.212			0.359			0.416			0.427		
***Δ*F**	20.403			.200			18.709			52.490			13.677			8.277		
Sig	0.000**			0.867			0.000**			0.000**			0.000**			0.004*		

*p<0.005. **p<.0.001

According to Table 4, the total variance regarding DGA, the contribution of demographic variables is 11.6%, the contribution of adding the most frequently used application variables in the second model was 0.1%, the contribution of adding game-type variables in the third model was 9.5%, the contribution of adding technology usage time variables in the fourth model was 14.7%, the contribution of adding the cyberloafing variable in the fifth model was 5.7%, in the sixth model, the contribution of adding the most frequently used application variables was 0.1%. On the other hand, the contribution of adding the resilience variable is 1.1% in the model. The six models explain 42.7% of the variance in game addiction scores. Model1 ($R=.340$ $R^2=.116$ $p<.05$), Model3 ($R=.461$ $R^2=.212$ $p<.05$), Model4 ($R=.599$ $R^2=.359$ $p<.05$), Model5 ($R=.645$ $R^2=.416$ $p<.05$) and Model6 ($R=.653$ $R^2=.427$ $p<.05$) were significant. Model 4 is the most important predictor of game addiction level. According to their relative effects on, the variables were listed as daily gaming time, cyberloafing for gaming, playing games of chance, gender, resilience, and age.

Investigating the Variables Related to Cyberloafing

We used hierarchical regression analysis to confine the variables associated with CBES and presented findings in Table 5.

Table 5. Cyberloafing in Educational Settings Linear Multiple Hierarchical Regression Analysis

Model		Social cyberloafing			Gaming cyberloafing			Academic cyberloafing		
		β	**t**	**p**	**β**	**t**	**p**	**β**	**t**	**p**
	Gender	-0.12	-2.16	0.03*	0.18	3.90	0.00*	0.02	-0.42	0.68
	Age	0.06	1.27	0.20	-0.04	-0.82	0.41	0.10	1.92	0.06
1	Grade Level	0.00	0.90	0.36	-0.01	-0.27	0.79	0.02	0.28	0.78
		R=0.138.	**R^2=0.019.**	**F=3.468.**	**R=0.182.**		**R^2=0.033.**	**R=0.112.**		**R^2=0.013.**
		Sig=0.029			**F=3.468. Sig=0.001**			**F=3.468. Sig=0.115**		
	MFUMA-Instagram	0.08	0.09	0.93	-0.1	-1.09	0.27	-0.07	-0.77	0.44
	MFUMA-Whatsapp	-0.08	-0.96	0.34	-0.03	-0.32	0.75	-0.05	-0.59	0.55
2	MFUMA-Youtube	-0.12	-1.90	0.06	0.01	0.16	0.87	-0.01	-0.12	0.90
		R=0.196.	**R^2=0.038.**	**F=6.465.**	**R=0.202.**		**R^2=0.041.**	**R=0.121.**		**R^2=0.015.**
		Sig=0.027			**F=6.465. Sig=0.307**			**F=6.465. Sig=0.8**		
	MP-MGC-Games of Chance	0.05	1.05	0.29	0.15	3.26	0.00*	0.08	1.67	0.10
	MP-MGC- Crossword	0.05	1.09	0.28	0.15	3.17	0.00*	0.07	1.46	0.14
3	MP-MGC-Action	0.05	1.15	0.25	0.19	3.90	0.00*	-0.03	-0.55	0.58
		R=0.209.	**R^2=0.044.**	**F=9.462.**	**R=0.305.**		**R^2=0.093.**	**R=0.16.**	**R^2=0.026.**	**F=9.462.**
		Sig=0.44			**F=9.462. Sig=0.00**			**Sig=0.162**		
	DIUT	0.09	1.90	0.06	-0.01	-0.10	0.92	0.06	1.33	0.19
4	DDGPT	0.04	0.75	0.46	0.14	2.46	0.01*	0.05	0.87	0.38
		R=0.235.	**R^2=0.055.**	**F=11.46.**	**R=0.325.**		**R^2=0.106.**	**R=0.182.**		**R^2=0.033.**
		Sig=0.06			**F=11.46. Sig=0.04**			**F=11.46. Sig=0.176**		
		0.13	2.29	0.02*	0.35	6.54	0.00*	0.04	0.78	0.4
5	DGA	**R=0.256.**	**R^2=0.066.**	**F=12.459.**	**R=0.426.**		**R^2=0.182.**	**R=0.185.**		**R^2=0.034.**
		Sig=0.02			**F=12.459. Sig=0.00**			**F=12.459. Sig=0.437**		
		0.07	1.50	0.13	0.04	0.87	0.38	0.09	1.84	0.07
6	Resilience	**R=0.256.**	**R^2=0.07.**	**F=13.458.**	**R=0.428.**		**R^2=0.183.**	**R=0.203.**		**R^2=0.041.**
		Sig=0.13			**F=13.458. Sig=0.381**			**F=13.458. Sig=0.066**		

According to Table 5, the total variance explained regarding social purpose cyberloafing behavior, the contribution of demographic variables is 1.9%, the contribution of adding the most frequently used application variables in the second model is 1.9%, the contribution of adding game type variables in the third model is 0.6%, the contribution of adding technology usage time variables in the fourth model is 1.1%, the contribution of adding the game addiction variable in the fifth model is 1.1%, in the sixth model, the contribution of the most frequently used application variables is 1.9%. On the other hand, the contribution of adding the resilience variable is 0.4% in the model. These six models explain 7.0% of social cyberloafing behavior. Model1($R=.138$ $R^2=.019$ $p<.05$), Model2 ($R=.196$ $R^2=.038$ $p<.05$), and Model5 ($R=.256$ $R^2=.066$ $p<.05$) are significant. Model 5 is the most important predictor of social cyberloafing behavior. According to their relative effects on social cyberloafing, the variables are listed as game addiction, gender, participants whose most frequently used application is YouTube, and daily Internet usage time.

According to Table 5, the total variance explained regarding gaming cyberloafing behavior in the first model, the contribution of demographic variables was 3.3%. In the second model, the contribution of adding the most frequently used application variables was 0.8%. In the third model, the contribution of adding game type variables was 5.2%. In the fourth model, the contribution of adding technology usage time variables was 1.3%. In the fifth model, the contribution of adding game addiction variables was 7.6%. In the sixth model, the contribution of adding the resilience variable was 0.1%. These six models explain 18.3% of gaming cyberloafing behavior. Model1 ($R=.182$ $R^2=.033$ $p<.05$), Model3 ($R=.305$ $R^2=.093$ $p<.05$), Model4 ($R=.325$ $R^2=.106$ $p<.05$), and Model5 ($R=.426$ $R^2=.182$ $p<.05$) were significant. When the calculated regression coefficients are considered, the variables according to their relative effects on gaming cyberloafing behavior are listed as action-type gameplay, puzzle-type gameplay, chance-type gameplay, gender, daily game playing time, and DGA.

According to the findings, the total variance of academic cyberloafing behavior, the contribution of demographic variables is 1.3%, the contribution of adding the most frequently used application variables in the second model is 0.2%, the contribution of adding game type variables in the third model is 1.1%, the contribution of adding technology usage time variables in the fourth model is 0.7%, the contribution of adding the game addiction variable in the fifth model is 0.1%, in the sixth model, the contribution of the addition of the most frequently used application variables is 0.1%. The contribution of adding the resilience variable to the model is 0.7%. These six models explain 4.1% of academic cyberloafing behavior, and no meaningful model exists. According to their relative effects on academic purpose cyberloafing scores, the variables are demographic, game type, daily Internet use and game playing time, resilience, most frequently used application, and game addiction, respectively.

Discussion and Conclusion

This study aimed to determine the relationship between university students' game addiction levels and CBES with resilience and various variables. For this purpose, the data collected with the participation of 472 university students, 325 females, and 147 males, were analyzed. The effects of variables related to resilience, demographics, and technology use on university students' DGA and CBES were described. According to the results of the research, it was seen that the game addiction levels of the students are at a moderate level. When the cyberloafing behaviors were examined, it was seen that it is at a medium level, the sub-

dimensions of cyberloafing for gaming are low, and the cyberloafing behavior for academic and social purposes is at a medium level. According to their effects on DGA, variables are daily playing time, cyberloafing for gaming, playing games of chance, gender, resilience, and age. When we look at the sub-dimensions of cyberloafing behavior, the variables according to their effects on the social purpose cyberloafing are DGA, gender, and participants, whose most frequently used mobile application is YouTube, and DIUT. According to their effects on gaming cyberloafing behavior, the variables are action-type games, puzzle-type games, chance games, gender, DGPT, and DGA. Variables according to their effects on academic cyberloafing behaviors are demographic variables, game type, DIUT and DGPT, resilience, MFUMA, and game addiction.

In this study 12 models were created in the context of the literature: six models to determine the variables related to the game addiction of university students and six models to determine the variables related to the cyberloafing behaviors they display in educational settings. Seventeen hypotheses related to these models were tested (see Figure 2).

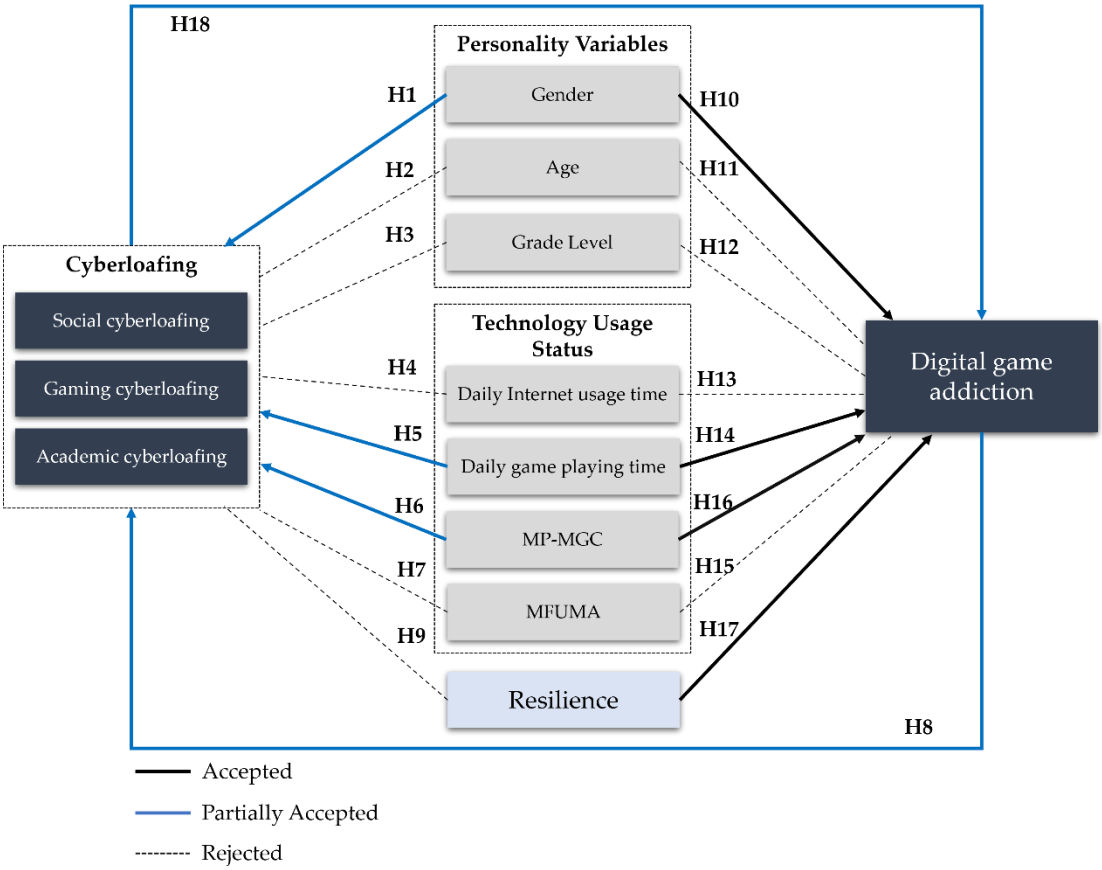

Figure 2. Hypothesis test results

DGA and Demographic Variables

The demographic characteristics of the participants (gender, age, grade) were included in the hierarchical regression in model 1. It was observed that there was a significant relationship between the game addiction levels of the students and their gender (H10), whereas there was no significant relationship between age (H11) and grade (H12). According to the findings, it was determined that male participants had higher game addiction levels than female participants. Accordingly, gender is a significant predictor of game addiction levels. When the literature was examined, this result was compatible with many studies (Chang & Kim, 2019; Chou & Hsiao, 2000; Huanhuan & Su, 2013; Kweon & Park, 2012; Tıngaz et al., 2019; Zorbaz et al., 2015). Because digital games are a more important tool in social communication for males than females, males prefer them more (Colwell & Payne, 2000). Wallenius et al. (2009) stated that females care less about games than males because they have less contact with technology and computers. Unlike these results, there are also studies showing that there is no relationship between gender and game addiction (Bilge, 2012; Çakmen, 2004; Madran & Çakılcı, 2014). The sample group in Bilge's (2012) and Çakmen's (2014) studies is at the primary school level. The differences in the context of gender are more limited in this period. Individuals who have the habit of playing violent games in the study of Madran and Çakılcı (2014) can be cited as some of the sources of differentiation in the context of the gender factor in this study.

When the relationship between the ages of the participants and their DGA levels was examined, it was determined that there was no significant relationship. When the literature has been examined, studies have this result (Tıngaz et al., 2019). Unlike these results, Madran and Çakılcı (2014) and Keser and Esgi (2012) indicated in their studies with primary school students that an inversely significant relationship existed between age and game addiction. On the other hand, Wallenius et al. (2009) stated that DGA increases as students age. Chiu et al. (2004) highlighted that the ages of individuals between 10 and 19 have higher game addiction levels. This differentiation is due to the closer age range of the participants in the study.

There was no significant relationship between the participants' grades and DGA levels. There is no difference in the game addiction levels of the participants at different grades. It has been observed that similar results have been obtained in many studies in the literature (Tıngaz et al., 2019). Unlike this finding, Kubey et al. (2001) stated that university students had higher game addiction levels in their first year. This difference is because students predominantly play digital games. After all, they cannot establish good friendships in the first years of university**.**

DGA and Technology Usage Habits

The relationship between the game addiction levels of university students according to technology usage habits (DIUT, DGPT, MP-MGC, and MFUMA) was examined. It was observed that there was no significant relationship between the DGA levels of the participants and the MFUMA variable. It was observed that there was no difference in the DGA levels of the participants whose most frequently used mobile applications were WhatsApp, Facebook, or YouTube. Similarly, Al-Kord (2016) stated that no significant relationship exists between Facebook use and game addiction. Since most students use these applications, there may not have been a difference.

There is a significant relationship between the MP-MGC by the participants and their DGA level. The DGA levels of the participants who play games in the categories of chance, puzzle, and action, which are considered within the scope of the study, are relatively high. The effects on the DGA levels of the participants are the games of chance, action, and puzzle, respectively. According to this result, the MP-MGC is an essential predictor of game addiction. Similarly, Ayhan and Köseliören (2019) stated that the DGA levels of the participants who played games in the strategy, action, simulation, and sports genres they discussed in their study were high. It was stated that the participants who played games in the strategy type had higher addiction levels.

It was determined that there was no significant relationship between the d DIUT of the participants and their DGA levels. According to these results, the duration of daily Internet use does not affect the level of DGA. However, unlike these results, in many studies, it has been observed that there is a significant relationship between the duration of Internet use and DGA (Al-Kord, 2016; Kweon & Park, 2012; Muslu & Aygün, 2020; Rajab et al., 2020; Zorbaz et al., 2014). Yavuz (2018) stated that DGA is high for students whose weekly Internet usage is more than 21 hours.

It was determined that there was a significant relationship between the DGA levels of the participants and the daily game-playing time. Accordingly, DGPT is a significant predictor of DGA. This result is compatible with many studies in the literature (Gökçearslan & Durakoğlu, 2014; Liu & Peng, 2009; Thomas & Martin, 2010). DGA possibility for individuals increases as they play and their playing time. Balıkçı (2018) stated that individuals devote more time to games to escape their daily life problems and increase their DGA.

DGA and Resilience

According to the study's results, a significant inverse relationship was found between the participants' resilience and DGA levels. Accordingly, resilience is a significant predictor of DGA. In other words, the DGA levels of the participants with high resilience are low. When the literature was examined, this finding was consistent with the results of many studies (Kweon & Park, 2012; Rajab et al., 2019; Robertson et al., 2018; Sung et al., 2020; Viriyapong & Sookpiam, 2019; Wang & Zhu, 2011). Saquib et al. (2017) explained this situation by stating that individuals tend to play more games to escape the stress they experience daily (Canale et al., 2019). Wang and Zhu (2011) stated that individuals with weak social skills and low resilience play more games because they cannot express their feelings and thoughts comfortably.

CBES and Demographic Variables

This study examined the relationship between the demographic characteristics of the participants (gender, age, grade) and cyberloafing. It has been observed that students' cyberloafing has a significant relationship with gender but not age and grade.

When the findings related to the gender variable were examined, it was seen that female participants exhibited more socially purposeful cyberloafing than male participants. Many studies support the results when the literature is examined (Ahn, 2011; Hargittai, 2007; Mansumitrchai et al., 2012; Seçkin & Kerse, 2017). This situation causes female students to fear family and friendship relations and exhibit more socially purposeful cyberloafing because they evaluate events in more detail. However, some studies have observed that males exhibit socially purposeful cyberloafing more frequently than females (Şişman Eren, 2014).

When the relationship between gaming cyberloafing and gender was examined, it was seen that males exhibited more gaming cyberloafing than female participants. This result indicates that male participants exhibited more gaming cyberloafing during the lesson than females. Consistent with these results, in many studies, it is seen that males use technology more for gaming purposes than females (Seçkin & Kerse, 2017; Vitak et al., 2011; Zorbaz et al.,2015). This result demonstrates that males prefer games to relax and have fun when stressed and bored. On the other hand, Seçkin and Kerse (2017) stated that boys in our country exhibit more gaming cyberloafing since they are more interested in games from childhood.

When the relationship between the genders of the participants and their academic cyberloafing was examined, no relationship was found between them. Unlike this result, Sezgin et al. (2011) concluded that there is a significant relationship between gender and using Facebook for academic purposes. This difference may be due to the characteristics of the participants or the handling of different social networks in the study. Galpin and Sander (2007) stated that females are more sensitive to information technologies in education and use them primarily for educational purposes.

It was observed that there was no significant relationship between the ages of the participants and their cyberloafing in the educational setting. In line with this result, the cyberloafing of the participants in the educational setting did not change according to their age. When the literature has been examined, many studies have been conducted to determine the relationship between cyberloafing and the age variable. Considering the relationship between cyberloafing and age, many studies support this result (Alan, 2019; Tanrıverdi & Karaca, 2018). Seçkin and Kerse (2017) stated with university students that younger students were more likely to engage in cyberloafing for social purposes, while older students were more likely to engage in cyberloafing for academic purposes. They stated that this situation is because younger students spend more time on social and entertainment purposes. In comparison, older students spend time researching and doing homework because they have graduation and job anxiety.

It was observed that there was no significant relationship between the participants' grades and their cyberloafing behavior in the educational setting. When the literature has been examined, many studies have been conducted to determine the relationship between cyberloafing behavior and grades. When we look at the studies examining the relationship between cyberloafing behavior and grade, many studies support this result (Alan, 2019; Bağrıaçık Yılmaz, 2017; Çok & Kutlu, 2018; Tanrıverdi & Karaca, 2018). Unlike the results, Arabacı (2017) stated that as the grades increase, there is an increase in cyberloafing behavior. Şahin (2019) stated with high school and university students that university students exhibit more cyberloafing behavior than high school students. There was no difference according to the grades of the university students. High school students have limited possibilities to exhibit less cyberloafing because they are controlled during the course. The cyberloafing behavior of university students does not differ according to their grades because the students' Internet access and usage time are close.

CBES and Gaming and Technology Usage Habits

The relationship between the cyberloafing behavior of university students according to their gaming and technology usage habits (daily Internet usage time, daily game playing time, game type, game addiction, and the most frequently used application) was examined. It was

observed that there was no significant relationship between the cyberloafing behaviors exhibited by the participants in the educational settings and the daily Internet usage times and the most frequently used applications. At the same time, there was a significant relationship between the daily game playing times, the game types, and the game addiction.

The results demonstrate that the daily Internet usage time of the students did not affect their cyberloafing behavior. Daily Internet usage time does not significantly predict cyberloafing behavior in the educational setting. When the literature is examined, Tanrıverdi and Karaca (2018) stated that there is no relationship between the duration of Internet use and cyberloafing behavior, supporting the conclusion reached. Unlike the results obtained, some studies have found a significant relationship between cyberloafing behavior and daily Internet usage time (Çok & Kutlu, 2018; Okoroma & Okafor, 2018; Seçkin & Kerse, 2017). As the duration of Internet use of individuals increases, their level of Internet addiction increases and causes them to exhibit more cyberloafing behavior (Cok & Kutlu, 2018). Alan (2019) stated that a relationship exists between the duration of social media use and cyberloafing behavior. It was stated that students with more social media usage time exhibited insignificant cyberloafing behavior, while students with less usage time exhibited significant cyberloafing behavior.

When the findings were examined, there was no significant relationship between the most frequently used application variable and cyberloafing behavior. Per this, the most frequently used application variable does not significantly predict cyberloafing behavior in the educational setting. This result is because each of the three applications (Instagram, WhatsApp, YouTube) that stand out in the most frequently used category is used by most students in the age range of the participants of this study. However, they are not the most often interacted application.

When the relationship between university students' daily gaming time and their CBES was examined, it was seen that there was a significant relationship with gaming-oriented cyberloafing behavior. No relationship was found between daily gaming time and social and academic cyberloafing behavior. According to the results, it was seen that the participants with high daily gaming time exhibited more gaming cyberloafing behavior during the lesson. This result shows that the daily game-playing time of the participants is a significant predictor of cyberloafing behavior. When the literature was examined, some studies revealed a relationship between gaming cyberloafing behavior and the duration of gaming (Blau et al., 2006; Tanrıverdi & Karaca, 2018). At this point, as the time that individuals allocate for games increases, they disrupt their lessons and daily tasks, causing them to exhibit cyberloafing behavior.

It was observed that there is a significant relationship between the cyberloafing behavior of university students in educational settings and the types of games they play. According to the findings of the game type variable, it was observed that the participants who played games in the puzzle, game of chance, and action genres exhibited more gaming cyberloafing behavior during the lesson. It was observed that there was no significant relationship between the types of games played by the participants and their social and academic cyberloafing behavior. Kovacevic et al. (2013) stated that the effect of students' game-playing habits on their academic behavior is low (Torun et al., 2015). According to these, the types of games played by the participants are significant predictors of gaming cyberloafing behavior.

When the relationship between the game addiction levels of university students and their cyberloafing during the course was examined, according to the findings, as the game addiction levels of the participants increased, it was observed that they exhibited cyberloafing behavior primarily for games and social purposes during the course. There was no significant relationship between game addiction and academic cyberloafing behavior (H8.3). According to these results, the game addiction levels of the participants are a significant predictor of the types of cyberloafing behavior. Similarly to Tanriverdi and Karaca (2018), this result stated that individuals who constantly play a game have higher levels of cyberloafing.

CBES and Resilience

In this study, the cyberloafing behaviors of university students were examined according to the participants' resilience. It was observed that academic cyberloafing behavior increased as students' resilience increased. However, it was observed that there was no significant relationship between resilience and CBES. Accordingly, resilience is not a significant predictor of CBES. Tanriverdi and Karaca (2018) reached a similar conclusion in their study. However, Akgün (2020) stated a significant inverse relationship between resilience and cyberloafing behavior.

Conclusion

In conclusion, this study aimed to examine the predictive relationships between cyberloafing in educational settings and levels of game addiction among university students concerning resilience, demographics, and technology use. The results showed that demographics such as gender and daily gaming time were significant predictors of cyberloafing and gaming addiction behaviors. Game addiction also emerged as a significant predictor of social and gaming cyberloafing. In addition, the types of games played and resilience levels influenced game addiction, while resilience promoted academic cyberloafing. Overall, the study contributes to understanding the nomological network between cyberloafing, gaming addiction, and resilience among university students. Also, it highlights the need for awareness and prevention strategies to address potentially problematic technology behaviors that may negatively impact learning and well-being in educational contexts.

Limitations and Recommendations

This study provides valuable insights into the relationships between cyberloafing and gaming addiction among university students. However, some limitations need to be addressed. The study used a cross-sectional design, which precludes concluding causality between variables. Future studies could use a longitudinal design to understand how these factors influence each other over time.

The participants in this study included only students from Turkey, so the findings may not be generalizable to other cultural contexts. Comparative studies in different cultural contexts may shed light on culture-specific factors.

Another limitation of the study is that data were collected through self-report questionnaires, which can be influenced by biases such as social desirability. In this context, in addition to self-report-based tools, behavioral observations, interviews, and data-based approaches can be used to make more bias-free measurements.

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