



Disconnected by Connection: Exploring Digital Burnout in Open and Distance Education

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Abstract

This study aims to examine the digital burnout levels of learners studying through open and distance education. The sample of the study consists of a total of 376 learners studying in Anadolu University Graduate School of Graduate Education Distance Education Non-Thesis Master's programmes in the 2024-2025 academic year. While forming the sample group of the study, convenient sampling method, which is one of the non-probability sampling methods, was preferred. Personal information form and 'Digital Burnout Scale' were used to collect data in the study. According to the findings obtained from this study, although the digital burnout levels of open and distance learners are generally low, they show significant differences depending on variables such as age, income, employment status and daily technology usage time. In particular, it was determined that individuals between the ages of 18-33 experienced higher levels of digital burnout and emotional exhaustion compared to older age groups. In addition, it was observed that low-income individuals and non-public employees had higher levels of digital burnout, and digital burnout increased significantly in all sub-dimensions in individuals who used technological devices for a long time. On the other hand, it was determined that variables such as gender and technology usage competence did not have a significant effect on digital burnout.

Keywords: Digital Burnout, Graduate Education, Open and Distance Education

1. Introduction

Today, the rapid development in digital technologies has necessitated changes and updates in various fields. The popularisation and widespread use of digital technologies has led to an increase in the use of online learning tools and open and distance learning models have become more accessible and flexible than ever before (Mhlanga, 2024). However, this silent transformation has also brought up some new cognitive and psychological problems (Vorderer et al., 2016). It is understood that individuals feel the obligation to be constantly online, especially due to spending long time in front of the screen (Firth et al., 2019; Granic et al., 2020). In addition to the opportunities brought by learning processes based on digital environments, such difficulties lead to the emergence of a situation called 'digital burnout' in individuals. This concept includes the cognitive processes experienced by the individual due to long-term and intense interaction in digital environments. The occurrence of this situation,

which is associated with mental fatigue, loss of motivation and emotional burnout, in online open and distance learning environments can cause learning processes to be interrupted. In this context, examining the digital burnout levels of open and distance learners can be said to be an important necessity in terms of both understanding their learning experiences and designing more sustainable online learning platforms. This study aims to determine the digital burnout levels of individuals studying in the context of open and distance education and to reveal the possible causes of this burnout.

In the literature, the concept of digital burnout has been defined in various studies (Bozkurt, 2022; Da Silva et al, 2024; Göldağ, 2022; Kabaran et al., 2022). Although Erten and Özdemir (2020) stated that digital burnout occurs with long-term and excessive use of digital devices, the causes of digital burnout have not yet reached full saturation and need to be investigated (Yiğit et al., 2022). It is possible to redefine digital burnout as the failure, exhaustion and fatigue that learners feel due to the failure to learn problems they experience while interacting with e-content using digital technologies in distance learning environments. Digital burnout increases stress over time, provides apathy towards the environment, increases cognitive fatigue, and reveals physical and psychological problems (Durmuş et al., 2022; Erten & Özdemir, 2020). Since learners use digital technologies continuously and intensively in open and distance learning environments, physical and psychological problems such as physical fatigue and burnout similar to digital burnout symptoms can be seen in learners. In the literature, it has been determined that intensive use of digital technologies and the internet can cause fatigue, physical and psychological health problems, as well as increase digital burnout (Şirin et al., 2021).

Durmuş et al. (2022) conducted a research with nursing department students studying in the faculty of health sciences of a university in order to determine the digital burnout levels of university students studying in the nursing department. As a result of the research, it was determined that students had high levels of digital burnout, students who were online more than 5 hours a day had higher levels of digital burnout than students who were online less than 5 hours a day, and students with high stress levels also had high levels of digital burnout. Yiğit et al. (2022) conducted a research with academicians working at a state university in order to examine the relationship between technostress, digital burnout and the tendency to fall into cognitive bias. As a result of the research, they found that technology-induced stress is effective on digital burnout and cognitive biases have a moderating effect between technostress and digital burnout. Şirin et al. (2021) conducted a research with teachers to examine the digital burnout levels of physical education teachers. As a result of the research, it was determined that teachers felt themselves under stress when they were in digital/virtual environments too much, and that the increase in daily internet usage time increased the digital burnout levels of teachers.

Digital burnout should be viewed not merely as a result of prolonged use of digital technologies in the context of open and distance learning, but as a multidimensional learner experience related to technostress, digital well-being, and self-regulation skills. Technostress refers to the stress experienced by individuals due to the constantly changing nature of digital technologies, the expectation of constant availability in online environments, the use of multiple platforms, information overload, and technical issues (Tarafdar et al., 2007; Wang et al., 2008). These stressors can become more pronounced in open and distance learning environments. This is because learners are heavily reliant on digital systems for accessing course content, engaging in online interactions, tracking assignments, and sustaining their learning processes. Indeed, a recent study conducted in the context of online learning indicates that technostress negatively impacts the quality of online learning. Conversely, it has been determined that instructor and university support play a mitigating role in reducing this

negative impact (Saleem et al., 2024). This suggests that digital burnout is related not only to individual technology usage time but also to the quality of the learning environment, institutional support mechanisms, and the learner's capacity to cope with digital demands.

Furthermore, the digital well-being approach provides an important theoretical foundation for explaining digital burnout. Digital well-being concerns individuals' ability to establish a balanced, healthy, and sustainable relationship with digital technologies. In this context, digital well-being is associated with factors such as screen time, the quality of online interactions, digital fatigue, the accessibility of learning environments, social support, and psychological comfort (Gui et al., 2017). Since students' learning experiences in open and distance learning environments largely take place through digital tools, safeguarding digital well-being has become critical for learning motivation, participation, and continuity. Recent studies examining student well-being in digital learning environments also indicate that digital learning design, social support mechanisms, and learners' online experiences are decisive factors in well-being (Berger et al., 2025; Topluk, 2026). Therefore, in open and distance learning, digital burnout can be considered an emotional, cognitive, and behavioral risk area arising from the deterioration of digital well-being.

Self-regulation skills should also be considered in explaining digital burnout. While open and distance learning environments provide students with flexibility in terms of time, place, and learning pace, this flexibility increases learners' responsibility for planning, monitoring, evaluating, and, when necessary, readjusting their own learning processes. Self-regulated learning encompasses skills such as goal setting, time management, attention control, using learning strategies, monitoring progress, and maintaining motivation (Pintrich, 2004). Current research indicates that self-regulation skills are crucial for academic success, learning continuity, and adaptation to online learning in online and distance learning environments (Faza & Lestari, 2025). In this regard, it can be noted that learners with strong self-regulation skills are better able to manage digital tasks, online interactions, and technology usage time more effectively. Conversely, it can be argued that learners with weak self-regulation skills may be more vulnerable to digital fatigue, procrastination, attention deficits, and burnout. Therefore, this study examines the interaction between digital burnout, the pressures created by technostress, the preservation of digital well-being, and the learner's self-regulation capacity.

In this direction, this study aims to determine the digital burnout levels of open and distance learners and to reveal the dimensions of this problem encountered in online open and distance learning environments. In addition, by examining the possible factors that trigger digital burnout, it will contribute to the development of remedial strategies and approaches that will improve the quality of digital learning experiences. Thus, it is expected that important findings will be obtained both to increase student motivation and to ensure the sustainability of open and distance education processes. For this purpose, answers to the following research questions will be sought:

- 1- What are the digital burnout levels of open and distance learners according to gender variable?
- 2- What are the digital burnout levels of open and distance learners according to age variable?
- 3- What are the digital burnout levels of open and distance learners according to income level variable?
- 4- What are the digital burnout levels of open and distance learners according to employment status variable?

5- What are the digital burnout levels of open and distance learners according to technology usage competency variable?

6- What is the level of digital burnout of open and distance learners according to the variable of daily usage time of technological devices?

2. Methods

2.1. Research Model

The research was designed using the survey model. The reason why the survey model is preferred is that it aims to describe a situation that existed in the past or still exists as it is. The aim of describing the views of open and distance learners, a large group of graduate students, on digital burnout levels in their current state was effective in the selection of the survey model. Since data were collected from a relatively large group, the general survey model, which is one of the survey models, was preferred.

2.2. Sample

The sample of this research consists of 376 participants in total. Convenient sampling was preferred in the selection of participants. When the gender distribution of the participants is analysed, it is seen that 191 participants are male and 185 participants are female. When the age variable is analysed, it is seen that the majority of the participants are between 26-33 years of age (n=133) and 34-41 years of age (n=123), followed by 42-49 years of age (n=49), 18-25 years of age (n=42) and 50 years and over (n=29). According to the data on income level, 64.4% of the participants have an income level above the poverty line (n=242), while 18.6% are below the hunger line (n=70) and 17.0% are between the hunger and poverty line (n=64).

In this study, income level categories were established by taking into account socioeconomic indicators specific to the Turkish context. In determining these income groups, the hunger line and poverty line indicators - which are widely used in Turkey to assess the extent to which household income covers basic living expenses - were taken as the basis. The hunger threshold represents the minimum monthly food expenditure required for a family of four to maintain a healthy, balanced, and adequate diet. The poverty threshold, on the other hand, represents the total income a household must have to cover not only food expenses but also essential basic expenses such as housing, transportation, education, healthcare, clothing, and similar necessities. For this reason, participants' income levels were classified into three groups: "below the hunger threshold," "between the hunger threshold and the poverty threshold," and "at or above the poverty threshold." This classification aims to assess income levels not merely based on the nominal amount of income, but through their relative socioeconomic position in relation to the basic cost of living in Turkey. The employment status variable was categorized into four groups to more clearly classify participants' current positions in the workforce. The "non-employees" category refers to participants who indicated they were not working in any paid job at the time of data collection, while the "public sector employees" category refers to participants working in public institutions and organizations. The "private sector employees" category refers to participants working for pay in private sector organizations, and the "self-employed" category refers to participants who run their own businesses, work as freelancers, or engage in independent professional activities. This classification was used to examine potential differences among participants in terms of employment security, working conditions, and exposure to digital technologies.

2.3. Data Collection Tools

In the study, personal information form and 'Digital Burnout Scale' developed by Ertan and Özdemir (2020) were used to collect data. The data collection process of the research was

carried out online and provided via Google Forms. The electronic questionnaire form created in the online environment was applied to the learners studying in Anadolu University Graduate Education Institute Distance Education Non-Thesis Master's programmes. The data collection process through Google Forms was carried out based on the principle of volunteering. Participants who did not declare that they voluntarily participated in the survey could not access the personal information form and scale items. In the online survey form, participants were given a single response right. In order for the learners who constitute the sample of the research to answer the questions reliably, necessary information was provided and the right to examine the collected data was given upon request.

The personal information form was prepared to determine the demographic characteristics of the participants who constitute the sample group of the study, such as gender, age, occupational status, monthly income level, proficiency in using information technologies and daily usage time of technological devices. This scale, developed by Ertan and Özdemir (2020), consists of a total of 24 items and 3 sub-dimensions. The total of this 5-point Likert scale measures the digital burnout levels of learners. The scale consists of 3 sub-dimensions measuring digital aging, digital deprivation and emotional exhaustion levels. The Digital Burnout Scale consists of 24 items and three subscales. Items 1–12 measure digital aging, items 13–18 measure digital deprivation, and items 19–24 measure emotional exhaustion. Since the scale is a 5-point Likert-type instrument, the total score can range from 24 to 120. The possible score ranges are 12–60 for digital aging, 6–30 for digital deprivation, and 6–30 for emotional exhaustion. Higher scores indicate higher levels of digital burnout. In this study, the average total score for digital exhaustion was 59.56, corresponding to an average item score of 2.48. Since this value falls within the “disagree” range of the 5-point Likert scale and is closer to the lower end of the possible score range, participants’ level of digital exhaustion was interpreted as low. Similarly, the average item scores for digital aging, digital deprivation, and emotional exhaustion were 2.52, 2.44, and 2.44, respectively, indicating low levels in these subdimensions as well.

The validity and reliability evidence for the Digital Burnout Scale was re-examined for the current sample. Confirmatory factor analysis confirmed the scale’s original three-factor structure. Model fit indices are within acceptable limits: $\chi^2/df = 3.111$, RMSEA = 0.075, CFI = 0.919, TLI = 0.910, and SRMR = 0.053. Additionally, the internal consistency reliability coefficient for the total scale was $\alpha = .96$. Cronbach’s alpha coefficients were $\alpha = .92$ for digital aging, $\alpha = .93$ for digital deprivation, and $\alpha = .91$ for emotional exhaustion. These values indicate that the scale and its subscales possess high internal consistency reliability in the current sample. To examine the factor structure of the Digital Burnout Scale in the current sample, confirmatory factor analysis was conducted using AMOS 21.0, and Cronbach’s alpha coefficients were calculated to assess internal consistency reliability.

2.4.Data Analysis

The data collected in the research were initially opened in Microsoft Office Excel programme and necessary arrangements were made to work in IBM SPSS 26.0 package programme. The edited data were coded in accordance with the responses of the learners to the personal information form and digital burnout scale and saved in the IBM SPSS 26.0 package programme. The questionnaires that did not have voluntary participation approval were considered erroneous at the data entry stage and were excluded from the study. Before starting the analysis process, it was checked whether there was missing data entry and normality analysis was performed in order to perform the analyses to be used in the analysis of the data set. Measurement techniques such as descriptive statistics, independent sample t-test, one-way ANOVA were performed in SPSS 26.0 package programme. In the ANOVA technique,

Levene's statistic was used to examine whether the variances were homogeneous or not. In cases where the ANOVA result was found statistically significant and the variances were homogeneous, Tukey test was used to determine from which groups the difference originated. In cases where the variances were not homogeneous, Dunnett C multiple comparison tests were used to determine the source of the differences observed between the independent variable levels. The eta squared (η^2) values (Ialongo, 2016), which are recommended in the literature to examine the effect size for one-way ANOVA, were also calculated.

2.5. Limitations of the Research

The sample for this study is limited to students enrolled in the non-thesis master's programs in distance education at the Institute of Graduate Education at Anadolu University. During the data collection process, students were invited to participate in the study via an online survey link. Participation was entirely voluntary. The first section of the online form provided information regarding the purpose of the study, the principle of voluntary participation, and data confidentiality. Participants who did not provide consent for voluntary participation were denied access to the scale items. At the end of the data collection process, data was obtained from a total of 384 participants; however, 8 records without voluntary participation consent were excluded. Following the exclusion of these records during the data cleaning phase, analyses were conducted based on 376 valid responses. Therefore, the response rate, based on the collected forms, is 97.9%. Since a non-random convenience sampling method was used in the study and data were collected from only a single institution, caution should be exercised when generalizing the findings to different universities, different educational levels, or face-to-face education contexts. Despite this limitation, the fact that the sample size exceeds the minimum sample size determined for the study supports the interpretability of the findings regarding the current study group.

3. Results

First, descriptive statistics were calculated for the total digital burnout score and its subdimensions. The total digital burnout score ranged from 24 to 116, with a mean score of 59.56 and a standard deviation of 20.79. The item mean for the total scale was 2.48, indicating that participants' levels of digital burnout were generally low. In terms of subscales, the item averages were 2.52 for digital aging, 2.44 for digital deprivation, and 2.44 for emotional exhaustion. These descriptive findings provide a general overview of participants' levels of digital burnout prior to examining group differences based on demographic and technology-use-related variables.

The findings of the independent sample t-test, which was conducted to ascertain whether there is a discrepancy in digital burnout levels among open and distance learners based on gender, are outlined in Table 1.

Table 1: The Results of T-Test Analysis Open and Distance Learners' Digital Burnout Levels According to Gender Variable

Variable	Gender	n	$\bar{X}$	Sd	t	df	p
Digital aging	Male	191	29.59	10.50	-1.243	374	.215
	Female	185	30.94	10.54			
Digital deprivation	Male	191	14.85	6.61	.566	374	.572
	Female	185	14.47	6.32			

Emotional exhaustion	Male	191	14.16	6.00	-1.560	374	.120
	Female	185	15.14	6.16			
Digital burnout	Male	191	58.60	20.81	-.908	374	.364
	Female	185	60.55	20.79			

The findings of the analysis indicated that there was no statistically significant difference between the gender of open and distance learners and the total score obtained from the scale. Furthermore, the investigation revealed that there were no substantial disparities in the sub-dimensions of the scale according to the gender variable. Consequently, it can be deduced that gender does not serve as a differentiating factor in the level of digital burnout experienced by individuals. The findings of the one-way ANOVA, which was conducted to ascertain whether there is a discrepancy in digital burnout levels among open and distance learners based on age, are outlined in Table 2.

Table 2: One-Way ANOVA Results Analyzing Open and Distance Learners' Digital Burnout Levels According to Age Variable

Variable	Age	n	$\bar{X}$	sd	df	F	p	Difference	Effect size
Digital aging	18-25	42	34.95	10.69	4-371	10.689	.000*	1-3 1-4 1-5 2-3 2-4 2-5	.103
	26-33	133	33.31	10.76					
	34-41	123	28.20	9.56					
	42-49	49	26.12	9.99					
	50 and above	29	25.10	6.92					
Digital deprivation	18-25	42	16.55	7.03	4-371	3.625	.007	1-5 2-5	.038
	26-33	133	15.65	6.59					
	34-41	123	13.68	5.82					
	42-49	49	14.31	7.25					
	50 and above	29	12.14	4.84					

Emotional exhaustion	18-25	42	17.71	6.41	4-371	7.659	.000*	1-3 1-4 1-5 2-3 2-4	.076
	26-33	133	15.83	6.23					
	34-41	123	13.61	5.76					
	42-49	49	12.24	5.43					
	50 and above	29	13.17	4.56					
Digital burnout	18-25	42	69.21	21.97	4-371	9.007	.000*	1-3 1-4 1-5 2-3 2-4 2-5	.088
	26-33	133	64.80	21.06					
	34-41	123	55.49	18.75					
	42-49	49	52.67	21.12					
	50 and above	29	50.41	13.57					

Pursuant to the analyses conducted, it was ascertained that there were substantial discrepancies between the age variable and the level of digital burnout. The findings indicated that individuals aged 18 to 25 exhibited digital burnout levels that were considerably higher compared to those aged 34 and above. Furthermore, it was determined that individuals aged 26 to 33 exhibited significantly higher digital burnout levels compared to those aged 34 and above. Upon collective evaluation of the averages, it was determined that the digital burnout levels of individuals aged 18 to 33 exceeded those of individuals aged 34 and above. The same outcomes were also identified for digital aging levels. The substantial discrepancy observed in the digital deprivation dimension was attributed to the variation in scores between individuals aged 50 and over and those aged 18-25 and 26-33. Consequently, the digital deprivation levels of learners aged 50 and over are notably lower than those aged 18-33. Furthermore, substantial disparities were identified in the emotional exhaustion dimension, contingent on age. A comparison was made between learners aged 18-25 and 34-41, 42-49, 50 and over. The results indicated that there were significant differences between these groups. The emotional exhaustion levels of learners aged 18-25 were found to be significantly higher than those of the other three groups. A comparison of learners aged 26-33 years with those aged 34-41 and 42-49 years revealed significant disparities. The emotional exhaustion levels of the former group were found to be considerably higher than those of the latter two groups. The findings of the

one-way ANOVA, which was conducted to ascertain whether there is a discrepancy in digital burnout levels among open and distance learners based on income, are outlined in Table 3.

Table 3: One-Way ANOVA Results Analyzing Open and Distance Learners' Digital Burnout Levels According to Income Variable

Variable	Income	n	$\bar{X}$	sd	df	F	p	Difference	Effect size
Digital aging	Starvation line and below	70	32.76	11.68	2-373	8.212	.000*	1-3 2-3	.042
	Between starvation and poverty line	64	33.55	8.99					
	Poverty line and above	242	28.65	10.25					
Digital deprivation	Starvation line and below	70	15.56	6.95	2-373	3.463	.032*	2-3	.018
	Between starvation and poverty line	64	16.09	6.42					
	Poverty line and above	242	14.02	6.26					
Emotional exhaustion	Starvation line and below	70	15.73	6.25	2-373	12.858	.000*	1-3 2-3	.064
	Between starvation and poverty line	64	17.53	6.31					
	Poverty line and above	242	13.57	5.69					
Digital burnout	Starvation line and below	70	64.04	19.51	2-373	9.395	.000*	1-3 2-3	.048
	Between starvation and poverty line	64	67.17	20.07					
	Poverty line and above	242	56.24	20.79					

The study's findings indicated that digital burnout levels exhibited variation among open and distance learners based on their income status. Consequently, digital burnout levels among individuals with an income level of poverty line and above are notably lower compared to those with lower incomes. Moreover, the digital aging and emotional exhaustion levels of individuals with an income level of poverty line and above are notably lower compared to those with lower incomes. In the digital deprivation dimension, a significant discrepancy was identified between individuals with incomes ranging from poverty line and above and those with incomes between starvation and poverty line. Consequently, individuals with incomes ranging from between starvation and poverty line exhibit a significantly higher prevalence of digital deprivation compared to those with incomes of poverty line and above. The findings of the one-way ANOVA, which was conducted to ascertain whether there is a discrepancy in digital burnout levels among open and distance learners based on employment status, are outlined in Table 4.

Table 4: One-Way ANOVA Results Analyzing Open and Distance Learners' Digital Burnout Levels According to Employment Variable

Variable	Employment status	n	$\bar{X}$	sd	Df	F	p	Difference	Effect size
Digital aging	Non-employees	101	33.35	11.14	3-372	5.833	.001*	1-2	.045
	Public	172	28.15	10.06					
	Private	74	31.38	9.85					
	Self-employment	28	28.89	10.30					
Digital deprivation	Non-employees	101	16.03	6.55	3-372	3.542	.015*	1-2	.028
	Public	172	13.60	6.23					
	Private	74	15.43	6.37					
	Self-employment	28	14.11	7.01					
Emotional exhaustion	Non-employees	101	16.60	6.28	3-372	6.837	.000*	1-2	.052
	Public	172	13.38	5.64					
	Private	74	15.28	6.25					
	Self-employment	28	13.50	5.88					
Digital burnout	Non-employees	101	65.98	21.46	3-372	6.651	.000*	1-2	.051
	Public	172	55.13	19.63					
	Private	74	62.09	20.18					

	Self-employment	28	56.50	21.13					
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The results of the analysis demonstrated that digital burnout levels among open and distance learners varied according to their employment status. The discrepancy was attributed to the variation in scores between public sector employees and non-employees, both in the overall scale and across its sub-dimensions. According to this finding, digital burnout, digital aging, digital deprivation and emotional exhaustion levels of public sector employees are significantly lower than non-employees. The findings of the one-way ANOVA, which was conducted to ascertain whether there is a discrepancy in digital burnout levels among open and distance learners based on technology usage competency, are outlined in Table 5.

Table 5: One-Way ANOVA Results Analyzing Open and Distance Learners' Digital Burnout Levels According to Technology Usage Competency Variable

Variable	Technology Usage Competency	n	$\bar{X}$	Sd	df	F	p
Digital aging	Basic level	23	30.35	10.69	2-373	.005	.995
	Advanced level	157	30.19	11.49			
	Intermediate level	196	30.29	9.73			
Digital deprivation	Basic level	23	16.22	7.60	2-373	.709	.493
	Advanced level	157	14.55	6.77			
	Intermediate level	196	14.57	6.07			
Emotional exhaustion	Basic level	23	17.26	7.11	2-373	2.833	.060
	Advanced level	157	14.10	6.31			
	Intermediate level	196	14.78	5.72			
Digital burnout	Basic level	23	63.83	23.95	2-373	.580	.561
	Advanced level	157	58.83	22.22			
	Intermediate level	196	59.63	19.22			

The findings of the analysis indicated that there was no statistically significant difference between the technology usage competency level of open and distance learners and the total score obtained from the scale. Furthermore, the investigation revealed that there were no substantial disparities in the sub-dimensions of the scale according to the technology usage competency variable. Consequently, it can be deduced that technology usage competency level does not serve as a differentiating factor in the level of digital burnout experienced by individuals. The findings of the one-way ANOVA, which was conducted to ascertain whether

there is a discrepancy in digital burnout levels among open and distance learners based on daily usage time of technological devices, are outlined in Table 6.

Table 6: One-Way ANOVA Results Analyzing Open and Distance Learners' Digital Burnout Levels According to Daily Usage Time of Technological Devices Variable

Variable	Daily usage time of technological devices	n	$\bar{X}$	sd	Df	F	p	Difference	Effect size
Digital aging	0-3	39	23.67	9.80	3-372	8.312	.000*	1-2 1-3 1-4	.063
	3-5	115	29.00	9.74					
	5-7	115	31.77	8.33					
	7 and above	107	32.35	12.52					
Digital deprivation	0-3	39	11.51	5.51	3-372	4.419	.005*	1-3 1-4	.034
	3-5	115	14.30	6.38					
	5-7	115	15.14	5.79					
	7 and above	107	15.68	7.21					
Emotional exhaustion	0-3	39	12.41	5.88	3-372	2.835	.038*	1-3	.022
	3-5	115	14.67	5.93					
	5-7	115	15.62	5.78					
	7 and above	107	14.38	6.49					
Digital burnout	0-3	39	47.59	19.53	3-372	6.239	.000*	1-2 1-3 1-4	.048
	3-5	115	57.97	19.67					
	5-7	115	62.53	16.97					
	7 and above	107	62.42	24.37					

The findings of the analysis indicated that digital burnout levels exhibited variation among open and distance learners, contingent upon the duration of their daily utilization of

technological devices. This discrepancy can be attributed to the varying levels of engagement with technological tools exhibited by the four distinct groups. Specifically, the group engaging with technology for 0-3 hours exhibited a distinct pattern, contrasting with the other three groups. Consequently, it was determined that the digital burnout levels of individuals who utilize technological tools for 0-3 hours daily are significantly lower than those who use them for 3 hours or more.

Subsequent analysis of the sub-dimensions of the scale revealed similarly significant differences. In the digital aging sub-dimension, significant differences were identified between learners who used technological devices between 0-3 hours a day and the other three groups. The results indicated that this difference was in favor of those who used technological devices for 0-3 hours a day. Consequently, the digital aging levels of individuals who utilize technological devices for 0-3 hours daily exhibit a significant decrease compared to those who engage with such devices for extended periods. In the digital deprivation sub-dimension, significant differences were identified among learners who used technological devices for 0-3 hours, those who used them for 5-7 hours, and those who used them for more than 7 hours. The findings indicate that individuals who utilize technological devices for a maximum of three hours daily exhibit a substantially lower degree of digital deprivation compared to those who engage with such devices for five hours or more. In the emotional exhaustion sub-dimension, a significant difference was identified between individuals who used technological devices for 0-3 hours a day and those who used them for 5-7 hours a day. Consequently, individuals who utilize technological devices for duration of 5-7 hours daily exhibit a substantially elevated degree of emotional exhaustion in comparison to those who engage with such devices for 0-3 hours.

4. Discussion, Conclusion and Recommendations

In this study, it is aimed to examine the digital burnout levels of graduate students studying open and distance education. The findings of the analysis showed that there was no statistically significant difference between the gender of open and distance education students and the total score obtained from the scale. In addition, it was also revealed that there was no significant difference in the sub-dimensions of the scale according to gender variable. Similar to the finding in this study, in the study examining the role of gender and work on the burnout of university students in Italy, no interactive effect between gender and employee status was observed in the current sample. However, when analysed in terms of gender, it was found that female students experienced higher levels of burnout, cognitive impairment and emotional impairment than male students (Fiorilli et al., 2022). As a result, it can be concluded that gender is not a differentiating factor in the level of digital burnout experienced by individuals. Today, the use of digital tools is quite common regardless of gender. Female and male students participate in online education processes with similar frequency and study on similar digital platforms. This may lead to the fact that digital burnout levels do not differ between genders.

The analyses revealed that digital burnout levels decreased significantly with increasing age. In particular, it was determined that individuals between the ages of 18-33 had higher levels of digital burnout and emotional exhaustion compared to individuals aged 34 and over. At the level of digital deprivation, it was observed that individuals aged 50 years and over had lower scores. Similar to the finding in this study, the study conducted by Göldağ (2022) on university students revealed that the digital burnout levels of the graduate student group were significantly lower than the undergraduate students. This situation provides strong support for studies on the decrease in the perception of digital burnout as age increases. These findings suggest that young individuals feel more pressure, burnout and emotional burden in the digital environment.

Research findings revealed that digital burnout levels differed significantly depending on income status. Individuals with income at or above the poverty line exhibit lower levels of digital burnout, digital aging and emotional exhaustion compared to those in the lower income group. Especially in the digital deprivation dimension, it was determined that individuals in the middle-income group experienced more negativity than those in the high-income group. This suggests that economic security may be a protective factor against digital burnout. A study similar to this study was conducted by Durmuş et al. (2022). In the study conducted on nursing students, it was stated that both economic status and duration of digital tool use were effective on digital burnout. It was emphasised that digital burnout levels were higher especially in the low-income group. Castro-Tamayo et al. (2025) stated that socioeconomic factors may be effective in showing burnout symptoms and low economic status may increase these symptoms.

The analyses revealed that digital burnout levels differed significantly according to employment status. Individuals working in the public sector have significantly lower levels of digital burnout, digital aging, digital deprivation and emotional exhaustion compared to other employment groups. This suggests that public employees may have more balanced digital working conditions. Stable work environment may be an important factor that reduces digital burnout. According to a study conducted on physiotherapists but not university students, there is a higher level of burnout syndrome among physiotherapists in the private sector compared to the public sector (Yousaf et al., 2021). These studies confirm each other.

The analyses showed that technology usage proficiency did not have a significant effect on digital burnout levels. Whether the participants have basic, intermediate or advanced technology usage skills does not change their digital burnout levels. Similarly, no difference was observed in the sub-dimensions of the scale. This finding suggests that digital burnout may be related to the intensity of use and the quality of the digital environment rather than technology mastery.

The findings of the analyses revealed that digital burnout levels increased significantly as the duration of daily technology use increased. Individuals who used technological devices for 0-3 hours a day exhibited lower levels of digital burnout, digital aging, digital deprivation and emotional exhaustion compared to other groups. In particular, use for 5 hours or more has a negative effect on all dimensions of digital burnout. These results clearly show that excessive interaction with digital tools triggers burnout. A study conducted on healthcare professionals revealed similar findings. A strong and positive relationship was found between frustration with technology and emotional exhaustion. The fact that burnout levels increased significantly as exposure to technology increased shows that a similar finding to the finding in this study also occurred in healthcare professionals (Tawfik et al., 2021).

In line with the findings obtained in this study, some suggestions can be offered to reduce the digital burnout levels of open and distance learners. First of all, considering that individuals between the ages of 18-33 have higher levels of digital and emotional exhaustion, guidance and counselling services based on stress management, self-regulation skills and digital awareness should be provided for this age group. The fact that digital burnout levels are higher in low-income individuals indicates the negative effects of the digital divide in this area. Hence, technological infrastructure support should be provided especially for economically disadvantaged groups and their equal participation in online learning processes should be encouraged.

As for employment status, it was observed that the levels of burnout were higher in those who worked outside the public sector. Therefore, it is important to provide extended opportunities for flexible time learning for those who have the responsibility of working and

learning together and to ensure uninterrupted access to digital content. Additionally, the positive correlation between daily time of technological devices use and digital burnout was found. This implies guiding students in the use of digital tools in a balanced and conscious way, promoting strategies like digital detox practices that take into account the health of individuals. Designing user-friendly, accessible and cognitively easy learning management systems can be used to reduce the feeling of digital aging and deprivation.

Finally, the absence of a significant influence of technology usage proficiency on digital burnout means that the level of technical knowledge alone cannot explain this problem. So, supportive learning materials, guides and simplified contents should be provided to ensure the healthy participation of all students in learning processes suitable for users of all proficiency levels. All these suggestions will help to reduce digital burnout in open and distance education processes and students' sustainable digital learning experiences.

Declaration of Ethical Approval

Ethical approval for this project was formally granted by the Anadolu University Social and Human Sciences Scientific Research and Publication Ethics Committee (Approval No: 503013).

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