

The Effect of Pre-service Teachers' Readiness for Online Learning on their Social Anxiety in E-Learning Environments

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The purpose of this research is to examine the effect of pre-service teachers' readiness for online learning on their social anxiety in e-learning environments. For this purpose, opinions of 409 students who continue their pedagogical formation education at a university in Turkey were taken, the answers of 369 students were included in the research, and the data of 341 students with standardized scores were analyzed. In the study, readiness for online learning was considered as the independent variable and social anxiety of the pre-service teachers in e-learning environments as the dependent variable, and the data of the dependent and independent variables were obtained from the Online Learning Readiness Scale and the Social Anxiety Scale for E-Learning Environments. In the findings section, correlation analysis was made between the online learning readiness and social anxiety variables in e-learning environments, and then simple linear regression modeling was applied to determine how much the online learning readiness variable had on social anxiety in e-learning environments. As a result of the correlation analysis, a moderate negative significant relationship was found between readiness for online learning and social anxiety in e-learning environments. In addition, with the regression analysis, it was revealed that as the readiness for online learning increased, social anxiety decreased in e-learning environments. As a result, various suggestions were made to other researchers in line with these findings.

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Keywords: Readiness for online learning, social anxiety in e-learning environments, pre-service teachers

INTRODUCTION

With the reflection of the technological and social developments of the 21st century on the educational environments, online learning opportunities bring equal opportunities and chances. These new possibilities offer innovative applications along with them. In the effective and efficient application of technology, the attitudes, competencies and knowledge levels of instructors and learners towards technology are also considered important. Educators with technological and pedagogical competencies are expected to use technology for learning outcomes, especially in online learning processes. Achieving success in online learning environments is only possible with a successful technology integration. In order to realize the integration of technology, the Internet comes first among these opportunities offered by technology. These opportunities offered by the Internet have enabled educational institutions that do not have distance education applications to transfer their experiences of face-to-face education, and those who have distance education applications to the Internet. One of the Internet learning applications that emerged as a result of these applications is online learning.

Online learning can be defined as the work of gaining knowledge and skills through simultaneous and asynchronous learning practices that are written, transmitted, activated, supported, and managed with the use of internet technology (Morrison, 2003). Canan Güngören et al. (2014) defined online learning as a form of practice that allows learners to participate in learning activities interactively using the internet from anywhere. In the most general sense, online learning refers to the use of technology to access learning materials and interact with other people and teachers in the system (Anderson, 2008). The advantages of online learning can be listed as offering materials that will enable the learner to work at their own pace, being low-cost compared to face-to-face education, being geographically accessible, and enabling learners to watch online content regardless of time and place (Ayvazo et al., 2021). The roles of learners and trainers in online learning are different from face-to-face education. Learners need to take responsibility for their own learning. In order to

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fulfill these responsibilities, they need to be ready for online learning environments. This need for readiness has revealed the concept of readiness for online learning.

Readiness is defined by Senemoğlu (2009) as having prerequisite learning for a learning to take place. The concept of readiness for online learning is expressed as a concept that focuses on the ability to manage time and adapt to self-management of the online learning process, adopting internal motivation and understanding their own learning styles (Smith, 2005). Yurdugül and Demir (2017) defined readiness for online learning as the degree of possession of knowledge, skills and affective qualifications required for an individual or institution to obtain an effective online learning experience. Evaluation of readiness in online and e-learning is very important in order to increase success and minimize the risk of failure (Mercado, 2008). If students do not have sufficient experience or skills, they do not feel sufficient to participate in online learning and this may lead to anxiety (Horzum & Çakır, 2009). Guglielmino and Guglielmino (2003) stated that individuals who are not ready for online learning experience a negative e-learning experience and negatively affect their subsequent learning processes.

Anxiety as can be shown a result of these negative experiences. Even if online learning experiences provide opportunities to access without place and time when compared social learning environments, this kind of online interaction brings some barriers in socialization (Keskin et al., 2020). The reasons for the barriers can be described as technical and academic skills, low technology literacy, e-learning readiness, motivation self-efficacy, technophobia, and social anxiety (Hill et al., 2009; Muilenburg & Berge, 2005; Song et al., 2004). In constructing information, personality features are the basic components (Schroeder & Ketrow, 1997; Yen et al., 2012). Thus, social anxiety that is experienced during the interactions might affect online learning outcomes. From this point, the dimensions that have affect social anxiety in e-learning environments becomes an important point to discover to develop an understanding on the ways to decrease this social anxiety. This is the reason why the current study focuses to examine the possible effect readiness of online learning on social anxiety in e-learning environments. Another focus of the study is individuals who are taking pedagogical formation education. During this education, they are provided courses on educational sciences, but not about computer technology. However, in long term, when it is thought that they will plan and maintain online learning, the role of readiness of online learning on social anxiety in e-learning environments in terms of them became another scope of the study. Also, pedagogical formation serve education to not only train teachers, but also it encourages lifelong learning. For this reason, both educators and as individuals that would require technology and online learning for their individual development, an investigation could be beneficial to detect what should be done in terms of the study variables. Therefore, the current study aims to discover the effect of pre-service teachers' readiness for online learning on their social anxiety in e-learning environments. To reach this aim, the following research questions were tried to be answered with the findings.

RQ1: Is there a statistically significant relationship between pre-service teachers' readiness for online learning and their social anxiety in e-learning environments?

RQ2: Is there an effect of pre-service teachers' readiness for online learning on their social anxiety in e-learning environments?

METHOD

Purpose of the Study

Within the scope of the research, it is aimed to examine the effect of online learning readiness of teacher candidates who continue their education at a state university on their social anxiety in e-learning environments. Within the framework of this purpose, it is possible to examine pre-service teachers' readiness for online learning and their social anxiety in e-learning environments in the context of online learning.

Design of the Study

In line with the purpose of the research, readiness for online learning was determined as the independent variable and social anxiety of the pre-service teachers in e-learning environments was determined as the dependent variable. For this purpose, correlation analysis was made between online learning readiness and social anxiety variables in e-learning environments, and then simple linear regression modeling was applied

to determine how much the online learning readiness variable had on social anxiety in e-learning environments.

Population and Sample

The population of the research consists of pre-service teacher who graduated from different faculties of universities that provide pedagogical formation throughout Turkey. Students who took pedagogical formation were included in the study because it occupies an important place in the Turkish education system, and there is pedagogical formation education in many universities. Also, because they also take online courses, it was thought that those participants could provide the required data. As a sample, pedagogical formation students studying at a state university in the Marmara Region were included in the study with the convenient sampling method. There were 409 students who were continuing their education in the Spring Semester of the 2021-2022 Academic Year, and 369 students of them who volunteered to participate in the research and the scales were applied to these participants. After the answers were scored, they were standardized and the answers of 28 students were excluded from the study according to their Z-scores. Thus, the answers given by 341 students were included in the study.

Data Collection Tools

Two scales were used to obtain research data. Details of these scales are given below.

The Scale of Online Learning Readiness

Yurdugül and Alsancak Sırakaya (2013) conducted a study to obtain the Turkish version of the Online Learning Readiness Scale and to determine the psychometric properties of the scale items into the overall scale. The research is handled in two parts. The process of obtaining the Turkish version of the scale was carried out with 13 field and language experts, and the application process was carried out with 724 students from 5 different universities. As a result of the factor analysis of the data obtained from the paper-pencil application of the Turkish version of the scale, the correlations of 18 items on five different sub-dimensions gave significant results. However, the construct validity (convergence and discriminant validity) study on the correlations between the sub-dimensions and the mean explained variance values yielded positive results. These results show that the Turkish version of the Online Learning Readiness Scale is a valid and reliable measurement tool.

The Social Anxiety Scale for E-Learning Environments (SASE)

The Social Anxiety Scale for E-Learning Environments, developed by Keskin et al. (2020), aims to measure the social anxiety levels experienced in e-learning. The study group consists of 275 students who have previously gained experience in online or blended learning environments. Data were analyzed with confirmatory factor analysis, exploratory factor analysis, and convergent and divergent validity tests. Students' relationships in virtual environments were considered while developing the measurement tool. Two sub-scales were created to determine social anxiety levels for student-student communication and student-instructor communication. The naming of these two subscales was carried out as the approach towards talk pages in e-learning environments and the approach towards interaction with the teacher in e-learning environments. Each subscale of the Social Anxiety Scale for E-Learning Environments (SASE) consists of 23 items and three sub-factors. These sub-factors were named as negative evaluation, somatic/physical symptoms, and avoidance of interaction. The analyzes show that SASE is a reliable and valid measurement tool to measure the social anxiety levels of online students.

In line with the data obtained from the scales, the Cronbach α reliability coefficient was calculated for the reliability of the data and the Cronbach α value for the Online Learning Readiness Scale was ,87, the Cronbach α value for the approach to talk pages subscale in SASE e-learning environments was ,97, and the interaction with the instructor in SASE-learning environments was calculated. Cronbach's α value was ,98 for the approach towards approach subscale, and 98 for the Social Anxiety Scale for E-Learning Environments (SASE) scale. Based on this, it can be said that the reliability of the data obtained from the scales is high.

Data Analyses

The obtained data were analyzed through the SPSS 27 package program. Correlation analysis was used to examine the relationships between variables, and simple linear regression analysis with enter method was used to examine the effect of readiness for online learning on social anxiety in e-learning environments. On

the other hand, items in the scale about readiness for online learning reflect positive views, while items on the scale about social anxiety in e-learning environments reflect negative views. For this reason, the interpretation process was carried out by taking this situation into account in the correlation and regression analyzes.

FINDINGS

Information on the demographic findings of the participants participating in the research is given in Table 1.

Table 1. Demographic Findings of Participants

Gender	N	%	Department	N	%
Female	282	82,7	Verbal Sciences	81	23,8
Male	59	17,3	Arts and Music Sciences	27	7,9
Total	341	100	Numerical Sciences	47	13,8
Age	N	%	Sports Sciences	23	6,7
24 years and under	177	52,0	Linguistics	99	29,0
25 - 29 years old	82	24,0	Theology	64	18,8
30 years and older	82	24,0	Total	341	100
Total	341	100			

When the demographic characteristics of the participants are examined, it is seen that 82.7% of them are female (n=282) and 17.3% of them are male (n=59). Pre-service teachers aged 24 and below constituted 52% of the group (n=177), pre-service teachers aged between 25-29 years constituted 24% of the group (n=82), and pre-service teachers aged 30 and over accounted for 24% of the group (n=82). 23.8% (n=81) of pre-service teachers were from verbal science departments, 7.9% (n=27) from arts and music sciences departments, 13.8% (n=47) from numerical sciences departments, % 6.7 (n=23) of them graduated from sports sciences departments, 29% (n=99) from linguistics departments and 18.8% (n=64) of them graduated from departments of theology and received pedagogical formation.

Findings Related to Correlation Analysis

In the context of the correlation analysis carried out within the scope of the research, the total score of the approach towards talk pages in e-learning environments and the approach towards interaction with the teacher in e-learning environments, which is called the subscale of the Social Anxiety Scale for E-learning Environments (SASE), was calculated from these two sub-scales. The total score of the Social Anxiety Scale for E-learning Environments (SASE) obtained was calculated and compared with the total score obtained from the Online Learning Readiness Scale. The result of the correlation analysis is given in Table 2.

Table 2. Correlation Table for Dependent and Independent Variables

Variables	Mean	SS	Readiness for Online Learning
Approach to Discussion Pages	73,81	31,60	-,323**
Approach to Interacting with the Student	66,95	33,62	-,322**
SASE	140,77	63,58	-,331**

** p<0,01

As a result of the correlation analysis carried out to determine whether there are significant relationships between the variables, it was concluded that there is a moderately negative and significant relationship between the approach to the discussion pages, which is the SASE subscale, and the readiness for online learning. Likewise, the results of the analysis revealed that there is a moderately negative and significant relationship between the approach towards interaction with the instructor, which is included as the SASE subscale, and the readiness for online learning. Considering the total scores, it is seen that there is a moderately negative and significant relationship between the scores obtained from the Social Anxiety Scale for E-learning Environments (SASE) and the scores obtained from the Online Learning Readiness Scale.

Findings Related to Regression Analysis

In line with the purpose of the study, simple linear regression modeling was carried out in order to examine the effect of pre-service teachers' readiness for online learning on their social anxiety in e-learning environments. Findings related to the regression analysis are given in Table 3.

Table 3. Linear Regression Table for Dependent and Independent Variables

Dimensions	Predicted Variable: Social Anxiety in E-Learning Environments				
Predictive Variable	B	Standard error	β	t	p
Readiness for Online Learning	354,25 ,304	33,206	-,331**	10,668	,000

R=,331, R²=.110
F=41,732, p=,000

As a result of simple linear regression analysis, it can be said that readiness for online learning is a significant predictor of social anxiety in e-learning environments ($p < .001$). As can be seen from the table, it is seen that social anxiety decreases in e-learning environments as the readiness for online learning increases. Readiness to learn online explains approximately 11% of the total variance of social anxiety in e-learning environments ($R^2 = .110$).

CONCLUSION and DISCUSSION

The current study aimed to examine the effect of pre-service teachers' readiness for online learning on their social anxiety in e-learning environments. To reach this aim, pre-service teachers were applied surveys, and the findings of the analyses is discussed with the related studies.

As a result of the correlation analysis performed to determine whether there are significant relationships between the variables, it was concluded that there is a moderately negative and significant relationship between the approach to the discussion pages and approach to interaction and the total points of the Social Anxiety Scale, and the readiness for online learning. The related studies on readiness for online learning show that there are several variables that might be related to readiness for online learning. For example, Demir Kaymak and Horzum (2013) found that there is a positive relationship between readiness for online learning and perceived interaction, and a negative relationship between perceived structures. Also, according to Ilgaz and Gülbahar (2015), while individual factors were found to be the most important factor affecting electronic readiness, it was found that the content of the teaching came to the fore in terms of satisfaction. Horzum et al. (2015) revealed that the increase in readiness for online learning increased academic motivation, and academic motivation was found to be an effective factor to increase perceived learning in online learning. In addition to these variables, Riaz et al. (2021) shares that academic anxiety found negatively correlated with readiness of online learning. It is possible that this finding is parallel to the current study's finding. That is, it is possible to say that when the students are ready for the online learning, they experience less anxiety. The reason of this negative correlation might be self-efficacy. That is, according to Hodges (2008) describes self-efficacy beliefs as an important determinate for online learning experiences.

The other finding displays that readiness for online learning is a significant predictor of social anxiety in e-learning environments. The related studies suggest that readiness for online learning is described as a predictor for the several variables. To illustrate, Yılmaz (2017) discussed the predictor role of readiness on student satisfaction and motivation whereas Torun (2020) shares the predictor role on the academic achievement. Moreover, student interactions and motivation in distance learning is another variable discussed in terms of readiness of online learning, so Çebi (2022) described it as an essential predictor. The current study adds another variable that the readiness of online learning might have affect that is social anxiety in e-learning environments. Especially with the Covid-19 pandemic, e-learning and the factors affecting it becomes a question mark for the researchers, educators, and policy makers. Thus, pre-service teachers' readiness of online learning might be determinate for the dimensions related to their learning. Because online learning includes different dimensions compared to the face-to-face learning, social anxiety in e-learning environments

might become an essential point to discuss (Keskin et al., 2020). As a result, the predictor role of readiness of online learning on social anxiety in e-learning environments can help the educators to find the suitable ways to increase the efficacy of online learning. Because social anxiety might also affect the efficacy of the online learning (Polat et al., 2022), the role of readiness indirectly affects outcomes of online learning.

With the developed technology and the changing world, online learning has become one of the educational realities. Even if the benefits of online learning to enhance participations' access to the information and interaction without time and space limitation, it brings some additional questions to discover. That is, to have positive experiences from online learning, the factors that might affect learning must be realized and solutions should be discovered. With this framework, the current study focuses on the social anxiety in e-learning environments and the possible effect of readiness of online learning on it. As a result of the study, it is possible to say that students' readiness of online learning can have effect on their experiencing social anxiety in e-learning environments. Focusing on pre-service teachers who both are participating online learning as student and will maintain online teaching in their future years may help to develop better understanding of online learning outcomes. Therefore, exploring the possible effects on their social anxiety might contribute their own learning and teaching. From this point, the results of the current study provide findings ways to having negative consequences resulted with social anxiety with the scope of readiness of online learning.

In the light of the findings of the current study, some suggestions could be displayed. That is, even if online learning provides opportunities in several aspects, it is also important to discover the negative consequences that may occur among learners and instructors. The current study suggests that one of the negative consequences, social anxiety, might be resulted by the readiness of the online learning. Thus, it may be suggested to develop teachers' and students' skills in engaging online learning in terms of technology and the web to decrease the social anxiety in e-learning environment. To develop these skills, pre-service teachers can be supported in terms of participating and preparing online learning in more detailed way. That is, even if during undergraduate years, pre-service teachers took courses related to computer technologies, these courses can be integrated to other courses related to their major. Therefore, when they develop their skills related to participating online learning, their readiness can increase, so their anxiety might decrease. Another suggestion for the policy makers and practitioners could be about the content of the pedagogical formation courses. That is, pedagogical formation education is provided in many universities, and after having their certificate, they have chance to work as a teacher. Thus, with the high level of social anxiety and low level of readiness of online learning, their maintaining teaching would be affected. According to this, pedagogical formation serves lifelong learning. Thus, not only as teachers in classrooms, but also individuals that could engage in technology in their lives, developing their skills and learning on technology could benefit their lifelong learning in terms of having less social anxiety and high readiness on social learning. From this point, rather than providing courses related only educational sciences, their knowledge and skills on computer technologies could be improved. In addition, the policymakers and researchers can detect the inadequacy of students and teachers to develop suitable technologies and courses related to these technologies. As a result, the following studies can focus on detecting these ways and making detailed descriptions for the most effective e-learning outcomes with regard to study variables.

Even if the current study discovers the predictive role of readiness of online learning on social anxiety in e-learning environments, there are some limitations of the current study. One of them is to reach more participants from all different majors could be included to generalize the results. Even if in the study there are participants from several majors, all majors that could take pedagogical formation can be revealed the possible differences in accordance with the specific major with the future studies. In addition, making another study that uses qualitative designs can help the researchers to have more detailed data on the reasons of the relationship found in the current study. Finally, even if the current study talks about the possible effect of readiness of online learning on social anxiety in the e-learning environments, to have more accurate conclusion on these variables, experimental designs can be applied in the future studies. Not only determining the effect of readiness of online learning on social anxiety in e-learning environments but studies to develop interventions that may increase readiness and decrease the social anxiety might be planned in the future studies.

Declarations

Conflict of Interest

No potential conflicts of interest were disclosed by the author(s) with respect to the research, authorship, or publication of this article.

Ethics Approval

The formal ethics approval was granted by the Social and Human Sciences Research and Publication Ethics Committee of Sakarya University. We conducted the study in accordance with the Helsinki Declaration in 1975.

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Research and Publication Ethics Statement

The study was approved by the research team's university ethics committee of the Sakarya University (Approval Number/ID E-61923333-050.99-199823. Hereby, we as the authors consciously assure that for the manuscript, the following is fulfilled:

- This material is the authors' own original work, which has not been previously published elsewhere.
- The paper reflects the authors' own research and analysis in a truthful and complete manner.
- The results are appropriately placed in the context of prior and existing research.
- All sources used are properly disclosed.

Contribution Rates of Authors to the Article

The authors provide equal contribution to this work.

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