ARE GRADUATE LEARNERS TRULY SATISFIED WITH ONLINE COURSES? EVIDENCE FROM ANADOLU UNIVERSITY

Dr. Hakan ALTINPULLUK

ORCID: 0000-0003-4701-1949
Faculty of Education
Anadolu University
Eskisehir, TURKIYE

Gokhan ALPTEKIN

ORCID: 0000-0001-9374-5471
Department of Open and Distance Learning
Anadolu University Institute of Graduate Education
Eskisehir, TURKIYE

Dr. Yusuf YILDIRIM

ORCID: 0000-0003-4475-4923
Sehit Mutlu Yildirim Secondary School
Eskisehir, TURKIYE

Dr. Saime ONCE

ORCID: 0000-0001-9828-1872
Faculty of Economics and Administrative Sciences
Anadolu University
Eskisehir, TURKIYE

Received: 05/03/2025 **Accepted:** 02/05/2025

ABSTRACT

Although Anadolu University is known for having one of the world's most prestigious and largest-scale Open Education Faculties, it also offers distance learning-based non-thesis master's programs within its graduate education framework. The aim of this study is to explore the satisfaction of learners enrolled in distance education non-thesis master's degree programs at Anadolu University regarding online courses delivered over the internet. This research was carried out using a cross-sectional survey model. 488 learners voluntarily participated in the study. The data obtained to determine the satisfaction of the learners towards online courses were collected using the 'Satisfaction Scale for E-Courses'. As a result of the study, it was found that learners' satisfaction with online courses differed significantly according to age, occupational status and monthly income level variables. Learners in the older age group were more satisfied with online courses than those in the young and young middle age group. Regarding occupational status, learners working in the public sector were more satisfied with the materials and communication tools used in online courses compared to non-employed learners. In addition, learners with high monthly income were found to be more satisfied with online courses compared to learners with low monthly income. By focusing on the satisfaction of online non-thesis master's students in Anadolu University's large-scale open and distance education system, this research provides innovation and contribution to the limited number of studies on online master's education in Turkiye with original and up-to-date findings.

Keywords: Online courses, graduate learners, satisfaction levels, distance learning, non-thesis distance education programs.

INTRODUCTION

Significant advancements have been witnessed in the domain of education, as well as in numerous other disciplines, due to the integration of computer technologies and mobile networks into our daily lives. While certain countries have been at the forefront of effecting these changes, others have sought to adapt to the new world order by implementing innovative policies in the field of education. In light of contemporary living conditions, there is an increasing demand for qualified and skilled individuals. This predicament has led to a notable shortfall in the capacity of conventional educational institutions to produce adequately qualified individuals. Concurrently, there has been a substantial surge in the number of individuals opting to pursue their education at a time and place of their choosing. Open and distance learning can be conceptualised as systems that facilitate individuals' access to information and also increase the permanence of knowledge. These systems, which provide education services with programmes at associate and undergraduate completion levels, have undergone significant development in recent years, with newly opened programmes in the field of graduate education. Anadolu University Graduate School of Social Sciences Distance Education Non-Thesis Master's Programmes are the preferred option for individuals who adopt lifelong learning as a principle. The investigation of students' opinions regarding their academic programmes is of paramount importance in the pursuit of enhancing the quality of service. In order to achieve this objective, it is necessary to study the level of satisfaction of learners in these programmes with the educational services they are currently receiving.

It is seen that some researches have been conducted on graduate programmes delivered through distance education. In this respect, studies have been done to determine the effectiveness (Bahar & Cankul, 2021), quality (Bahar & Cankul, 2021) and online learning success (Kolburan-Gecer & Deveci-Topal, 2015; Merisotis & Phipps, 1999) of the courses conducted in graduate distance education programmes. It was observed that learners studying in Distance Education Master's Degree without Thesis programmes were examined on issues such as their views on distance education systems, follow-up status, views on the course curriculum, reasons for leaving the programme, learning styles, reasons for choosing the programme, mobile internet usage, technology acceptance status, perceptions of procedural distance, attitudes towards graduate education and professions, perceptions towards their professors, post-graduation views, and adaptation processes related to the programmes (Arslan, 2018; Baglibel & Arslan, 2014; Balci & Tengilimoglu, 2016; Bayar, 2022; Berigel & Karal, 2011; Bolat, Aydemir, & Karaman, 2017; Demirkan, Bayra, & Baysan, 2016; Gul & Arabaci, 2018; Kara, 2014; Ocak & Demirdelen, 2008; Tutkun, Erdogan, & Demirtas, 2014; Usta, 2019a, 2019b; Uzun, 2019).

One of the most studied subjects in research is student satisfaction. The conceptual framework of the current research is student satisfaction towards online courses. When the studies on the satisfaction levels of students studying in distance education non-thesis master's programmes were examined in the literature, Begimbetova (2015) carried out a study examining the satisfaction levels of non-thesis master's students studying in postgraduate distance education programmes regarding distance education. In the study by Begimbetova (2015), it was aimed to explore the satisfaction levels of learners who received their associate, undergraduate and graduate education through distance education at Ahmet Yesevi University and Gazi University. As a result of the research, it was concluded that the learners found the course content sufficient. In another study, Bahar and Cankul (2021) tried to determine the satisfaction perceptions of students receiving distance tourism guidance education and concluded that distance education is the most appropriate mode of education due to work intensity, but it cannot be an alternative to traditional tourism education. Debbag, Fidan, and Cukurbasi (2018) investigated the opinions of distance education non-thesis master's degree students at Bartin University regarding the programs they study.

Waheed and Leisyte examined the impact of gender and interaction on the quality assessment of digital learning systems, with a particular focus on student satisfaction. The present study, which was conducted on students enrolled in online master's programmes at the University of Germany and the University of Sweden, sought to examine differences in students' satisfaction with the quality attributes of digital learning systems, both in terms of gender and interaction between students and between students and instructors. In a further study in the literature, Bezliudna, Shcherban, Kolomiyets, Mykolaiko and Bezliudnyi (2021) attempted to determine the perceptions of graduate students learning English in Ukraine towards blended learning during the COVID-19 pandemic and found that students had positive attitudes towards blended learning practices. Galindo, Gregori and Martinez (2020) also examined the use of video in the development of verbal presentation skills of graduate students studying via distance education. Khoynaroud, Akbarzadeh, Ghojazadeh and Ghaffarifar (2020) sought to assess the impact of an educational wiki application on students' achievement and satisfaction in a flipped classroom.

Learner satisfaction with an online course can be defined as the satisfaction that learners experience as a result of their interactions with the instructor, other learners and the content, and the perception or value they feel towards the online course when their expectations and needs are satisfied through the learning experience (Demir Ozturk & Eren, 2021; Kolburan-Gecer & Deveci-Topal, 2015; Sural, 2012; Yilmaz, 2020).

There are various factors affecting learners' satisfaction levels towards online courses. The findings obtained in the literature on various factors affecting learners' satisfaction levels towards online courses are shown in Table 1.

Table 1. Factors affecting learners' satisfaction levels towards online courses

Cited Reference	Factors
Demir Ozturk and Eren (2021)	online course interface, online course content, course design, e-materials, communication tools, instructor, teaching process, interaction, evaluation and technical support
Kolburan-Gecer and Deveci-Topal (2015)	materials and communication tools used in online course, instructor-learner interaction, environment design, learner's attitude towards e-learning, course content and teaching process
Chua and Montalbo (2014)	online course interface, learning community, online course content and usability
Kantoglu, Torkul and Altunisik (2013)	student interest-attitude, quality of course materials, traceability of personal development, problems in accessing the system, ease of use, usefulness and currency of materials and quality of support services
Gulbahar (2012)	interaction, evaluation, communication, usefulness, teaching process and teaching content
Ilgaz (2008)	learner-learner interaction, learner-instructor interaction, technical support, printed materials, face-to-face activities and online courses
Chaney et al. (2007)	learner-teacher interaction, instructor feedback, assessment, analysis of learners, institutional support, resources, course guide, individual differences, course content development, academic support, e-materials and communication tools
Tallent-Runnels et al. (2006)	technological issues, curriculum, course design, student services, financial support, feedback, learner-instructor interaction, learner-learner interaction, learning outcomes, learning resources and assessment

This study examines the satisfaction levels of distance learners towards online courses within the scope of the sub-dimensions of materials used in the online course, communication tools, teacher-student interaction, environment design, learner's attitude towards the online course, course content and teaching process specified by Kolburan-Gecer and Deveci-Topal (2015). In this respect, it is considered that this research will contribute to the literature. It is also expected that this study will provide important insights into the current situation regarding satisfaction with online graduate education services, thereby facilitating improvements in course quality and related support services. Understanding student satisfaction enables institutions to identify strengths and weaknesses in their existing online learning methodologies and technological infrastructure. It can also lead to targeted improvements in many dimensions of distance learning environments. This research is of significant importance in terms of revealing the satisfaction levels of graduate students studying through distance education at Anadolu University. In addition, it provides data for decision-making processes, as well as developing a learner-centric approach and improving the quality of existing online education applications.

PURPOSE OF THE STUDY

The rapid advancement of technology and infrastructures has had a significant impact on both education and social life. Concomitantly, the significance of open and distance learning is increasing in line with this effect. Individuals subscribing to the notion of lifelong learning can readily access the education they desire in the domain of postgraduate education. A review of the extant literature reveals a clear preference for distance education non-thesis master's programmes in the context of professional development and promotion. It is evident that the number of studies conducted on this population is more limited than the number of students enrolled in formal education, given that the number of students enrolled in these programmes is less than the number of students enrolled in formal education. It is therefore considered important to ascertain the satisfaction of this group with the online education services they have received. The aim of this study is to determine the satisfaction levels of distance learners studying in Anadolu University Graduate School of Social Sciences Non-Thesis Master's Programmes.

In line with this purpose, answers to the following research questions were sought in the study:

- Do the satisfaction levels of distance education learners regarding online courses differ according to the variables of gender, age, occupational status, monthly income level, communication tools they use, technology usage competence and average daily usage time of technological devices?
- Do the satisfaction levels of distance education learners regarding the materials and communication tools used in online courses differ according to gender variable?
- Do the satisfaction levels of distance learners regarding instructor-learner interaction in online courses differ according to the occupational status variable?
- Do the satisfaction levels of distance education learners regarding online course content and teaching processes differ according to the technology usage competence variable?

METHOD

Research Model

This research is survey model research conducted to determine the satisfaction levels of the students studying in Anadolu University Graduate School of Social Sciences distance education master's degree programmes regarding online courses. In survey research, the cross-sectional survey model is preferred to collect data on current opinions, attitudes and ideas, while longitudinal survey model is preferred to examine whether opinions, attitudes and ideas change over time (Creswell, 2012). Cross-sectional survey model, one of the survey models, was used in the study. The cross-sectional survey model is a model in which data are obtained by measuring the variables in the research at a single period of time (Fraenkel, Wallen & Hyun, 2012). In studies where the cross-sectional survey model is preferred, data are collected in a certain time period and divided into different groups (on the basis of demographic information such as female, male groups and age groups, for instance) in order to make comparisons between participants (Creswell, 2012). Fraenkel, Wallen and Hyun (2012) also state that the participants in this model consist of individuals with different characteristics. The reason why the cross-sectional survey model was preferred in the study is to measure and evaluate the satisfaction levels of learners enrolled in graduate programmes towards online courses at one time.

Population and Sample

The population of this study consists of students enrolled in Anadolu University Graduate School of Social Sciences graduate programmes and taking distance education courses in the spring semester of 2022-2023 academic year. Convenience sampling method was used to determine the sample in the study. Convenience sampling method is a preferred sampling method because it allows researchers to work with accessible and voluntary participants and to collect data quickly (Creswell, 2012). Within the scope of this study, the measurement tool was sent by e-mail to all students constituting the research population. The 488 students who voluntarily completed the data collection tool were included in the sample group of the study.

The demographic characteristics of the learners constituting the sample group of the study are presented in Table 2.

Table 2. Demographic Characteristics

Attribute	Variable	Frequency (N)	Percentage Value (%)
Gender	Female	241	49.4
	Male	247	50.6
Age	18-25 years	52	10.7
	26-33 years	213	43.6
	34-41 years	149	30.5
	42-49 years	53	10.9
	50 years and over	21	4.3
Occupational Status	Unemployed	112	23.0
	Public Sector	242	49.6
	Private Sector	108	22.1
	Retired	5	1.0
	Freelance	21	4.3
Monthly Income Level	Below the starvation line	97	19.9
	Between starvation and poverty line	89	18.2
	Above the poverty line	302	61.9
Communication Tool Used	Smartphone	105	21.5
	Desktop PC	52	10.7
	Laptop PC	317	65.0
	Tablet PC	14	2.9
Technology Use Competency	Basic Level	22	4.5
	Intermediate Level	227	46.5
	Advanced Level	239	49.0
Average Daily Usage Time of Technological Devices	Less than 1 hour	42	8.6
	Between 1-3 hours	121	24.8
	Between 4-6 hours	147	30.1
	7 and more hours	178	36.5

Data Collection Tools

In this study, the 'Satisfaction Scale for E-Lessons' developed by Kolburan- Gencer and Deveci-Topal (2015) was utilised as a data collection instrument. The research data comprised responses to online questionnaires prepared using Google Forms between 20 March and 10 June 2023. The electronic survey instrument was administered to learners enrolled in Anadolu University Graduate School of Social Sciences' graduate programmes and undertaking distance education courses. The data were collected on a voluntary basis. Participants were required to sign a consent form to indicate their consent to participate in the study. Participants who voluntarily consented to participate in the study and provided their signature on the consent form were subsequently granted access to the personal information form and scale items. Prior to the commencement of the students' completion of the questionnaire items, they were furnished with the requisite information to ensure the reliability of their responses. It was communicated to the learners that they were at liberty to examine the collected data at any time.

Personal Information Form

The personal information form is a document designed to examine the demographic characteristics of the participants in this study. These characteristics include gender, age, occupational status, income level, communication tools used to participate in the online course, technology use competence, and average daily use of technology devices.

Satisfaction Scale For E-Courses

This scale used in the study was developed by Kolburan-Gecer and Deveci-Topal (2015). This scale, which consists of 35 items and 5 sub-dimensions in total, is 5-point Likert type. The whole scale measures learners' satisfaction levels towards online courses. Items 1, 2, 3, 4, 5, 6, 7 and 8 of the scale were defined as materials and communication tools used; items 9, 10, 11, 12 as teacher-student interaction; items 13, 14, 15, 16, 17, 18, 19, 20 as environment design; items 21, 22, 23, 24, 25, 26 as attitude towards e-courses; items 27, 28, 29, 30, 31, 32, 33, 34 and 35 as course content and teaching processes. Cronbach's Alpha value for the whole scale is α=0.96. The Cronbach Alpha internal reliability coefficients of the sub-dimensions of the scale are above 0.70 (Kolburan-Gecer & Deveci-Topal, 2015).

Confirmatory Factor Analysis (CFA) was applied to determine the goodness of fit values of this scale used in the data collection process of the research. As a result of the analysis performed using IBM AMOS 21.0 package programme, $\chi2/sd$= 1.577 was calculated. This value being in the range of $1 \leq \chi2/sd \leq 2$ indicates an acceptable fit index (Kline, 2011). In this respect, it is seen that this value obtained has an acceptable fit. Another goodness of fit value, Root Mean Square Error of Approximation (RMSEA), was calculated as RMSEA= 0.057 in this study. According to Browne and Cudek (1993), it is considered an acceptable criterion for this value to be in the range of $0.05 \leq \text{RMSEA} \leq 0.08$. Therefore, the RMSEA value obtained in the study was determined to be at an acceptable level. CFI, another goodness of fit value, was determined as 0.95. According to Kline (2011), this value is preferred to be in the range of $0.95 \leq \text{CFI} \leq 1.00$. In this regard, the CFI value obtained was found to have an excellent fit criterion. Another goodness of fit value examined as a result of CFA is the TLI value. Accordingly, the TLI value of this study was calculated as 0.95. Hu and Bentler (1999) stated that this value indicates a good fit. As a result of CFA, the Adjusted Goodness of Fit (AGFI) value was calculated as 0.95. According to Schermelleh-Engel, Moosbrugger and Muller (2003), this value being in the range of $0.90 \leq \text{AGFI} \leq 1.00$ indicates perfect fit. The incremental fit index (IFI), another goodness of fit value, was calculated as IFI= 0.96. Since this value being higher than 0.90 is an indicator of an acceptable fit, it can be said that the determined value has a perfect fit value (Bollen, 1989). In addition, Cronbach's Alpha values were analysed to determine the reliability of the scale used in the study. As a result of the examination, it was determined that the Cronbach's Alpha value calculated for the whole scale was α=0.95. Cronbach's Alpha values of all sub-dimensions of the scale were found to be greater than 0.70. These values indicate that the scale used in this study is reliable.

Data Analysis

In the data collection process of the study, the principle of volunteerism and the rules of scientific publication ethics were complied with. All data obtained as a result of the data collection process were first entered into the Microsoft Office Excel programme and arranged for the study in the IBM SPSS 26.0 package programme. The data were saved in the SPSS programme and coded according to the participants' responses to the items of the personal information form and the satisfaction scale for online courses. Before starting the analysis of the data, normality test was performed to select the test techniques to be used in the analysis process. Within the scope of normality test, kurtosis and skewness values and histogram graphs of the data were analysed respectively. As a result of the process, it was determined that the kurtosis and skewness values of the collected data were between -1.5 and +1.5 and the histogram graphs showed a normal distribution (Tabachnick & Fidell, 2013). Since the research data showed normal distribution, measurement techniques such as frequency analysis, independent samples t-test, and one-way analysis of variance were used. Since the high number of groups in the analysis phase increases the possibility of making errors in pairwise comparisons, Bonferroni correction was made before post hoc tests to determine significant differences (Vialatte & Cichocki, 2008). In this context, the new adjusted alpha coefficients taken as criteria in the post hoc tests were calculated as 0.05/3=0.016 for three groups, 0.05/6=0.008 for four groups and 0.05/10=0.005 for five groups. The measurement techniques used in the data analysis process within the scope of the study were carried out with IBM SPSS 26.0 package programme. Confirmatory factor analysis, which was carried out in order to verify the structure of the data collection tool used in the study, was carried out in AMOS 21.0 package programme. In order to determine the effect sizes of the significant differences obtained as a result of the analyses, eta squared ($\eta2$) and Cohen's d values were calculated (Cohen, 1988a; Cohen, 1988b).

Limitations of the Study

This study has some limitations. The study was limited to the students attending distance education non-thesis master's degree programs at Anadolu University; therefore, the generalizability of the present findings to students from other institutions or educational backgrounds is constrained. The study was conducted using a cross-sectional survey design during the Spring semester of the 2022–2023 academic year; thus, it does not permit the observation of longitudinal changes in participants' satisfaction levels. Data were collected via "Satisfaction Scale for E-Courses". The reliance on a self-reported scale implies that the data are based on participants' personal perceptions and subjective evaluations, precluding the possibility of objective measurements or in-depth qualitative analyses. Given that participation in the study was voluntary, it should be acknowledged that the characteristics of participants may differ from those who chose not to participate, potentially limiting the representativeness of the findings. Despite the relatively large sample size, the generalizability of the study's results remains confined to the current distance education programs offered by Anadolu University. Outcomes may vary across different institutional settings, program types, and cultural contexts. In view of these limitations, it is recommended that future research be conducted by other researchers in a way that addresses these limitations.

Ethical Statement

This research was carried out in accordance with the ethics board approval of Anadolu University Social and Human Sciences Scientific Research and Publication Ethics Board and numbered 26/40. The necessary permission for the use of the scale was obtained from the corresponding authors via email.

FINDINGS

In this section of the study, the test techniques used to determine the satisfaction levels of learners towards online courses and the findings obtained as a result of these test techniques are presented. These findings, which answer the research questions, are presented and interpreted in tables.

Independent samples t-test was conducted to determine whether learners' satisfaction levels with online courses showed a significant difference according to gender variable. The findings obtained as a result of the analysis are presented in Table 3.

Table 3. Differentiation of Learners' Satisfaction Levels Regarding Online Courses According to Gender Variable

Subscale/ Scale	Variables	N	$\bar{X}$	sd	t	df	p
Materials and Communication Tools	Female	241	3.736	.7214	.688	465.216	.492
	Male	247	3.685	.9170			
Teacher-Student Interaction	Female	241	3.889	1.028	.573	.486	.567
	Male	247	3.833	1.128			
Environment Design	Female	241	3.925	.8012	.770	.486	.441
	Male	247	3.867	.8715			
Attitude Towards E-Courses	Female	241	3.373	.6716	-.351	.486	.726
	Male	247	3.396	.7494			
Course Content and Teaching Process	Female	241	3.676	.6435	.769	.486	.442
	Male	247	3.628	.7408			
Total	Female	241	3.719	.6203	.649	475.497	.517
	Male	247	3.679	.7386			

In Table 3, it is examined whether the satisfaction levels of the learners regarding online courses show a statistically significant difference according to the gender variable. According to Table 3, it is seen that there is no significant relationship between students' satisfaction levels towards online courses ($t(475.497)=0.649$, p>0.05) and gender variable. This result shows that gender is not an effective variable on students' satisfaction levels towards online courses. Across the sub-dimensions, no significant difference was found. However, it was observed that the scale scores of women were higher than men.

In Table 4, one-way analysis of variance was applied to find out whether there is a significant difference between the learners' satisfaction levels towards online courses and the age variable.

Table 4. Differentiation of Learners' Satisfaction Levels Regarding Online Courses According to Age Variable

Subscale/ Scale	Variables	N	$\dot{X}$	sd	df	F	p	Difference
Materials and Communication Tools	18-25 years	52	3.507	.9032	4	5.461	**.000***	50 years and over > 18-25 years, 50 years and over > 26-33 years
	26-33 years	213	3.582	.8677				
	34-41 years	149	3.860	.7381				
	42-49 years	53	3.875	.7806				
	50 years and over	21	4.035	.5421				
Teacher-Student Interaction	18-25 years	52	3.687	1.180	4	2.600	.040	-
	26-33 years	213	3.828	1.092				
	34-41 years	149	3.936	1.067				
	42-49 years	53	3.773	1.059				
	50 years and over	21	4.297	.6829				
Environment Design	18-25 years	52	3.735	.9224	4	3.829	.006	-
	26-33 years	213	3.820	.9009				
	34-41 years	149	3.958	.7741				
	42-49 years	53	4.051	.7089				
	50 years and over	21	4.226	.4670				
Attitude Towards E-Courses	18-25 years	52	3.112	.6431	4	4.677	**.002***	50 years and over > 18-25 years, 50 years and over > 26-33 years
	26-33 years	213	3.337	.7737				
	34-41 years	149	3.474	.6699				
	42-49 years	53	3.509	.6290				
	50 years and over	21	3.595	.4581				
Course Content and Teaching Process	18-25 years	52	3.611	.7434	4	3.749	.007	-
	26-33 years	213	3.605	.7623				
	34-41 years	149	3.680	.6482				
	42-49 years	53	3.677	.5535				
	50 years and over	21	3.957	.3539				
Total	18-25 years	52	3.539	.7356	4	5.787	**.000***	50 years and over > 18-25 years, 50 years and over > 26-33 years
	26-33 years	213	3.628	.7267				
	34-41 years	149	3.779	.6426				
	42-49 years	53	3.790	.5876				
	50 years and over	21	4.013	.3372				

*p<0.005

When Table 4 is examined, it is seen that the age variable is effective on the satisfaction levels of the learners towards online courses and there is a significant difference between them (F(2,4)=[5.787], p<0.005). A similar differentiation was found in the sub-dimensions of materials and communication tools used and attitude towards e-courses. Firstly, Levene's test was performed to determine between which groups there were significant differences. When the results of Levene's test were reviewed, it was determined that the assumption of homogeneous distribution of variances was not satisfied. In the next step, Welch test and Games-Howell test, which is one of the post hoc tests used in cases where the homogeneity assumption is not satisfied, were applied. As a result of the tests, it was found that the satisfaction levels of learners aged 50 years and over ($\bar{X}$=4.013, sd=.3372) were higher than those of learners aged 18-25 years ($\bar{X}$=3.539, sd=.7356) and 26-33 years ($\bar{X}$=3.628, sd=.7267). This significant difference was found to have a small effect size ($\eta2$=0.025). Another significant differentiation was found in the sub-dimension of materials and communication tools used. Accordingly, the satisfaction levels of learners aged 50 and over ($\bar{X}$=4.035, sd=.5421) with the materials and communication tools used in online courses are higher than those of learners aged 18-25 ($\bar{X}$=3.507, sd=.9032) and 26-33 ($\bar{X}$=3.582, sd=.8677). This significant differentiation was found to have a small effect ($\eta2$=0.038). Another differentiation was found in the attitude towards e-courses sub-dimension. Accordingly, the attitudes of learners aged 50 and over towards e-courses ($\bar{X}$=3.595, sd=.4581) are higher than those of learners aged 18-25 ($\bar{X}$=3.112, sd=.6431) and 26-33 ($\bar{X}$=3.337, sd=.7437). This significant difference was found to have a small effect size ($\eta2$=0.029). The findings indicate that learners in the older age group are more satisfied with online courses compared to learners in the younger and young middle age group.

It is aimed to determine whether there is a significant difference between the satisfaction levels of learners regarding online courses and the occupational status variable. For this purpose, one-way analysis of variance was performed and the findings are presented in Table 5.

Table 5. Differentiation of Learners' Satisfaction Levels Regarding Online Courses According to Occupational Status Variable

Subscale/ Scale	Variables	N	$\bar{X}$	sd	df	F	p	Difference
Materials and Communication Tools	Unemployed	112	3.464	.9140	4	4.811	**.004***	Public Sector> Unemployed, Retired > Unemployed
	Public Sector	242	3.849	.7329				
	Private Sector	108	3.671	.8928				
	Retired	5	4.000	.3186				
	Freelance	21	3.559	.7650				
Teacher-Student Interaction	Unemployed	112	3.647	1.251	4	2.833	.044	-
	Public Sector	242	3.934	.9844				
	Private Sector	108	3.858	1.096				
	Retired	5	4.700	.6708				
	Freelance	21	3.952	.9893				
Environment Design	Unemployed	112	3.693	.9270	4	2.923	.039	-
	Public Sector	242	3.988	.7481				
	Private Sector	108	3.854	.9303				
	Retired	5	4.200	.4011				
	Freelance	21	4.065	.7044				
Attitude Towards E-Courses	Unemployed	112	3.052	.7814	4	8.336	**.000***	Public Sector> Unemployed, Retired > Unemployed
	Public Sector	242	3.528	.6337				
	Private Sector	108	3.435	.7442				
	Retired	5	3.466	.2173				
	Freelance	21	3.230	.4639				
Course Content and Teaching Process	Unemployed	112	3.513	.7865	4	3.209	.028	-
	Public Sector	242	3.724	.6031				
	Private Sector	108	3.635	.7761				
	Retired	5	4.111	.3928				
	Freelance	21	3.529	.6515				
Total	Unemployed	112	3.479	.7643	4	5.981	**.001***	Public Sector> Unemployed, Retired > Unemployed
	Public Sector	242	3.803	.5957				
	Private Sector	108	3.684	.7503				
	Retired	5	4.062	.2427				
	Freelance	21	3.655	.5979				

*p<0.005

When Table 5 is examined, it is seen that there is a statistically significant difference between the learners' satisfaction levels with online courses and the occupational status variable ($F(2,4)=[5.981]$, $p<0.005$). A similar difference was observed in the sub-dimensions of materials and communication tools and attitude towards e-courses. In order to determine the source of significant differences, Levene's test was applied in the first stage. As a result of the test, it was seen that the variances were not homogeneously distributed and then Welch test and Games Howell post hoc test were performed. Accordingly, it was observed that the satisfaction levels of learners who were retired ($\bar{X}$=4.062, sd=.2427) and public employees ($\bar{X}$=3.803, sd=.5957) were higher than those of learners who were not employed. This significant difference was found to have a small effect ($\eta2$=0.038). Another significant difference detected as a result of the ANOVA test was found in the sub-dimension of the materials and communication tools used. Accordingly, it was found that learners working in the public sector ($\bar{X}$=3.849, sd=.7329) were more satisfied with the materials and communication tools used in online courses than non-employed learners ($\bar{X}$=3.464, sd=.9140). This significant difference has a small effect size ($\eta2$=0.037). Another significant difference was revealed in the sub-dimension of attitude towards electronic courses. Accordingly, retired learners ($\bar{X}$=3.466, sd=.2173) and learners working in the public sector ($\bar{X}$=3.528, sd=.6337) have a higher attitude towards e-courses than unemployed learners. This significant difference was found to have a medium effect size ($\eta2$=0.073).

It was aimed to investigate whether the satisfaction levels of the learners regarding online courses showed a significant difference according to the monthly income level variable and one-way variance analysis was performed in this respect. The findings obtained as a result of the analysis were presented in Table 6.

Table 6. Differentiation of Learners' Satisfaction Levels Regarding Online Courses According to Monthly Income Level Variable

Subscale/ Scale	Variables	N	$\dot{x}$	sd	df	F	p	Difference
Materials and Communication Tools	Below the starvation line	97	3.458	.9243	487	6.651	.001*	Above the poverty line > Below the starvation line
	Between starvation and poverty line	89	3.671	.7632				
	Above the poverty line	302	3.803	.7944				
Teacher-Student Interaction	Below the starvation line	97	3.708	1.236	487	1.246	.289	-
	Between starvation and poverty line	89	3.868	1.054				
	Above the poverty line	302	3.907	1.031				
Environment Design	Below the starvation line	97	3.681	.9640	487	4.207	.015*	Above the poverty line > Below the starvation line
	Between starvation and poverty line	89	3.903	.7546				
	Above the poverty line	302	3.963	.8074				
Attitude Towards E-Courses	Below the starvation line	97	3.097	.7564	487	13.19	.000*	Above the poverty line > Below the starvation line
	Between starvation and poverty line	89	3.301	.7482				
	Above the poverty line	302	3.501	.6561				
Course Content and Teaching Process	Below the starvation line	97	3.526	.8064	487	1.988	.138	-
	Between starvation and poverty line	89	3.670	.6574				
	Above the poverty line	302	3.686	.6630				
Total	Below the starvation line	97	3.494	.7732	487	6.161	.002*	Above the poverty line > Below the starvation line
	Between starvation and poverty line	89	3.683	.6384				
	Above the poverty line	302	3.769	.6518				

*$p<0.016$

When the ANOVA test results presented in Table 6 were analysed, it is seen that there is a significant difference ($F(2,487)=[6.161]$, $p<0.016$) between the learners' satisfaction levels with online courses and the monthly income level variable. A similar difference was observed in some sub-dimensions of the scale. In order to determine the source of these significant differences, the Scheffe multiple comparison test, which is used when the variance is equal but the number of samples is not equal, was performed (Field, 2005). According to the results of the multiple comparison test, learners whose monthly income level was above the poverty line ($\bar{X}$=3.769, sd=.6518) were more satisfied with online courses than learners whose monthly income level was below the starvation line ($\bar{X}$=3.494, sd=.7732). This significant difference was found to have a small effect ($\eta2=0.024$). Another significant difference determined as a result of the multiple comparison test was found in the sub-dimension of the materials and communication tools used. Accordingly, learners with a monthly income above the poverty line ($\bar{X}$=3.803, sd=.7944) reported higher levels of satisfaction with the materials and communication tools used in online courses than learners with a monthly income below the starvation line ($\bar{X}$=3.458, sd=.9243). This significant difference was observed to have a small effect size ($\eta2=0.026$). Another significant difference was found in the sub-dimension of environmental design. Accordingly, learners with a monthly income above the poverty line ($\bar{X}$=3.963, sd=.8074) were more satisfied with the environment design in online courses than learners with a monthly income below the starvation line ($\bar{X}$=3.681, sd=.9640). This significant difference was found to have a small effect size ($\eta2=0.017$). Finally, a significant differentiation was observed in the sub-dimension of attitude towards e-courses. Accordingly, the attitudes towards e-courses of learners with income above the poverty line ($\bar{X}$=3.501, sd=.6561) are higher than those of learners with income below the starvation line ($\bar{X}$=3.097, sd=.7564). This significant difference was found to have a small effect size ($\eta2=0.051$).

Table 7. Differentiation of Learners' Satisfaction Levels Regarding Online Courses According to the Variable of Communication Tool Used

Subscale/ Scale	Variables	N	$\bar{X}$	sd	df	F	p	Difference
Materials and Communication Tools	Smartphone	105	3.602	.9860	487	1.522	.208	-
	Desktop PC	52	3.632	.7675				
	Laptop PC	317	3.767	.7708				
	Tablet PC	14	3.517	.8796				
Teacher-Student Interaction	Smartphone	105	3.683	1.164	487	2.162	.092	-
	Desktop PC	52	3.740	.9483				
	Laptop PC	317	3.950	1.071				
	Tablet PC	14	3.607	.8971				
Environment Design	Smartphone	105	3.732	1.032	487	2.069	.104	-
	Desktop PC	52	3.901	.5906				
	Laptop PC	317	3.956	.7999				
	Tablet PC	14	3.741	.6941				
Attitude Towards E-Courses	Smartphone	105	3.449	.8171	487	2.022	.110	-
	Desktop PC	52	3.250	.6751				
	Laptop PC	317	3.400	.6712				
	Tablet PC	14	3.047	.8017				
Course Content and Teaching Process	Smartphone	105	3.567	.8344	487	1.479	.219	-
	Desktop PC	52	3.602	.5019				
	Laptop PC	317	3.697	.6735				
	Tablet PC	14	3.444	.5495				
Total	Smartphone	105	3.606	.8406	487	1.912	.127	-
	Desktop PC	52	3.633	.5484				
	Laptop PC	317	3.750	.6408				
	Tablet PC	14	3.479	.6509				

*$p<0.008$

ANOVA test was performed to determine whether learners' satisfaction levels towards online courses showed a significant difference according to the communication tools used to participate in the courses. The findings obtained as a result of the test are presented in Table 7. When Table 7 is reviewed, it is seen that there is no statistically significant difference between students' satisfaction levels towards online courses and the communication tools they used while attending the courses ($F(2,487)=[1.912]$, $p<0.008$). A similar result was obtained when the sub-dimensions of the scale were analysed. The findings show that the communication tools that learners use while connecting to online courses do not have an effect on their online course satisfaction levels.

In Table 8, it is analysed whether there is a significant difference between the learners' satisfaction levels with online courses and the technology usage competence variable. For this purpose, one-way analysis of variance was performed and findings were obtained to respond to the research questions.

Table 8. Differentiation of Learners' Satisfaction Levels Regarding Online Courses According to the Variable of Technology Use Competence

Subscale/ Scale	Variables	N	$\dot{X}$	sd	df	F	p	Difference
Materials and Communication Tools	Basic Level	22	3.710	.7127				
	Intermediate Level	227	3.663	.7687	487	.734	.481	-
	Advanced Level	239	3.755	.8861				
Teacher-Student Interaction	Basic Level	22	3.681	1.155				
	Intermediate Level	227	3.766	1.089	487	2.328	.099	-
	Advanced Level	239	3.966	1.056				
Environment Design	Basic Level	22	3.914	.7241				
	Intermediate Level	227	3.822	.8007	487	1.679	.188	-
	Advanced Level	239	3.964	.8771				
Attitude Towards E-Courses	Basic Level	22	3.469	.7878				
	Intermediate Level	227	3.345	.7031	487	.724	.485	-
	Advanced Level	239	3.414	.7130				
Course Content and Teaching Process	Basic Level	22	3.580	.7923				
	Intermediate Level	227	3.597	.6668	487	1.647	.194	-
	Advanced Level	239	3.709	.7084				
Total	Basic Level	22	3.679	.7321				
	Intermediate Level	227	3.640	.6517	487	1.735	.177	-
	Advanced Level	239	3.757	.7038				

*p<0.016

According to Table 8, which examines whether the learners' satisfaction levels with online courses differ according to the technology use competence variable, it was found that there was no significant difference between the learners' satisfaction levels with online courses and the technology use competence variable ($F(2,487)=[1.735]$, $p<0.016$). The same result was found to be valid for all sub-dimensions of the scale. Since there was no significant difference as a result of the analysis, the effect size was not calculated. In the light of the findings shown in Table 8, it was revealed that students' basic, intermediate or advanced level of technology use had no effect on their satisfaction levels towards online courses.

In Table 9, it is aimed to examine whether the satisfaction levels of learners regarding online courses differ according to the average daily usage time of technological devices. For this purpose, ANOVA test was performed.

Table 9. Differentiation of Learners' Satisfaction Levels Regarding Online Courses According to the Average Daily Duration of Use of Technological Devices

Subscale/ Scale	Variables	N	$\dot{X}$	sd	df	F	p	Difference
Materials and Communication Tools	Less than 1 hour	42	3.812	.7848	487	1.870	.134	-
	Between 1-3 hours	121	3.750	.8340				
	Between 4-6 hours	147	3.578	.8046				
	7 and more hours	178	3.769	.8405				
Teacher-Student Interaction	Less than 1 hour	42	3.845	1.139	487	1.063	.364	-
	Between 1-3 hours	121	3.774	1.083				
	Between 4-6 hours	147	3.799	1.095				
	7 and more hours	178	3.973	1.048				
Environment Design	Less than 1 hour	42	3.833	.9204	487	.520	.668	-
	Between 1-3 hours	121	3.922	.8155				
	Between 4-6 hours	147	3.838	.8234				
	7 and more hours	178	3.941	.8461				
Attitude Towards E-Courses	Less than 1 hour	42	3.396	.6364	487	3.731	.011	-
	Between 1-3 hours	121	3.388	.7003				
	Between 4-6 hours	147	3.238	.6891				
	7 and more hours	178	3.500	.7369				
Course Content and Teaching Process	Less than 1 hour	42	3.648	.7262	487	1.853	.137	-
	Between 1-3 hours	121	3.621	.6256				
	Between 4-6 hours	147	3.566	.6644				
	7 and more hours	178	3.743	.7477				
Total	Less than 1 hour	42	3.707	.6646	487	1.825	.142	-
	Between 1-3 hours	121	3.697	.6749				
	Between 4-6 hours	147	3.601	.6524				
	7 and more hours	178	3.779	.7103				

*p<0.008

When the ANOVA test results presented in Table 9 are analysed, no statistically significant differentiation ($F(2,487)=[1.825]$, $p<0.008$) was found between the learners' satisfaction levels with online courses and the average daily usage time of technological devices. A similar finding was also observed in the sub-dimensions of the scale. Since no significant differentiation was found as a result of the analysis, eta square ($\eta 2$) values were not calculated.

CONCLUSION AND DISCUSSION

Anadolu University is a mega university with more than 1 million students offering undergraduate and associate degree education through the Open Education Faculty. This research focuses on online graduate students, which is a very unknown feature of Anadolu University, and presents an innovation. Focusing on the satisfaction of distance non-thesis master's students, this research contributes to the limited number of studies on online master's education in Turkiye with innovative findings.

In this study, the satisfaction levels of students enrolled in Anadolu University Graduate School of Social Sciences graduate programmes in the spring semester of the 2022-2023 academic year and receiving education through distance education regarding online courses were examined. As a result of the research, a set of findings were obtained about the satisfaction levels of learners towards online courses.

Within the scope of this study, it was questioned whether the satisfaction levels of the learners regarding online courses showed a significant difference according to the gender variable. When the findings obtained were analysed, it was seen that gender was not an effective variable on learners' satisfaction levels with online courses. This result was also valid for the sub-dimensions of the scale. The findings demonstrated that students had a common online course satisfaction regardless of whether they were male or female. The finding that the satisfaction levels of the learners obtained as a result of the research do not reveal a significant difference according to the gender variable is similar to the research findings obtained in the studies by Malkawi, Bawaneh and Bawa'aneh (2021), Yilmaz (2020), Chua and Montalbo (2014), and Cole, Shelley and Swartz (2014). In the studies by Malkawi, Bawaneh and Bawa'aneh (2021) and Cole, Shelley and Swartz (2014), it was found that learners' online learning satisfaction levels did not differ significantly according to the gender variable. Similarly, Chua and Montalbo (2014) reported that graduate learners' satisfaction levels with the Moodle learning management system did not differ significantly according to the gender variable. On the other hand, Yilmaz (2020), as a result of the research he conducted to examine the satisfaction levels of undergraduate learners towards Google Classroom, which they used as a learning management system in distance education applications during the pandemic period, reported that there was no significant difference between the satisfaction levels of the learners and the gender variable. When the literature is reviewed, it is seen that there are also studies reporting that learners' satisfaction levels towards online courses differ significantly according to the gender variable. Accordingly, the finding that the satisfaction levels of the learners obtained within the scope of the study do not differ significantly according to the gender variable differs from the study findings obtained in the studies by Demir **Ozturk** and Eren (2021), Basith et al. (2020), Korkmaz, **Cakir** and Tan (2015) and Begimbetova (2015). In the studies by Demir **Ozturk** and Eren (2021), Basith et al. (2020) and Korkmaz, **Cakir** and Tan (2015), it was reported that learners' satisfaction levels towards online courses differed significantly according to the gender variable. Begimbetova (2015) found that female learners studying in distance education programmes at Gazi University and Ahmet Yesevi University had higher satisfaction levels with distance education than male learners.

In the study, it was questioned whether there was a significant difference between the learners' satisfaction levels with online courses and the age variable. As a result of the analysis, it was seen that the age variable was effective on the satisfaction levels of learners towards online courses and there was a statistically significant differentiation between them. Accordingly, it was found that the satisfaction levels of learners aged 50 and over towards online courses were higher than those of learners aged 18-33. This significant difference was found to have a small effect size. A similar difference was observed in some sub-dimensions of the scale. Accordingly, it was determined that the satisfaction levels of learners aged 50 and over regarding the materials and communication tools used in online courses and their attitudes towards online courses were higher than those in the 18-33 age group. This significant difference was observed to have a small effect size. The reason for the higher online course satisfaction of older learners compared to the younger and the young middle-aged learners may be that the courses are held in a virtual environment and older learners can participate in these courses more easily.

The finding that learners' satisfaction levels with online courses differ according to the age variable differs from the findings obtained in the studies by Begimbetova (2015) and Cole, Shelley and Swartz (2014). Accordingly, both studies reported that age was not an effective variable on learners' satisfaction levels towards online courses. On the other hand, there are also studies indicating that age is an effective variable on learners' satisfaction levels towards online courses and that there is a significant differentiation between them. Demir Ozturk and Eren (2021) reported that the satisfaction levels of undergraduate learners regarding the online learning environment differed significantly according to the age variable. Accordingly, it was determined that the satisfaction levels of learners aged 22 and above towards online learning environments were higher than those of learners aged 22 and below. Yildirim and Kokkaya (2021) found a significant positive relationship between graduate students' satisfaction levels towards distance education and their age in the process of COVID-19 pandemic. In their study, Korkmaz, Cakir and Tan (2015) stated that the satisfaction levels of the learners towards the online course differed according to the age variable and that the satisfaction levels of learners aged 30 and above were higher. Chua and Montalbo (2014) also reported that the satisfaction levels of graduate students with the MOODLE learning management system differed according to the age variable and that the satisfaction levels of students aged 28 and above were higher. In another study by Eygu and Karaman (2013), it was found that distance education students' satisfaction perceptions towards distance education differed according to age variable and there was a positive relationship between the personal suitability, the learning and the programme evaluation sub-factors and the age variable.

Another question that the research sought to answer is whether the satisfaction levels of learners towards online courses differ homogeneously according to the occupational status variable. Accordingly, it was detected that the occupational status of the learners showed a significant difference on their satisfaction levels with online courses. This significant difference was also valid for some sub-dimensions of the scale. Accordingly, the satisfaction level of learners who are retired or working in the public sector is higher than that of learners who are not working in any profession. This significant difference was found to have a small effect. Another significant difference was observed in the sub-dimension of materials and communication tools used. Accordingly, the satisfaction levels of learners who are retired or public sector employees towards the materials and communication tools used in online courses are higher than those of learners who are not employed in any profession. This significant difference was determined to have a small effect size. Another significant difference was seen in the sub-dimension of attitude towards online courses. Accordingly, it was found that the attitudes and satisfaction levels of learners who are retired or public sector employees towards online courses are higher than learners who are not employed in any profession. This significant difference was determined to have a medium effect size.

The finding that the occupational status of the learners obtained within the scope of the research demonstrated a significant difference on their satisfaction levels regarding online courses is similar to the research finding obtained in the study by Yildirim and Kokkaya (2021). Yildirim and Kokkaya (2021) found a significant positive relationship between graduate students' satisfaction levels towards distance education and their occupational status during the COVID-19 pandemic. In this study by Yildirim and Kokkaya (2021), it was found that the satisfaction levels of graduate students working full-time were higher than those of students working part-time or not working at all.

In the study, it was questioned whether the monthly income level variable is an effective variable on learners' satisfaction levels with online courses. As a result of the investigation, it was determined that the satisfaction levels of the learners showed a significant difference according to the monthly income level variable. Accordingly, it has been demonstrated that learners with a monthly income level above the poverty line exhibit a higher level of satisfaction with online courses than those with a monthly income level below the starvation line. This significant difference was determined to have a small effect. A similar difference was found in the sub-dimensions of materials and communication tools used, environment design and attitude towards online courses. In this context, learners with a monthly income level above the poverty line have higher levels of satisfaction with the materials and communication tools used in the courses, media design and attitudes towards these courses than learners with a monthly income level below the starvation line. It was determined that the eta square ($\eta 2$) value of these significant differences detected in the sub-dimensions was between 0.017-0.051 and hence had a small effect size. In the literature, there is no research examining the differences between learners' satisfaction levels towards online courses and their monthly income levels. Hence, this research findings might contribute to the existing literature.

It was questioned whether there was a significant difference between learners' satisfaction levels regarding online courses and the communication tools used during course participation. As a result of the research, it was determined that the communication tools that learners prefer to use while taking online courses do not have a significant effect on their satisfaction levels towards online courses. Contrary to the findings that there was no significant difference between learners' satisfaction levels with online courses and the communication tools used during online course participation, two studies were found that stated the communication tools used during online course participation were effective on learners' satisfaction levels with online courses. Demir Ozturk and Eren (2021) found that the satisfaction levels of learners who used discussion forums and multiple communication channels as communication tools in participating in online courses were higher than learners who used social media (WhatsApp, etc.) and email as communication tools. Deveci-Topal (2016) found that learners' satisfaction levels towards online courses increased when they used communication tools such as simultaneous live lectures, forums, chats, e-mails. In their study, Lord and Lomicka (2008) found that online chat rooms with live chat had a higher effect on learner satisfaction than discussion boards or discussion forums and increased learners' satisfaction levels more.

In the study, ANOVA test was performed to determine whether learners' satisfaction levels towards online courses showed a significant difference according to the technology usage competence variable. When the ANOVA test results were reviewed, it was determined that the satisfaction levels of the learners regarding online courses did not show a significant difference according to the technology usage competence variable. Based on the findings, it can be said that online courses in Anadolu University Graduate School of Social

Sciences Graduate Programmes appeal to all types of learners without requiring advanced technology usage competencies. The finding that the satisfaction levels of the learners obtained as a result of the research do not differ significantly according to the technology usage competence variable is similar to the research findings obtained in the study carried out by Eygu and Karaman (2013). Eygu and Karaman (2013) found in their study that the computer usage levels of the learners receiving education through distance education did not have a significant effect on their satisfaction perceptions towards distance education and that there was no significant differentiation between them.

Lastly, it was examined whether there was a significant difference between learners' satisfaction levels with online courses and the average daily usage time of technological devices. As a result of the investigation, it was determined that there was no significant difference between the learners' satisfaction levels regarding online courses and the average daily usage time of technological devices. The finding that there is no significant difference between learners' satisfaction levels regarding online courses and the average daily usage time of technological devices differs from the research findings obtained in the studies by Demir Ozturk and Eren (2021), Eygu and Karaman (2013) and Kantoglu, Torkul and Altunisik (2013). In their study, Demir Ozturk and Eren (2021) found that student satisfaction increased as the time of participation in online courses increased. On the other hand, Eygu and Karaman (2013) found that there is a significant positive relationship between distance education learners' perceptions of technology adoption and evaluation, which affect their satisfaction perceptions towards distance education, and students' daily computer usage time. Kantoglu, Torkul and Altunisik (2013) determined in their study that the access problems experienced by students while attending online courses negatively affected their satisfaction levels towards online courses. Thus, it can be said that access problems that reduce the average daily usage time of students taking online courses, or even cause them not to use them at all, reduce their satisfaction levels with online courses.

Recommendations

In consideration of the limitations of the study, some suggestions were made for researchers who want to perform a similar study in the future. This study can be carried out by using a different satisfaction scale or by collecting student opinions with qualitative research methods. In addition, by supporting student analytics and big data in learning management systems, data on satisfaction levels can be analysed in more detail. As a result of the higher online course satisfaction of older learners compared to young and middle-aged learners, it can be suggested to provide online learning activities that will increase the satisfaction of young and middle-aged learners. In this study, it was also revealed that the satisfaction levels of learners with high income levels were higher than those with low-income levels. Low-income students can be provided with open access, free, sustainable and effective online learning environments. In addition, various scholarship opportunities and project supports can be created for these students. It is also recommended to develop low-cost learning environments.

Authors' Note: This study was supported by Anadolu University Scientific Research Project numbered 2301E005. The summary of this research was presented as an oral paper at the "7th International Conference on Teaching, Learning and Education" held in Copenhagen.

BIODATA AND CONTACT ADDRESSES OF AUTHORS

Dr. Hakan ALTINPULLUK is an Associate Professor in the Department of Educational Sciences, Lifelong Learning and Adult Education Program at Faculty of Education, Anadolu University. He received his bachelor's degree in Computer and Instructional Technology Education from the Faculty of Education at Anadolu University. In 2018, he completed his PhD at Anadolu University's Institute of Social Sciences. In 2019, he was appointed as an Assistant Professor, and in 2021, he obtained the title of Associate Professor. Since 2023, he has been serving as a faculty member in the Department of Department of Educational Sciences, Lifelong Learning and Adult Education Program at Anadolu University's Faculty

of Education. Throughout his academic career, he has published over 100 publications, including articles, book chapters, and conference papers. His current research interests include open and distance learning, educational technology, AR/VR and AI in education. Altinpulluk continues his academic endeavors in these fields.

Hakan ALTINPULLUK
Department of Department of Educational Sciences,
Lifelong Learning and Adult Education Program, Faculty of Education
Address: Anadolu University, Faculty of Education, 26470, Eskisehir, Turkiye
Phone: +90 222 335 05 80
E-mail: hakanaltinpulluk@anadolu.edu.tr

Gokhan ALPTEKIN was born in Eskisehir. He completed his primary and secondary education there. He started his first undergraduate degree in 2012 at Ege University Faculty of Communication, Department of Radio, Television and Cinema, and his second undergraduate degree in 2014 at Anadolu University Faculty of Economics, Department of International Relations. He graduated from Ege University in 2016 and Anadolu University in 2018, obtaining his bachelor's degrees. In 2018, he started a thesis-based master's programme at the Department of Communication Sciences, Institute of Social Sciences, Firat University. He graduated in 2020 and became a science specialist. In 2021, he started his doctoral studies at the Department of Open and Distance Education, Institute of Postgraduate Education, Anadolu University. He is currently pursuing his doctoral studies.

Gokhan ALPTEKIN
Department of Open and Distance Learning
Anadolu University Institute of Graduate Education
Address: Anadolu University Institute of Graduate Education, Yunus Emre Campus, Eskisehir.
E-mail: gkhn.alptekin@gmail.com / gokhanalptekin@anadolu.edu.tr

Dr. Yusuf YILDIRIM currently works as a Computer and Instructional Technology Teacher at Eskisehir Sehit Mutlu Yildirim Secondary School. In 2004, he graduated from Anadolu University, Department of Computer Education and Instructional Technology with first place. In 2004, he started working at Kutahya High School. For 20 years, he gave lectures in educational institutions such as primary schools, secondary schools, high schools, public education centers and universities. In 2014, he completed Osmangazi University Educational Administration, Supervision, Planning and Economics Master's Program. In 2021, he completed Anadolu University Institute of Social Sciences Distance Education Master's Program. In 2025, he completed the Distance Education Doctorate Program at Anadolu University Institute of Graduate Education. He has published 5 books, 7 book chapters, 25 articles, 26 papers. His research interests include distance education, 3D technologies, augmented reality, virtual reality, digital parenting, technology addiction, cyberbullying, robotics and coding, technology competencies, technology usage standards, computer ethics, instructional design, curriculum evaluation, values education, educational management, special education.

Yusuf YILDIRIM
Sehit Mutlu Yildirim Secondary School
Address: Tepebasi District Directorate of National Education, Eskisehir, Turkiye
Phone: +90 0505 757 15 04
E-mail: bilgikasifi@gmail.com

Dr. Saime ONCE is a Professor of Accounting and Finance at the Department of Business Administration, Faculty of Economics and Administrative Sciences, Anadolu University. She received her Ph.D. in Business Administration from the Graduate School of Social Sciences at Anadolu University. Her research focuses primarily on accounting, financial management, and the broader field of finance. Prof. Once has authored more than fifty publications, including internationally indexed journal articles, book chapters, and national and international conference papers. She has also supervised twenty-one graduate theses, contributing substantially to the academic development of young scholars in accounting and finance. Through her research, teaching, and supervision activities, she continues to advance the field and support the growth of the next generation of researchers.

Saime ONCE
Department of Business Administration
Address: Anadolu University, Faculty of Economics and Administrative Sciences, 26470, Eskisehir, Turkiye
Phone: +90 222 335 05 80
E-mail: sonce@anadolu.edu.tr

REFERENCES

Akbel, O., & Besalti, M. (2021). A research on vocational and technical anatolian high school students' satisfaction on distance education during covid-19 pandemic. *Studies in Educational Research and Development, 5*(2), 126-147. https://openaccess.artvin.edu.tr/xmlui/handle/11494/4533

Arslan, O. (2018). Cevrimici uzaktan egitim ogrencilerinin programlari terk etme nedenlerinin incelenmesi [Investigating the reasons for online distance education students to drop out of programmes]. (Master's dissertation). Hacettepe University Graduate School of Educational Sciences, Ankara, Turkiye. Available from the Council of Higher Education, National Dissertation Center, Dissertation ID: 516069.

Baglibel, M., & Arslan, M. C. (2014). Alumni views about educational administration, supervision, planning and economics non-thesis master's program: The case of Gaziantep University. *Gaziantep University Journal of Social Sciences, 13*(4), 1079-1095. https://doi.org/10.21547/jss.256806

Bahar, M., & Cankul, D. (2021). Evaluation of the perception for satisfaction of tourist guidance students in distance education programs: The case of Cappadocia University. *Balikesir University The Journal of Social Sciences Institute, 24*(46-1), 1283-1294. https://doi.org/10.31795/baunsobed.1020775

Balci, E. O., & Tengilimoglu, D. (2016). A research based on a comparison of ideas between the students in formal and distance education programs in postgraduate education. Istanbul Journal of Social Sciences, (4), 10-22. https://dergipark.org.tr/tr/pub/istjss/issue/17490/183020

Basith, A., Rosmaiyadi, R., Triani, S. N., & Fitri, F. (2020). Investigation of online learning satisfaction during Covid-19: In relation to academic achievement. *Journal of Educational Science and Technology, 6*(3), 265-275. https://doi.org/10.26858/est.v1i1.14803

Bayar, U. (2022). Tezsiz yuksek lisans yapan ogretmenlerin lisansustu egitime yonelik tutumlari [Attitudes of teachers with master's degree of non thesis towards postgraduate education]. (Non-Thesis Master Project). Pamukkale University Graduate School of Educational Sciences, Denizli, Turkiye. Available from https://gcris.pau.edu.tr/handle/11499/38985

Begimbetova, K. (2015). Uzaktan egitimde ogretim elemani ve ogrencilerin memnuniyet duzeyi [Satisfactory level of teachers and students in distance learning]. (Master's dissertation). Gazi University Institute of Informatics, Ankara, Turkiye. Available from the Council of Higher Education, National Dissertation Center, Dissertation ID: 392807.

Berigel, M., & Karal, H. (2011). Students' adoption of distance education environments: An action research of a non-thesis masters' program, *Journal of Ahi Evran University Faculty of Education, 12*(2), 135-145. https://dergipark.org.tr/tr/pub/kefad/issue/59495/855168

Bezliudna, V., Shcherban, I., Kolomiyets, O., Mykolaiko, V., & Bezliudnyi, R. (2021). Master students' perceptions of blended learning in the process of studying english during covid 19 pandemic in ukraine. *Rupkatha Journal on Interdisciplinary Studies in Humanities, 13*(4), 1-14. https://doi.org/10.21659/rupkatha.v13n4.54.

Bolat, I. Y., Aydemir, M., & Karaman, S. (2017). Investigation of distance learners' mobile internet usage for instructional activities based on the technology. *Journal of Gazi Faculty of Education, 37*(1), 63-91. https://dergipark.org.tr/tr/download/article-file/340437

Bollen, K. A. (1989). A new incremental fit index for general structural equation models. *Sociological methods & research, 17*(3), 303-316. https://doi.org/10.1177/0049124189017003004

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In: Bollen, K. A., & Long, J.S. (Eds.), *Testing structural equation models* (pp. 136-162). Beverly Hills, CA: Sage.

Canpolat, U., & Yildirim, Y. (2021). Examining the distance education experiences of secondary school teachers in the covid-19 outbreak process. *Journal of Open Education Applications and Research, 7*(1), 74-109. https://dergipark.org.tr/en/pub/auad/issue/60075/840233

Chaney B. H., Eddy, J. M., Dorman, S. M., Glessner, L., Lee Green, B., & Lara-Alecio, R. (2007). Development of an instrument to assess student opinions of the quality of distance education courses. *American Journal of Distance Education, 21*(3), 145-164. https://doi.org/10.1080/08923640701341679

Chua, C., & Montalbo, J. (2014). Assessing students' satisfaction on the use of virtual learning environment (VLE): An input to a campus-wide e-learning design and implementation. *Information and Knowledge Management, 3*(4), 108-116. https://www.iiste.org/Journals/index.php/IKM/article/view/10943

Cohen, J. (1988a). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Cohen, J. (1988b). *Statistical power analysis for the social sciences.* Hillsdale, NJ: Erlbaum.

Cole, M. T., Shelley, D. J., & Swartz, L. B. (2014). Online instruction, e-learning, and student satisfaction: A three-year study. *The International Review of Research in Open and Distributed Learning, 15*(6), 111-131. https://doi.org/10.19173/irrodl.v15i6.1748

Creswell, J. W. (2012). *Educational research: Planning, conducting and evaluating quantitative and qualitative research.* (4th edition). New York: Pearson.

Debbag, M., Fidan, M., & Cukurbasi, B. (2018). Uzaktan egitim tezsiz yuksek lisans ogrencilerinin programlarina iliskin gorusleri: Bartin Universitesi ornegi. *In Proceedings Book of 6th International Instructional Technologies and Teacher Education Symposium (ITTES), 2018* (pp. 79-83). Edirne: Trakya University Publishing. https://ittes.org.tr/dosyalar/files/IttesArsivi/2018/Full-Text-ITTES_v16.pdf

Demirkan, O., Bayra, E., & Baysan, E. (2016). The effects of attandances of the students who enrolled in distance education courses on their final scores: Afyon kocatepe university sample. *The Journal of Turkish Social Research, 20*(1), 47-75. https://dergipark.org.tr/tr/pub/tsadergisi/issue/21499/230514

Deveci-Topal, A. (2016). Examination of university students' level of satisfaction and readiness for e-courses and the relationship between them. *European Journal of Contemporary Education, 15*(1), 7-23. https://doi.org/10.13187/ejced.2016.15.7

Demir Ozturk, S., & Eren, E. (2021). University students' satisfaction levels in online learning environment. *International Journal of Science and Education, 4*(2), 67-84. https://doi.org/10.47477/ubed.940750

Eygu, H., & Karaman, S. (2013). A study on the satisfaction perceptions of the distance education students. *Kirikkale University Journal of Social Sciences, 3*(1), 36-59. https://dergipark.org.tr/tr/pub/kusbd/issue/19375/205547

Field, A. (2005). *Discovering statistics using spss: And sex and drugs and rock 'n' roll* (2th Edition). London: Sage Publications.

Fidan, M., Debbag, M., & Cukurbasi, B. (2018). *Student views on the delivery of common compulsory courses through distance education.* In the proceedings book of 6th International Congress on Curriculum and Instruction (ICCI–EPOK), 567-579. https://www.researchgate.net/publication/330307551_Ortak_Zorunlu_Derslerin_Uzaktan_Egitim_Yoluyla_Verilmesine_Iliskin_Ogrenci_Gorusleri

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education* (8th Ed.). New York: MacGraw Hill, Inc.

Galindo, C., Gregori, P., & Martinez, V. (2020). Using videos to improve oral presentation skills in distance learning engineering master's degrees, *International Journal of Mathematical Education in Science and Technology, 51*(1), 103-114. https://doi.org/10.1080/0020739X.2019.1662118

Gul, I., & Arabaci, I. B. (2018). Opinions regarding the program of graduate students in educational administration in distance education. *Ordu University Journal of Social Science Research, 8*(1), 79-88. https://dergipark.org.tr/tr/download/article-file/449899

Gulbahar, Y. (2012). Study of developing scales for assessment of the levels of readiness and satisfaction of participants in e-learning environments. *Journal of Ankara University Faculty of Educational Sciences, 45*(2), 119-137. https://dergipark.org.tr/tr/download/article-file/508747

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: A multidisciplinary journal, 6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Ilgaz, H. (2008). Uzaktan egitimde teknoloji kabulunun ve topluluk hissinin ogrenen memnuniyetine katkisi [The contribution of technology acceptance and community feeling to learner satisfaction in distance education]. (Master's dissertation). Hacettepe University Graduate School of Science and Engineering, Ankara, Turkiye. Available from the Council of Higher Education, National Dissertation Center, Dissertation ID: 244862.

Kantoglu, B., Torkul, O., & Altunisik, R. (2013). A study on the factors affecting student's satisfaction in e-learning: A model proposition. *Business and Economics Research Journal, 4*(1), 121-141. https://www.berjournal.com/a-study-on-the-factors-affecting-student%E2%80%99s-satisfaction-in-e-learning-a-model-proposition

Kara, M. (2014). Tezsiz yuksek lisans ogrencilerinin uzaktan egitimde iyi ogretim elemanina iliskin algilari ve beklentileri [Perceptions and expectations of students in non-thesis graduate programs pertaining to good tutor in distance education]. (Master's dissertation). Middle East Technical University Graduate School of Natural and Applied Sciences, Ankara, Turkiye. Available from the Council of Higher Education, National Dissertation Center, Dissertation ID: 368901.

Khoynaroud, A. A., Akbarzadeh, A., Ghojazadeh, M., & Ghaffarifar, S. (2020). Assessment of the effect of application of an educational wiki in flipped classroom on students' achievement and satisfaction, *BMC Medical Education, 20*(93), 1-11. https://doi.org/10.1186/s12909-020-02223-0.

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). New York: The Guilford Press.

Kolburan Gecer, A., & Deveci Topal, A. (2015). Development of satisfaction scale for e-course: Reliability and validity study. *Journal of Theory and Practice in Education, 11*(4), 1272-1287. https://dergipark.org.tr/en/pub/eku/issue/5467/74236

Korkmaz, O., Cakir, R., & Tan S. S. (2015). Students e-learning readiness and satisfaction levels and effects on the academic achievement. *Journal of Ahi Evran University Faculty of Education, 16*(3), 219-241. https://dergipark.org.tr/tr/pub/kefad/issue/59449/854082

Lord, G., & Lomicka, L. (2008). Blended learning in teacher education: An investigation of classroom community across media. *Contemporary Issues in Technology and Teacher Education, 8*(2), 158-174. https://www.learntechlib.org/primary/p/24361/

Malkawi, E., Bawaneh, A. K., & Bawa'aneh, M. S. (2021). Campus off, education on: UAEU students' satisfaction and attitudes towards e-learning and virtual classes during Covid-19 pandemic. *Contemporary Educational Technology, 13*(1), 1-14. https://doi.org/10.30935/cedtech/8708

Merisotis, J. P., & Phipps, R. A. (1999). What's the difference?: Outcomes of distance vs. traditional classroom-based learning. *Change: The Magazine of Higher Learning, 31*(3), 12-17. https://doi.org/10.1080/00091389909602685

Ocak, G., & Demirdelen, C. (2008). The comparative study in education faculty students with non-thesis graduate students of teaching as profession attitudes. *Erzincan University Journal of Faculty of Education, 10*(2), 151-171. https://dergipark.org.tr/tr/pub/erziefd/issue/5997/79901

Ozkul, A. E. (2001). Anadolu university distance education system from emercence to 21st century. *Turkish Online Journal of Distance Education, 2*(1). https://dergipark.org.tr/en/pub/tojde/issue/16943/176882

Schermelleh-Engel, K., Moosbrugger, H., & Muller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness of fit measures. *Methods of psychological research online, 8*(2), 23-74. https://www.stats.ox.ac.uk/~snijders/mpr_Schermelleh.pdf

Sural, I. (2012). Cevrimici ogrenmede kisisellestirmenin ogrenci performansi ve memnuniyet duzeyi ile iliskisi [The relationship of personalization with learner performance and satisfaction level in online learning]. (Doctoral dissertation). Anadolu University Graduate School of Social Sciences, Eskisehir, Turkiye. Available from the Council of Higher Education, National Dissertation Center, Dissertation ID: 312459.

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th Ed.). Boston: Ma: Pearson.

Tallent-Runnels, M. K., Thomas, J. A., Lan, W. Y., Cooper, S., Ahern, T. C., Shaw, S. M., & Liu, X. (2006). Teaching courses online: A review of the research. *Review of educational research, 76*(1), 93-135. https://doi.org/10.3102/00346543076001093

Tutkun, O. F., Erdogan, D. G., & Demirtas, Z. (2014). The opinions of students toward curriculum of distance education non-thesis master. *International Online Journal of Educational Sciences, 6*(2), 307-318. DOI: 10.15345/iojes.2014.02.005

Usta, I. (2019a). Investigation of learning styles of distance learners. *Bilecik* Seyh *Edebali University Journal of Social Sciences, 4*(1), 371-384. https://doi.org/10.33905/bseusbed.551031

Usta, I. (2019b). Investigation of the reasons for preference of distance non-thesis master's programmes. *Gazi University Journal of Faculty of Education, 39*(2), 817-841. https://doi.org/10.17152/gefad.548437

Uzun, O. (2019). Cevrimici ogrenme ortamlarinda transaksiyonel uzaklik algisini etkileyen faktorler [The relationship of personalization with learner performance and satisfaction level in online learning]. (Master's dissertation). Anadolu University Graduate School of Social Sciences, Eskisehir, Turkiye. Available from the Council of Higher Education, National Dissertation Center, Dissertation ID: 622334.

Vialatte, F., & Cichocki, A. (2008). Split test bonferonni correction for QEEG statistical maps. *Biological Cybernetics, 98*(4), 295-303. https://doi.org/10.1007/s00422-008-0210-8

Waheed, M., & Leisyte, L. (2021). German and Swedish students going digital: do gender and interaction matter in quality evaluation of digital learning systems?. *Interactive Learning Environments, 31*(7) 1-15. https://doi.org/10.1080/10494820.2021.1965626

Yildirim, E., & Kokkaya, G. A. (2021). Distance education through the eyes of graduate students during the covid-19 pandemic. *Journal of Awareness, 6*(4), 247-267. https://doi.org/10.26809/joa.6.4.06

Yilmaz, E. O. (2020). Integration of google classroom distance education system and investigation of student satisfaction levels during the pandemic process. *Future Visions Journal, 4*(3), 42-55. https://doi.org/10.29345/futvis.143