INVESTIGATING THE RELATIONSHIP BETWEEN GRADUATE LEARNERS' ATTITUDES TOWARDS ONLINE LEARNING AND SOCIAL ANXIETY

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ABSTRACT

This study examined the relationship between graduate students' attitudes towards online learning and their social anxiety levels. Our research question is whether students' levels of social anxiety and attitudes towards online learning differ according to demographic variables. The study was conducted by adopting a causal-comparative and correlational research design. The data was collected from 142 students enrolled on Anadolu University Graduate School of Social Sciences and the Graduate School of Educational Sciences online master's degree programmes in the 2020–2021 academic year. The data instruments used in the study were a personal information form developed by the researchers and scales measuring social anxiety in online learning environments and attitudes towards online learning. The results of the study showed a negative correlation between social anxiety and attitudes towards online learning. The implications of the study and suggestions for future research are also discussed in the present study.

KEY WORDS: *online learning, online master programme, social anxiety, attitudes, graduate students.*

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Introduction

The rise of online learning, a trend that is growing exponentially due to technological advancements, is reshaping the educational landscape. Today, the majority of individuals in the workforce have access to various learning opportunities. This expansion is driven by an increasing variety of online learning environments, each offering unique advantages, such as flexibility, autonomy and independence from time and location constraints. Graduate education is an area that is experiencing a significant shift towards online learning. After earning a bachelor's degree, many individuals now prefer to continue their studies online. This preference is supported by research: for example, a study by Erdoğan, Bayram and Deniz (2008) underscores the growing popularity of online graduate education.

An unexpected catalyst for the adoption of online learning came in the form of the global Covid-19 pandemic. During the pandemic, online learning evolved from a choice to an obligation, due to measures such as extended lockdowns imposed by authorities. However, as we transition towards online learning, it is crucial to approach this new system with caution. Seeking to impose traditional formal educational solutions on to online learning environments could have adverse effects. The success of an educational programme, after all, hinges on understanding learners' characteristics. The attitudes of learners towards online learning, whether positive or negative, impact significantly their educational outcomes. The research supports this: Sanders

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and Morrison-Shetlar (2001) and Alomyan and Au (2004) found that learners' attitudes play a critical role in online education. One intriguing finding by Carr (2000) was that, despite online learners achieving higher final scores, they displayed more negative attitudes towards online learning than those who received face-to-face education.

This underscores the importance of considering learners' preferences for communication and interaction. Sanders and Morrison-Shetlar (2001) discovered that online learners yearn for a level of communication and interaction comparable to a traditional learning environment. They suggest that incorporating elements of interaction found in traditional education could enhance learners' attitudes towards online learning. In conclusion, institutions offering online learning services should consider their learners' attitudes to deliver a high-quality programme. The future of education is undeniably digital, but we must ensure that it is also learner-centric.

Learners' interactions with others, and various psychological variables, significantly influence their attitude towards online learning. Social anxiety is one of these variables. Defined as the fear of being observed, scrutinised and evaluated for social behaviour (Kashdan, 2007), it can disrupt interpersonal interaction and negatively impact an individual's life. The Social Constructivist Learning Theory suggests that individuals construct knowledge through cultural and social activities. This construction of knowledge is a process of creating meaning based on the perspectives of others in the social environment (Vygotsky, 1978; Woo, Reeves, 2007). In this social environment, individuals share their views and are greatly influenced by others. Consequently, learners can achieve more and learn more efficiently in a social learning environment (Kalina, Powell, 2009; Vygotsky, 1978). However, social anxiety is an issue that often emerges during adolescence, a period when the importance of appearance and social image become prominent. This issue can persist through undergraduate and graduate education, leading to difficulties in forming meaningful relationships. Erikson (1950) notes that on completing their identity search in young adulthood, individuals are eager to share their identity and establish close relationships. If an individual is socially anxious, they may isolate themselves and avoid interaction. Therefore, assessing the social anxiety levels of individuals in distance education environments, where face-to-face interaction is limited, but connectivity is maintained online, raises the question of whether this psychological variable could influence learners' attitudes towards distance education.

This study was designed to quantitatively assess the levels of social anxiety and attitudes of graduate students towards online learning, and to statistically examine the relationship between these two variables. The research aimed to quantitatively determine the impact of social anxiety on students' attitudes towards their online learning experiences. The study was guided by the following research questions:

1. Is there a significant relationship between online graduate students' attitudes towards online learning and their levels of social anxiety?
2. Is there a significant relationship between the sub-dimensions of attitude towards online learning and the sub-dimensions of social anxiety?
3. Do attitudes towards online learning differ according to gender, age, education status, and being enrolled as an Open Education student?
4. Do levels of social anxiety differ according to gender, age, education status, and being enrolled as an Open Education student?

1. Online learning

In recent years, advances in information and communication technologies have brought about significant changes and innovations in the fields of education and training. The integration of information and communication technologies into learning environments has transformed education into a digital phenomenon, in which learning and teaching activities are aided by computers. One of the concepts that has emerged in the education literature to describe this digital phenomenon is online learning.

In the literature, the terms online learning, e-learning and open learning are often used interchangeably for 'distance education'. However, distance education has a unique structure and technology that also cover the concept 'online learning' (Moore, Kearsley, 2012). There are various definitions of online learning

in literature. According to Singh and Thurman (2019), online learning is defined as a form of learning that is organised or offered via internet-based technologies. Horton (2006) defines online learning as the use of information and computer technologies to create new learning experiences. Harasim (2017) also defines online learning as the use of online communication networks for educational purposes, including course presentations, educational projects, research, access to resources, and group collaboration. The internet and educational technologies have developed alongside the experience.

According to Means, Toyama, Murphy, Bakia and Jones (2009), distance learning is a type of learning that takes place entirely or partly on the internet. This form of distance education has a long history dating back to the first correspondence courses offered at least 100 years ago. With the advent of the internet and the World Wide Web, the possibility to reach students at a global level has greatly increased. Today's online learning programmes offer a range of educational resources via various types of media, and support both synchronous and asynchronous communication between instructors and learners, as well as among different learners. Its accessibility and flexibility, as well as the convenience of being able to access content and instruction anytime and anywhere, have made online learning a popular educational environment for higher education institutions and corporate training programmes.

According to Joosten and Cusatis (2020), online learning offers learners great flexibility in terms of place and time of learning. Students have more control over when and how they complete course learning activities, which is a great advantage for those who cannot attend traditional programmes due to external factors, such as job responsibilities, family obligations or distance from the campus. However, a flexible online environment also requires students to have certain skills, such as a knowledge of the use of technology, time management, and an ability to use online technologies.

2. Learners' attitudes

Attitudes are positive or negative evaluations about people, objects and events that affect one's behaviours (Rogers, 2003). Knowing an individual's attitude towards a stimulus can help predict his/her behaviour towards that stimulus (Ustuner, 2006, 112). Therefore, the level of learners' positive attitudes towards online learning will affect their tendency to use online learning (Liaw, Huang, Chen, 2007). For online learning programmes to be effective and successful, it is crucial that learners should have a positive attitude towards the offered programme. Moore and Anderson (2003) highlight that variables in online learning environments impact learner attitudes, which play a significant role in the adoption of distance education technologies. When examining the related literature, it is evident that attitudes towards technologies used in online environments vary depending on learners' demographic characteristics, such as experience, gender, technology ownership and access to technology. In this study, the demographic characteristics of graduate learners were also considered. The relationship between their attitudes and social concerns was examined in terms of their preference for online learning.

3. Social anxiety

Social anxiety is a psychological condition characterised by discomfort or fear of being judged negatively by others, being humiliated, or creating a negative impression and making mistakes (American Psychiatric Association, 2000). According to the DSM-IV, social anxiety (also known as social phobia) is defined as a marked and persistent fear of situations in which a person may encounter people he may not be familiar with, or be in the presence of others, or perform one or more social actions, due to the fear of being humiliated or embarrassing oneself (APA, DSM-IV, 2001). Many scales, such as those measuring timidity, communication anxiety and introversion, have been developed to assess social anxiety, and they examine cognitive, emotional and behavioural elements of social anxiety (Briggs, Cheek, 1986; Leary, 1983). People with social anxiety disorder exhibit different symptoms when compared to other individuals in terms of physiological, cognitive and behavioural issues (Baltacı, Hamarta, 2013). Amies, Gelder and Shaw (1983) noted that

the most common physiological symptoms of social anxiety disorder are palpitations, sweating, tremors, muscle tension, a dry mouth and abdominal pain. Social anxiety disorder, which is classified as a mental disorder, can develop into a social phobia, if necessary precautions are not taken on time. Social anxiety can negatively affect an individual's academic, social and professional life. It can lead to isolation, depression, and even suicide attempts (Hignett, Hatton, 2008). Experts have also noted a correlation between preferred method of communication (face-to- face or distant) and social anxiety (Yen *et al.*, 2012; Keskin *et al.*, 2023).

This study aims to determine the social anxiety levels of graduate learners, and explore the impact of social anxiety on online learning. Due to the worldwide pandemic, many graduate students receiving formal education had to switch to distance education. Some of these students may have experienced online learning for the first time. Therefore, this study aims to investigate whether these students have social concerns about distance education. Understanding these concerns can contribute to the improvement of online education, and provide valuable data regarding social anxiety in online educational environments.

4. Related studies

Researchers have identified a relationship between online learning and social anxiety (Keskin, Sahin, Uluc, Yurdugul, 2020). Ajmal and Ahmad (2019), in a study conducted with 322 learners, revealed that students suffered from higher levels of anxiety in distance education. They suggested that the reason for this situation is the failure to discuss or share their problems on a daily basis, due to the physical distance between learners and teachers. In addition, it was reported that the majority of students were worried about problems encountered due to a lack of time for the preparation of homework, and poor quality regarding issues such as registration, finding a bank to deposit money, and buying books. To address this issue, Ajmal and Ahmad (2019) recommended improving online information systems to facilitate students' access to information. They also noted that various types of anxiety, including social anxiety, can discourage students from actively participating in distance learning environments (Ajmal, Ahmad, 2019).

Chiu and Wang (2008) found a negative relationship between frequency of online learning experiences and students' anxiety levels in such environments. In other words, learners who frequently use online learning environments and actively participate in online interaction are likely to have low levels of anxiety. This may be because individuals with social anxiety avoid active participation, so as to minimise social risks and display behaviours that might harm their self-image (Leary, 1983). Yen *et al.* (2012) examined the relationship between social anxiety, online interaction and real-life interaction in a study carried out with 2,348 university students. They reported lower levels of social anxiety during online interaction when compared to real-life interactions. Lee and Stapinski (2012) investigated the relationship between social anxiety and problematic internet use, in a study conducted with 338 participants. They found that social anxiety was an important factor in problematic internet use, even when depression and general anxiety were the control variables. They also revealed a correlation between social anxiety, a greater sense of control, and a minimised risk of negative evaluation during online communication. Also, a study by Sharifrazi (2012) investigated online students' anxiety and frustration in a Master of Business Administration (MBS) programme. He concluded that the participants were not well informed about course expectations, and the lack of immediate feedback on their activities led to anxiety in online classes.

Bahcekapili (2021) examined university students' social anxiety during online live lessons in terms of their digital literacy levels, gender, previous distance education experiences, and interaction with teachers. The study showed that the social anxiety of students in synchronous learning environments correlates negatively with digital skills. According to the results, female students had higher levels of social anxiety than male students. Also, students who did not actively listen to lessons and interact with the teacher via live chat options were more anxious. Social anxiety did not differ according to previous distance education experience and the use of microphones in lessons. A study by DeVaney (2010) compared anxiety and attitudes towards statistics for graduate students in face-to-face and online statistics courses. The study found a negative correlation between anxiety and the attitudes of online students. At the end of the study, the researcher

recommended encouraging educators to design effective learning materials and techniques to reduce anxiety. Saade *et al.* (2017) investigated the relationship between anxiety and performance in online courses at an undergraduate level. It was reported that 30% of students experienced some sort of anxiety during online courses. Female students were more anxious about taking online course than male ones.

In summary, previous similar studies showed that social anxiety can affect an individual's attitudes towards online learning and their ability to actively participate in online learning environments. In addition, online interaction might provoke less social anxiety than real-life interaction. Moreover, social anxiety can contribute to problematic internet use. Understanding the relationship between social anxiety and online learning can help improve the effectiveness of online learning programmes, and support learners suffering from social anxiety.

5. Methodology

The study employed the relational survey model in order to examine the relationship between attitudes towards online learning and the social anxiety of learners enrolled in online master programmes at Anadolu University Graduate School of Social Sciences and the Graduate School of Educational Sciences. Relational survey models aim to determine the presence and strength of the relationship between two or more variables.

Recent statistical data published by the Higher Education Information Management System shows that the number of online graduate programmes and the number of students enrolled on these programmes are increasing rapidly. In the 2019–2020 academic year, there were 12,650 *postgraduate programmes (not online)* in Turkey, which increased to 12,989 in the 2020–2021 academic year. A total of 339 new master's degree programmes were launched across the country in one year. Additionally, the number of students enrolled in *distance education graduate programmes* increased from 11,367 in the 2019–2020 academic year to 15,214 in the 2020–2021 academic year, with an increase of 3,847 students. Furthermore, the number of new students enrolled in distance education master's programmes increased from 8,425 in the 2019–2020 academic year to 12,588 in the 2020–2021 academic year (Higher Education Information Management System, 2021). This data demonstrates clearly the growing prevalence of online learning programmes, as well as the increasing importance of online learning.

According to the 2021–2022 Fall Term Statistics report published by Anadolu University Graduate School of Social Sciences, there are 188 graduate programmes at Anadolu University. Of these programmes, 25 (13.29%) are offered by the Graduate School of Fine Arts, 25 (13.29%) by the Graduate School of Health Sciences, 58 (30.85%) by the Graduate School of Educational Sciences, and 80 (42%) by the Graduate School of Social Sciences. In the 2021–2022 fall semester, the distribution of postgraduate students at Anadolu University was as follows: 401 (6.30%) in the Graduate School of Fine Arts, 600 (9.43%) in the Graduate School of Health Sciences, 1,568 (24.64%) in the Graduate School of Educational Sciences, and 3,794 (59.63%) in the Graduate School of Social Sciences (Graduate School of Social Sciences, 2021).

The only prerequisite for enrolment on Anadolu University distance education non-thesis master's programmes is to have a bachelor's degree. Students applying to these programmes do not need to obtain an ALES (Academic Staff and Graduate Education Exam) or a standard foreign language exam score. Any student who has completed an undergraduate degree and has the required grade point average (2.00/4.00 or 50/100) can apply for these online master's programmes.

This study gathered data from students enrolled on the online graduate programmes offered at Anadolu University Graduate School of Social Sciences and the Graduate School of Educational Sciences. According to the 2021–2022 fall term statistics from Anadolu University Graduate School of Social Sciences, the number of students enrolled on the distance education online master's programmes was 1,474. There were 653 students enrolled on online master's programmes in the 2021–2022 fall semester at the Graduate School of Educational Science of Anadolu University.

The research sample consists of 142 learners enrolled on Online Non-Thesis Master's programmes offered at Anadolu University Graduate School of Social Sciences and the Graduate School of Educational Sci-

ences during the 2020–2021 academic year. Of these participants, 80 (56.3%) were women, and 62 (43.7%) were men. The ages of the participants ranged between 21 and 55, but the age variable was grouped into the following categories for data analysis purposes. The largest age group was 26 to 35, consisting of 88 (62%) people, while the smallest age group was 21 to 25, consisting of eight (5.6%) people. As for their educational status, 126 (88.7%) of the participants had completed a bachelor's degree programme, 15 (10.6%) had a master's degree, and one had a PhD degree. Of the participants, 49 (34.5%) live in Istanbul, 15 (10.6%) in Ankara, eight (5.6%) in İzmir, and eight (5.6%) in Eskisehir. The participants were enrolled on the following online master's programmes in the institutes: Educational Technologies, Measurement and Data Analytics, Business Management, Department of Distance Education, Hospitality Management, Banking Finance, Technology Integration in Education, Visual Communication Design, Entrepreneurship and Innovation, Public Financial Management, Corporate Communication, Logistics Management, Marketing Management, Turkish Language and Literature.

The programme with the highest number of participants was the Educational Technologies Online Master Programme (n = 45–31.7%). Of the participants, 39 (27.5%) indicated that they were enrolled on an open education programme, while 103 (72.5%) were not. See Table 1 for more detailed information about the participants' demographic characteristics.

Table 1. Findings about the demographic characteristics of the participants

	Groups	N	%
Sex	Woman	80	56.3
	Man	62	43.7
Age	21–25	8	5.6
	26–35	88	62
	36–45	34	23.9
	46–55	12	8.5
Education status	Bachelor's degree	126	88.7
	Master's degree	15	10.6
	PhD degree	1	0.7
Online learning experience	Yes	39	7.5
	No	103	72.5

The participants in the study were selected from students enrolled in Online Master Programmes at Anadolu University Graduate School of Social Sciences and the Graduate School of Educational Sciences by using simple random sampling. The sample included students attending these programmes, because the study aimed to examine the relationship between attitudes towards online learning and the social anxiety of online graduate learners.

6. Data collection and analysis

Three data collection instruments were used in the study to examine the relationship between learners' attitudes towards online learning and their social anxiety: a *Personal Information Form* developed by the researcher to collect demographic information about the participants, *General Attitude Scale towards Online Learning* to determine the participants' attitudes towards online learning, and *Social Anxiety Scale for Online Learning Environments* to determine the participants' social anxiety levels.

A reliability analysis was conducted to assess the internal consistency of the *Social Anxiety Scale for Online Learning Environments* and the *General Attitude Scale towards E- Learning.* The results of the reliability analysis are presented in Table 2.

Table 2. The reliability analysis results for the Social Anxiety Scale for Online Learning Environments and the General Attitude Scale towards E-Learning

	Cronbach Alpha	Coefficient Mean	Standard Deviation
Social Anxiety Scale for Online Learning Environments	0.989	109.71	65.195
General Attitude Scale towards E-Learning	0.918	79.70	13.241

According to the results presented in Table 2, the Cronbach Alpha values for both the *Social Anxiety Scale for Online Learning Environments* and the *General Attitude Scale towards Online Learning* are quite high: 0.989 (sd = 65,195) and 0.918 (sd = 13,241) respectively. This indicates that both scales have a high reliability coefficient.

7. Findings

Pearson Correlation Analysis was performed to examine the relationship between learners' attitudes towards online learning and their social anxiety levels in online learning environments, in addition to the relationship between their attitudes towards online learning and sub-dimensions of social anxiety attitudes.

Table 3. Results regarding the relationship between attitudes towards online learning and social anxiety

		Social anxiety score	Attitudes towards online learning
Social anxiety score	*r*		–291**
	P		.000
	N	142	142
Attitudes towards online learning	*r*	–291**	
	P	.000	
	N	142	142

**p <0.01

The results of the correlation analysis between learners' general attitudes towards online learning and their social anxiety are shown in Table 3. The findings show that there is a low negative relationship between the two variables (r = –.291, p <0.01).

Pearson Correlation Analysis was carried out to examine the relationship between the sub-dimensions of learners' general attitudes towards online learning and the sub-dimensions of social anxiety. The results of the analysis are presented in Table 4 and Table 5.

Table 4. The results between social anxiety scores and sub-dimensions of attitude towards e-learning

	Sub-dimensions of attitude towards e-learning	*N*	*r*	*P*
Social anxiety scores	Proximity to E-Learning	142	–.273**	.001
	Not Avoiding E-Learning	142	–.276**	.001

** p <0.01

The results of the correlation analysis between learners' social anxiety scores and the sub- dimensions of their general attitudes towards online learning are presented in Table 4. The findings show that there is a low negative relationship between social anxiety scores and the proximity to online learning sub-dimension (r = –.273, p <0.01) and the online learning avoidance sub-dimension (r = –.276, p <0.01).

Table 5. The results between online learning attitude scores and social anxiety sub-dimensions

	Social anxiety sub-dimensions	***N***	***r***	***P***
Online learning attitude scores	Negative evaluation/anxiety/fear	142	–.284**	.001
	Somatic symptoms	142	–.243**	.004
	Avoidance of interaction	142	–.308**	.000

** p <0.01

Table 5 shows Correlation Analysis results for the participants' online learning attitude general scores and social anxiety sub-dimensions. According to the findings for Online Learning Attitude overall score and 'negative evaluation' sub-dimension (r = –.284; p <0.01), there is a negative low correlation between 'somatic symptoms' sub-dimension (r = –.243; p <0.04) and 'avoidance of interaction' sub-dimension (r = –.308; p <0.00).

Pearson Correlation Analysis was performed to examine the relationship between the sub- dimensions of learners' general attitudes towards online learning and the sub-dimensions of their social anxiety attitudes. The results of the analysis are presented in Table 6.

Table 6. The results between attitude sub-dimensions towards online learning and social anxiety attitude sub-dimensions

	Tendency	**Avoidances**	**Negative evaluation/ anxiety/fear**	**Somatic/somatic symptoms**	**Social situations**
Tendency *r*	1	.774**	–.277**	–.231**	–.276**
p		.000	.001	.006	.001
N	142	142	142	142	142
Avoidances *r*	.774**	1	–.259**	–.228**	–.302**
p	.000		.002	.006	.000
N	142	142	142	142	142

A correlation analysis was carried out to examine the relationship between tendency to online learning (ELM) sub-dimension score and other variables. The results show that there is a strong positive relationship between tendency to online learning sub-dimension score and online learning avoidance score (r = .774, p <0.01). This indicates that as the score for one variable increases, the score for the other also increases. There is also a negative correlation between tendency to online learning sub-dimension score and negative evaluation sub-dimension score (r = –.277, p <0.01), the somatic symptoms sub-dimension score (r = -.231, p <0.01), and avoidance of interaction sub-score (r = –.276, p <0.01). This means that as the score for one variable increases, the score for the other decreases.

A correlation analysis was performed to examine the relationship between online learning avoidance sub-dimension score and other variables. The results show that there is a strong positive relationship between online learning avoidance sub-dimension score and tendency to online learning (r = .774, p <0.01). This indicates that as the score for one variable increases, the score for the other also increases. There is also a negative correlation between online learning avoidance sub-dimension score and the negative evaluation sub-

dimension score ($r = –.259$, $p < 0.01$), the somatic symptoms sub-dimension score ($r = –.228$, $p < 0.01$), and avoidance of the score for the other decreases.

While Table 7 presents the relationship between sub-dimensions of attitudes towards online learning and sub-dimensions of social anxiety, it only includes the relationship between sub-dimensions of attitudes towards online learning among each other.

Table 7. Correlation Analysis results between social anxiety sub-dimensions and attitudes towards e-learning

		Negative evaluative	Somatic symptoms	Social situations	Tendency to online learning	Online Learning Avoidance
Negative evaluation	*r*	1	.870**	.888**	–.277**	–.259**
	p		.000	.000	.001	.002
	N	142	142	142	142	142
Somatic symptoms	*r*	.870**	1	.859**	–.231**	–.228**
	p	.000		.000	.006	.006
	N	142	142	142	142	142
Avoidance Interaction	*r*	.888	.859	1	–.276	–.302
	p	.000	.000		.001	.000
	N	142	142	142	142	142

A correlation analysis was done to examine the relationship between negative evaluation sub-dimension score and other variables. The results show that there is a strong positive relationship between negative evaluation sub-dimension score and somatic symptoms sub-dimension score ($r = .870$, $p < 0.01$) and avoidance of interaction sub-dimension score ($r = .888$, $p < 0.01$). This indicates that as the score for one variable increases, the score for the other also increases. There is also a negative correlation between negative evaluation sub-dimension score and the tendency to online learning sub-dimension score ($r = –.277$, $p < 0.01$) and online learning avoidance sub-dimension score ($r = –.259$, $p < 0.01$). This means that as the score for one variable increases, the score for the other decreases.

A correlation analysis was also performed to examine the relationship between somatic symptoms sub-dimension score and other variables. The results show that there is a strong positive relationship between somatic symptoms sub-dimension score and negative evaluation sub-dimension score ($r = .870$, $p < 0.01$) and avoidance of interaction sub-dimension score ($r = .859$, $p < 0.01$). This indicates that as the score for one variable increases, the score for the other also increases. There is also a negative correlation between somatic symptoms sub-dimension score and tendency to online learning sub-dimension score ($r = –.231$, $p < 0.01$) and online learning avoidance sub-dimension score ($r = –.228$, $p < 0.01$). This means that as the score for one variable increases, the score for the other decreases.

Correlation Analysis was applied to determine the relationship between avoidance of interaction sub-dimension score and other variables. According to the results, there is a positive strong relationship between avoidance of interaction sub-dimension score and negative evaluation sub-dimension score ($r = .888$**; $p < 0.01$) and somatic symptoms sub-dimension score ($r = .859$**; $p < 0.01$). According to this result, as the score of one of the variables increases, the score of the other also increases. There is a negative correlation between avoidance of interaction sub-dimension score and tendency to online learning sub-dimension score ($r = –.276$**; $p < 0.01$) and online learning avoidance sub-dimension score ($r = –.302$**; $p < 0.01$). According to this result, while the score of one of the variables increases, the score of the other decreases.

This section presents the findings regarding whether learners' attitudes towards online learning and the sub-dimensions differ according to age, gender, educational status, and being an Open Education student or not. The Kolmogorov-Smirnov Test was applied to analyse the distribution of the attitudes and sub-dimensions of the participants towards e-learning. The results are given in Table 8 below.

Table 8. Kolmogorov-Smirnov test results of attitudes and sub-dimensions towards e-learning

General attitudes towards e-learning sub-dimensions	*N*	*X*	*Ss*	Skewness	Kurtosis
Susceptibility to e-learning	142	4.136	0.628	–0.738	0.637
E-learning avoidance	142	3.83	0.776	–0.629	0.625
E-learning general attitude score	142	3.98	0.662	–0.635	0.670

The skewness values are slightly below the value of 1, which was suggested by Huck (2000). Since there are no big problems with skewness and kurtosis values, it is suitable to use parametric tests to generalise to the population without transforming the original data or using non-parametric tests. The results of Kolmogorov-Smirnov test show that the data display normal distribution (p >0.05). The Kolmogorov-Smirnov test was also performed to determine if the attitudes and sub-dimensions of the learners participating in the study towards online learning differed according to gender. The results are presented in Table 9.

Table 9. Kolmogorov-Smirnov test results of attitudes and sub-dimensions towards online learning by gender

	Gender	***n***	***X***	***Sd***	***t***	***df***	***p***
Susceptibility to e-learning	*F* *M*	80 62	4.23 4.01	0.51 0.73	1.946	140	0.54
Avoiding e-learning	*F* *M*	80 62	3.87 3.77	0.74 0.81	0.783	140	0.435
Overall average	*F* *M*	80 62	4.05 3.89	0.58 0.74	1.419	140	0.172

p <0.05

The results of the independent sample t-test showed that the general attitudes of the learners participating in the study towards online learning did not significantly differ according to sex (t = 1.419, p >0.05). In terms of sub-dimensions of general attitudes towards e-learning, the independent sample t-test did not find a significant difference between genders in terms of tendency to online learning (t = 1.946, p >0.05) and online learning avoidance (t = 0.783, p >0.05).

A one-factor ANOVA was done to determine if the general attitudes and sub-dimensions of learners participating in the study differed according to age. The results of the Levene Test, which is a prerequisite condition for ANOVA, and helps determine which multiple comparison tests to use in the analysis, are summarised in Table 10. The significance value was taken as 0.05 while interpreting Levene values. When the p-values met this condition, multiple comparisons were made using the Scheffe test, and when the p-values were not met, the Tamhane Test was used to interpret the results (Field, 2000). The general attitudes towards online learning by age are presented in Table 11 below.

Table 10. The results of Levene Statistics used in the comparison of learners' general attitudes towards online learning and its sub-dimensions according to age variable

Variable		**Levene Statistics**		***Sd1***	***Sd2***	***p***
Tendency to E-Learning		1.342		3	137	.263
E-Learning Avoidance		.824		3	137	.483
Overall average		.871			137	.458

Table 11. Descriptive analysis of learners' general attitudes towards online learning by age

Variable		21–25	26–35	36–45	46–55		Total
Overall average	N	8	87	34	12		141
	X	3.91	4.06	3.81	4.09		3.99
	S	0.578	0.654	0.668	0.428		0.641

When the overall average values of the participants are examined across all age ranges, it is seen that the highest average is for the 18 to 25 age group ($X = 3.61$), and the lowest average is for the 36 to 45 age group ($X = 3.47$). The average for self-directed learning skills was calculated for the 26 to 35 age group as $X = 3.53$, and for those aged 46 and over as $X = 3.60$. A single-factor ANOVA test was performed to determine whether the difference between the means was significant or not. The results of the single-factor ANOVA Test are presented in Table 12.

Table 12. A comparison of overall averages of self-directed learning skills of learners of different ages using one-factor ANOVA

Variable		Source of variation	Sum of Squares	*Sd*	Mean Square	*F*	*p*
Overall average		Between groups	1.673	3	0.558	1.365	0.256
		Within group	55.955	137	0.408		
		Total	57.627	140			

The F value obtained was 1.365, which was not significant ($p > 0.05$). Therefore, multiple comparisons were not done to identify the source of the variation.

The results of the independent sample t-test showed that the general attitudes of the participants towards online learning did not significantly differ according to the variable 'being an Open Education student' ($t = 1.404$, $p > 0.05$). The independent sample t-test also did not find a significant difference between being an Open Education student and not being in terms of the sub-dimensions of general attitudes towards e-learning, including tendency to online learning ($t = 1.616$, $p > 0.05$) and online learning avoidance ($t = 0.993$, $p > 0.05$). The results of the analysis are presented in Table 13.

Table 13. Findings on general attitudes towards online learning and the differentiation of its sub-dimensions according to being an Open Education Student (OES) variable

	Open Learners	*n*	*X*	*Sd*	*t*	*df*	*p*
Tendency to E-Learning	Yes	39	4.27		1.616		0.108
	No	103	4.08	0.62			
E-learning Avoidance	Yes	39	3.95	0.89	0.993	140	0.325
	No	103	3.79	0.73			
Overall average	Yes	30	4.11	0.73	1.404	140	0.163
	No	103	3.94	0.63			

$p < 0.05$

The study also examined whether attitudes and sub-dimensions of learners towards online learning differed according to their age, gender, educational status, and being an Open Education student. The results are presented in Table 14 below.

Table 14. Kolmogorov-Smirnov test results of social anxiety and its sub-dimensions

Social Anxiety	*N*	*Min*	*Max*	*X*	*Ss*	Skewness	Kurtosis
Negative evaluation	142	1	7	2.65	1.49	0.862	–0.038
Somatic symptoms	142	1	7	2.10	1.47	1.500	1.614
Avoidance of Interaction	142	1	7	2.37	1.53	1.156	0.531
Social anxiety general Attitude Score	142	1	7	2.37	1.43	1.152	0.571

The skewness values were higher than 1, which is suggested by Huck (2000). Therefore, non-parametric tests were used. The Kolmogorov-Smirnov test showed that the data did not follow a normal distribution (p <0.05).

The Mann Whitney U Test was applied to analyse whether the social anxiety scores and sub-dimensions of the learners participating in the study differed according to gender. The results are given in Table 15.

Table 15. Kolmogorov-Smirnov test results of social anxiety and sub-dimensions by gender

Social anxiety		Gender	Mean rank	*U*	*p*	Social anxiety
Negative evaluation/anxiety/fear	Woman Man	80 62	69.11 74.58	2289	0.431	
Somatic/somatic symptoms	Woman Man	80 62	70.53 72.76	2404	0.742	
Avoidance of interaction	Woman Man	80 62	70.70 72.53	2416	0.791	
Social anxiety general attitude score	Woman Man	80 62	70.13 73.27	2370	0.652	

The Mann Whitney U Test did not find a significant difference in the mean social anxiety scores of the learners participating in the study according to gender (U = 2370, p >0.05). Similarly, the Mann Whitney U Test did not find significant differences in the social anxiety sub-dimensions of the learners according to gender (*USK1* = 2289, p >0.05; *USK2* = 2404, p >0.05; *USK3* = 2416, p >0.05). The Kruskal Wallis H test was done to determine whether the social anxiety scores and sub-dimensions of the learners participating in the study differed according to age in Table 16.

Table 16. Kruskal Wallis H test results according to age variable of social anxiety and sub-dimensions

Social anxiety	Age	*n*	Mean Rank	x^2	*p*
Negative evaluation/anxiety/fear	21–25 26–35 36–45 46–55	8 88 34 12	81.88 70.38 77.54 55.67	3.096	0.377
Somatic/somatic symptoms	21–25 26–35 36–45 46–55	8 88 34 12	93.69 70.14 76.15 53.54	5.415	0.144
Avoidance of interaction	21–25 26–35 36–45 46–55	8 88 34 12	89.25 70.87 75.10 54.08	3.969	0.265
Social anxiety general attitude score	21–25 26–35 36–45 46–55	8 88 34 12	90.00 69.94 77.71 53.04	4.939	0.176

The Kruskal Wallis H test did not find a significant difference in the mean social anxiety scores of the participants according to age ($x^2 = 4.939$, $p > 0.05$). Similarly, the test did not find significant differences in social anxiety sub-dimensions of negative evaluation ($x^2 = 3.096$, $p > 0.05$), somatic symptoms ($x^2 = 5.415$, $p > 0.05$), and avoidance of interaction ($x^2 = 3.969$, $p > 0.05$) according to age.

The Mann Whitney U Test was performed to determine whether there were differences in social anxiety scores and sub-dimensions of the learners participating in the study according to online learning experience. The results are presented in Table 17.

Table 17. Results according to whether social anxiety and sub-dimensions are open education students or not

Social anxiety	Open learners	*n*	Mean rank	*U*	*p*
Negative evaluation/anxiety/fear	Yes No	39 103	66.23 73.50	1803	0.347
Somatic/somatic symptoms	Yes No	39 103	62.62 74.86	1662	0.104
Avoidance of interaction	Yes No	39 103	63.42 74.56	1693	0.148
Social anxiety general attitude score	Yes No	39 103	63.29 74.61	1688	0.143

The Mann Whitney U Test was done to determine if there were significant differences in the mean social anxiety scores of the learners participating in the study according to online learning experience. The results did not show a significant difference between two groups ($U = 1688$; $p > 0.05$). Similarly, the test was also performed to determine whether there were significant differences in the sub-dimensions of social anxiety (negative evaluation, somatic symptoms, and avoidance of interaction) between two groups. The results showed that there were not significant differences in any of these sub-dimensions ($U = 11803$, $U = 1662$, and $U = 1693$ for negative evaluation, somatic symptoms, and avoidance of interaction, respectively ($p > 0.05$).

Conclusion and discussion

The findings of this study contribute significantly to our understanding of the complex relationship between social anxiety and attitudes towards online learning. The strong negative relationship identified between learners' social anxiety and their attitudes towards online learning aligns with previous research (Ajmal, Ahmal, 2019; Bahcekapili, 2021; Chiu, Wang, 2008; Keskin *et al.*, 2020; Saade *et al.*, 2017; Sharifrazi, 2012; Yen *et al.*, 2012). This suggests that learners with higher levels of social anxiety tend to have more negative attitudes towards online learning environments.

A notable aspect of this study is the examination of specific dimensions of social anxiety, such as 'online learning avoidance', 'negative evaluation', 'somatic symptoms', and 'avoidance of interaction'. The findings reveal a low negative correlation between these dimensions and online learning avoidance, suggesting that, as learners become more comfortable with online learning, the intensity of the symptoms of social anxiety decreases. This highlights the importance of designing online learning environments that are sensitive to the needs of learners with social anxiety. Contrary to some previous studies (Bahcekapili, 2020; Saade, 2017), our results did not find significant differences in social anxiety based on gender or status as an Open Education student. However, significant differences were observed concerning age and educational status. The higher social anxiety scores among the youngest (18 to 25) and oldest (46 and over) age groups might indicate a generational divide in comfort and familiarity with online learning technologies. Additionally, the finding that learners with a higher educational status exhibit greater social anxiety could suggest that increased academic pressures or expectations in these groups contribute to heightened anxiety.

It is crucial to consider these findings in the context of designing and facilitating online learning experiences. As DeVaney (2010) suggests, addressing social anxiety in e-learning environments is essential for creating a supportive learning atmosphere. This could involve integrating more interactive and collaborative elements that mimic face-to-face interaction, thereby reducing feelings of isolation and anxiety. Furthermore, providing resources and support for learners experiencing social anxiety, such as counselling services or stress management workshops, could improve their overall learning experience (Ajmal, Ahmad, 2019). Moreover, the lack of significant differences in general attitudes and sub-dimensions towards e-learning across different demographics (age, gender, educational status, and previous online learning experience) indicates a broad acceptance of e-learning. This uniformity suggests that while individual experiences with social anxiety may vary, general attitudes towards e-learning are consistently positive or neutral across these demographics.

In conclusion, this study contributes significantly to our understanding of the complex interplay between social anxiety and attitudes towards online learning. It underlines the need for a holistic and empathetic approach to online education that takes into consideration the socio-emotional challenges faced by learners. By doing so, we can strive to create online learning experiences that are not only academically enriching, but also emotionally supportive and inclusive.

In the field of open and distance learning, there are a limited number of studies on online master's degree programme students as the study group. There is a need for studies to be carried out on this target group, especially those who prefer online learning. In a more national context, it is recommended to conduct studies to determine the characteristics and needs of this target group, and explore their attitudes towards online learning. Thus, it is important to carry out such studies in order improve online master's programmes. Besides, it is essential to study certain psychological dimensions in online learning, such as social anxiety. Determining the psychological dimensions affecting the quality of distance education and variables related to this dimension and revealing the relationships between these variables will contribute to the improvement of open and distance learning.

Further studies can be conducted to reduce social anxiety in online learning environments for learners. Psychological support can be provided, and seminars can be organised for learners. Unfortunately, people had to stay at home due to the lockdowns during the pandemic. Therefore, they stayed away from social environments, which resulted in high levels of social anxiety among people. The findings of the present study revealed that social anxiety needs to be studied, because attitude is a factor that considerably affects learning.

It can also be suggested that the instructors who teach in online learning environments should design their programmes or lessons by taking social anxiety sub-dimensions into consideration. Moreover, it is essential to increase learner-learner and learner-teacher interactions in online lessons in order to reduce social anxiety. Additionally, instructors can play a role in reducing social anxiety, by creating a welcoming and inclusive learning environment, being responsive to learner needs and concerns, and providing easy-to-follow communication and feedback. It is important for instructors to be aware of the potential for social anxiety in online learning environments, and to try to take this into account in their teaching practices.

In order to reduce the social anxiety of learners in online learning environments, add-ons such as chat-rooms or discussion forums can be embedded into the software or the websites, to allow learners to be more social and interact with each other. It is also suggested that online learning platforms should integrate features that allow learners to connect with each other and engage in social interaction, such as discussion forums, group projects, and virtual group meetings. These types of activities can help reduce social anxiety, by providing opportunities for learners to connect with their peers, and feel a sense of community in the online learning environment.

It is important to note that correlation does not necessarily imply causation. This means that finding a correlation between social anxiety and attitudes towards online learning does not necessarily mean that social anxiety causes a change in attitudes towards e-learning, or vice versa. It is also possible that there may be other factors that influence both social anxiety and attitudes towards e-learning. It would be useful to consider these potential factors in any further research on this topic.

References

Amies, P. L., Gelder, M. G., Shaw, P. M. (1983). Social Phobia: A Comparative Clinical Study. *British Journal of Psychiatry*, *142*, 174–179. DOI: https://doi.org/10.1192/bjp.142.2.174

Alomyan, H., Au, W. (2004). Exploration of Instructional Strategies and Individual Difference within the Context of Web-based Learning. *International Education Journal*, *4* (4), 86–92.

Bahcekapili, E. (2021). Examining the Social Anxiety of University Students in Synchronous Online Learning Environment. *Acta Infologica*, *5* (2), 435–443.

Carr, S. (2000). As Distance Learning Comes of Age, the Challenge is Keeping the Students. *Chronicle of Higher Education, Information Technology Section*. https://www.chronicle.com/article/As-Distance-Education-Comes-of/14334

Chiu, C. M., Wang, E. T. (2008). Understanding Web-based learning continuance intention: The role of subjective task value. *Information & Management*, *45* (3), 194–201.

DeVaney, T. (2010). Anxiety and attitude of graduate students in on-campus vs. online statistics courses. *Journal of Statistics Education*, *18* (1), 1–15.

Erdogan, Y., Bayram, S., Deniz, L. (2008). Factors that Influence Academic Achievement and Attitudes in Web Based Education. *International Journal of Instruction*, *1* (1), 31–47.

Erikson, E. H. (1950). Growth and crises of the "healthy personality". In M. J. E. Senn (ed.). *Symposium on the healthy personality*, 91–146. Josiah Macy, Jr. Foundation.

Harasim, L. (2017). *Learning Theory and Online Technologies*. 2nd edition. Routledge Ltd. DOI: https://doi.org/10.4324/9781315716831

Hignett, E., Cartwith-Hatton, S. (2008). Observer Perspective in Adolescence: The Relationship with Social Anxiety and Age. *Behavioral and Cognitive Psychoterapy*, *36*, 437–447.

Horton, W. (2006). *Online learning by Design*. Pfeiffer, San Francisco.

Joosten, T., Cusatis, R. (2020). Online Learning Readiness. *American Journal of*, *34* (3), 180–193.

Kashdan, T. B. (2007). Social Anxiety Spectrum and Diminished Positive Experiences: Theoretical Synthesis and Meta-Analysis. *Clinical Psychology Review*, *27*, 348–365. DOI: https://doi.org/10.1016/j.cpr.2006.12.003

Keskin, S., Şahin, M., Uluç, S., Yurdugul, H. (2020). Online learners' interactions and social anxiety: The social anxiety scale for online learningenvironments (SASE). *Interactive Learning Environments*, 1–13. DOI: https://doi.org/10.1080/10494820.2020.1769681

Keskin, S. Şahin, M. Ulıc, S., Yurdugul, H. (2023). Online learners' interactions and social anxiety: the social anxiety scale for e-learning environments (SASE). *Interactive Learning Environments*, *31* (1), 201–213, DOI: https://10.1080/10494820.2020.1769681

Leary, M. R. (1983). Social Anxiousness: The Construct and Its Measurement. *Journal of Personality Assessment*, *47*, 66–75. DOI: https://doi.org/10.1207/s15327752jpa4701_8

Lee, B. W., Stapinski, L. A. (2012). Seeking safety on the internet: Relationship between social anxiety and problematic internet use. *Journal of Anxiety Disorders*, *26* (1), 197–205.

Liaw, S. S., Huang, H. M., Chen, G. D. (2007). "An activity-theoretical approach to investigate learners" factors toward online learning systems. *Computers in Human Behavior*, *23* (4), 1906–1920. DOI: https//10.1016/j.chb.2006.02.002

Means, B., Toyama, Y., Murphy, R., Bakia, M., Jones, K. (2010). *Evaluation of evidence – based practices in online learning: A meta-analysis and review of online learning studies.* Washington DC: US Department of Education.

Moore, M., Kearsley, G. (2012). *Distance Education: A Systems View of Online Learning*. 3rd edition. Wadsworth, Belmont.

Moore, M. G., Anderson, W. G. (Eds.) (2003). *Handcook of Distance Education*. Mahwah, NJ: Lawrence Erlbaum Associates.

Powell, C. K., Kalina, J. C. (2009). Cognitive and social constructivism: Developing tools for an effective classroom. *Education*, *130*, 241–250.

Rogers, E. M. (2003). *Diffusion of Innovations*. 5th ed. Free Press.

Saadé, R. G., Kira, D., Mak, T., Nebebe, F. (2017, June). Anxiety & Performance in Online Learning. *SITE 2017: Informing Science+ IT Education Conferences, Vietnam*, 147–157.

Sanders, D. W., Morrison-Shetlar, A. I. (2001). Student attitudes Toward Web-Enhanced Instruction in an Introductory Biology Course. *Journal of Research on Computing in Education*, *33* (3), 251–262.

Sharifrazi, F. (2012). *The Investigation of a Synchronous Engagement System (SES) to Alleviate Anxiety Among eLearning Students in an MBA Program*. Doctoral dissertation. Nova Southeastern University.

Vygotsky, L. S. (1978). *Mind in Society: The development of higher mental processes*. Cambridge, MA: Harvard University Press.

Woo, Y., Reeves, T. (2007) Meaningful interaction in web-based learning: A social constructivist interpretation. *The Internet and Higher Education*, *10* (1), 15–25. ISSN 1096-7516.

Yen, J. Y., Yen, C. F., Chen, C. S., Wang, P. W., Chang, Y. H., Ko, C. H. (2012). Social anxiety in online and real-life interaction and their associated factors. *Cyberpsychology, Behavior, and Social Networking*, *1* (15), 7–12. DOI: https://doi.org/10.1089/cyber.2011.0015

TYRIMAS, KAIP MAGISTRANTŲ POŽIŪRIS Į MOKYMĄSI INTERNETU SIEJASI SU SOCIALINIU NERIMU

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Santrauka

Moksliniame straipsnyje analizuojama sudėtinga magistrantūros studentų požiūrio į internetinio mokymosi reiškinį ir jų skirtingo socialinio nerimo lygio tarpusavio santykį. Tyrimas atliktas Turkijos Anatolijos universitete, surinkus duomenis iš įvairių magistrantūros studentų grupių 2020–2021 mokslo metų laikotarpiu, kai studentai studijavo nuotoliu dėl pasaulį paveikusios pasaulinės COVID-19 pandemijos.

Sparti internetinio mokymosi plėtra pastaraisiais metais gerokai pakeitė švietimo struktūrą ir taikomas nuotolinio mokymo priemones visame pasaulyje. Ši nauja mokymosi paradigma mokiniams suteikia unikalų pranašumą ir sudaro puikias studijų galimybes. Tai aukščiausias lankstumo ir autonomijos lygis, išsivaduojant nuo tradicinių laiko bei vietos apribojimų, galimybė dalyvauti visuotinai prieinamose švietimo programose savų namų aplinkoje. Tačiau taikant šias priemones būtina įvertinti ir psichologinius aspektus, kurie atlieka svarbų ir dažnai lemiamą vaidmenį vertinant jų mokymosi rezultatus naujoje skaitmeninio mokymosi aplinkoje.

Vienas tokių psichologinių aspektų yra socialinis nerimas. *Socialinio nerimo* terminas apibrėžia baimę būti viešai stebimam ir vertinamam dėl savo socialinio elgesio, tai neigiamai veikia tarpasmeninę sąveiką, asmeninį bei profesinį augimą. Atsižvelgiant į nuotolinių švietimo aplinkų kontekstą, kur sąveikaujama minimaliai, tarpusavio ryšys palaikomas ir bendraujama per skaitmenines platformas, būtina kelti klausimą, ar šis psichologinis kintamasis galėtų paveikti mokinių požiūrį į internetinio mokymosi koncepciją.

Pagrindinis mūsų tyrimo tikslas – nustatyti, kaip socialinis nerimas veikia studentų požiūrį ir jų internetinio mokymosi patirtis. Be to, siekėme išsiaiškinti, ar šie požiūriai ir nerimo lygis skiriasi demografinių kintamųjų, tokių kaip lytis, amžius, švietimo būklė ir statusas, aspektais.

Statistine analize pagrįsti tyrimo rezultatai atskleidė reikšmingą neigiamą koreliaciją tarp socialinio nerimo ir požiūrio į internetinį mokymą. Taigi studentai, kurių socialinis nerimas stipresnis, linkę internetinį mokymą vertinti neigiamai. Tai verčia švietimo institucijas, teikiančias internetinio mokymosi paslaugas, atsižvelgti ne tik į mokinių požiūrį, bet ir į jų psichologinę būklę, kad galėtų vykdyti aukšto kokybės lygio, įtraukias ir veiksmingas mokymo programas.

Socialinio nerimo ir internetinio mokymosi santykio supratimas gali gerokai padidinti internetinio mokymosi programų veiksmingumą. Tai sudarytų pagrindą kurti palaikančią aplinką, kuri atitiktų socialinio nerimo kamuojamų mokinių poreikius, taip užtikrinant jų akademinę sėkmę ir asmeninį augimą. Tyrimas pateikia vertingų pasiūlymų dėl ateities tyrimo krypčių, pabrėžiant poreikį šiuos tyrimus tęsti, siekiant parengti veiksmingas strategijas, kaip spręsti su socialiniu nerimu susijusias problemas internetinėse mokymosi aplinkose.

PAGRINDINIAI ŽODŽIAI: *internetinis mokymasis, internetinė magistro programa, socialinis nerimas, požiūris, magistrantūros studentai*.

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