The effect of perceived social support and life orientation on anxiety caused by online education in Covid 19 conditions

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Abstract
The Covid-19 pandemic has created a disadvantaged student population due to the sudden obligation for distance learning. Poor performance of online educational tools, risk of transmission and staying at home cause stress and anxiety in students. This research examines the effects of usability and accessibility of the online learning system on students' anxiety in the presence of students' perceived social support as well as students' perceived optimistic/pessimistic life orientation. The survey instrument prepared for this purpose includes questions about the online learning system used, Covid-19 anxiety, life orientation and perceived social support. Web-based questionnaires were collected from 5,682 students from different universities and the data was analyzed for the role of social support and life orientation on anxiety caused by stress and distance learning. Findings show that accessibility has a negative effect on anxiety while the effect of perceived social support on anxiety problems could not be ascertained. It was determined that the optimism dimension had a mediating effect on students' anxiety and the pessimism dimension had a mediating effect. The research results are consistent with the literature.

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Introduction
During this period, where all universities are closed due to the Pandemic and are paving the way towards online and distance learning, keeping students online and maintaining education continuity has occupied educational institutions and governments' agenda. In the process, universities have continued to offer services using their online teaching tools and some using educational technology products. As a result of our observations in different universities, some universities had different difficulties in adapting to information technologies compared to their previous experiences in distance education technologies. Turkey Education Ministry and Higher Education Institution is continuing to work on remedying students' and their parents' concerns regarding the remediation of practical education, which is difficult to provide when schools are closed. However, this isn’t the only point of concern. We have seen that in educational institutions at all levels, the adequacy of distance education tools, the interaction of students and families with this technology has caused concerns about whether education can achieve its purpose. Usability of online learning platforms, ability to provide consultancy to users on support and guidance, preparation of content to increase learning efficiency have all proved to be points of problem. These problems will seriously affect evaluation of the performance of students in education. Interaction of students and teachers via information communication technologies, a specific area of human-machine interaction, can create uncertainties in education and, as a result, stress and anxiety.

Factors that determine effectiveness and efficiency of education varies between online and physical environments. We thought that the negativity of these criteria would cause stress as it would negatively affect the student's/teacher's performance, and would cause anxiety when uncontrollable. When the learning system is considered as a whole, usability of the learning system and ease of use of the user interface for students, the impact of components such as learnability, effectiveness, retention, and satisfaction on learning

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Outcomes should be taken into account (Nielsen, 2012). Human learning system interaction, which we define as accessibility, includes design, development, evaluation, and applications of information communication technologies. It is possible to talk about the different criteria of accessibility of the learning system, which includes these sub-dimensions. Different researchers used online learning interfaces and each determined their usefulness on different criteria (Jeng, 2005). These accessibility variables can be summarized and organized as follows: interface effectiveness, thriving learning environment, flexibility, practical use, effectiveness, usefulness, functional accuracy, advanced features, fault tolerance, ease of remembering, speed, persistence, control, user satisfaction, ease of use, ease of learning, performance, adaptability, and helpfulness. Severe warnings have been made through media that students not being able to leave their homes for a long time and being subjected to social isolation when schools are closed may create a traumatic effect that varies in different age groups. However, unfortunately, public-centered support action plans were not sufficient for students to cope with stress when universities closed. Independent working and learning skills are not sufficiently developed, and the perceived deficiency of students who cannot learn without guidance has also been a source of stress for families. On the other hand, internet costs, not having internet access, and not getting enough support at home were also perceived as problems for students.

Infrastructure used for online education was limited to universities' facilities. For millions of students, the effectiveness of online education at home was limited to capacity of information communication, technology and internet. The lack of information technology tools, the high cost of Internet access, those living in rural areas without Internet infrastructure, and home environments unsuitable for learning, where all family members lived together, were also a major problem. All this problems are the factor that creates anxiety in students about the learning process. Distance education already has its own problems under normal circumstances. However, complexity and challenges have increased in distance education with the pandemic process's additional challenges. The pandemic education process's positive aspects are the increased momentum in the large-scale investments and the governments and educational institutions' technology development efforts to support distance education and online learning. In the literature, the significant challenges of distance education include infrastructure weakness for online education, instructors' inexperience, lack of technological knowledge, complex environments inappropriate for learning at home, and some other similar shortcomings (Murgatrodt, 2020). However, despite certain limitations, efforts are being made to ensure the students' educational process is not interrupted.

Despite careful government interventions and widespread efforts in society, including the educational institutions and other stakeholders' efforts, the implementation of the "Life Fits Home" policy has revealed numerous problems related to education. The most critical limitation in online education is infrastructure. With large-scale teaching needs, too many stakeholders' use of online teaching systems has caused network crashes. Due to the regional differences in information technologies, network access problems vary by region. Inequality in access to education has emerged due to insufficient network coverage in rural areas. The utilization and efficiency of online teaching resources in rural areas are relatively low. Although the government's educational authorities have developed various online education services at the national and regional level, these educational services have ended up being small additions to previous offline training before the outbreak. The online services' quality level depends on regional differences, the online education infrastructure used, the online education system, the differences between the schools, and the differences in content (Fang, 2018). Most educators in Turkey had no or very little experience in online education before. The inexperience of educational institutions in developing materials, which were caught unprepared for the pandemic, would be reflected in the quality of education. Although instructors have received support for online education during the epidemic, such training's short-term impact was very low. Also, inequality between urban area-rural area facilities, different knowledge levels of instructors about information technology, attitudes and learning skills of instructors towards the information technology have led to different online education effectiveness across the country (Zhang et al., 2015). Students and instructors were also exposed to significant negativity while providing and receiving education at home because of the home environment. In addition to the distractions in the home environment, it has not been easy to associate the context of the home's previous life experiences with education. For example, household chores, child care, home life, and problems can negatively affect online education. Not all instructors and students may access the appropriate environment for teaching and training at home.

The quality of education and teaching can be limited due to insufficient hardware or unstable network access (Zhang et al., 2020). To solve such problems, researchers suggest that governments and education providers should encourage instructors and students by providing formal home-based training and teaching equipment (Huang et al., 2020). Due to the increasing social isolation policies because of the extraordinary pandemic measures and nationwide curfew restrictions, students and instructors also had to change their everyday habits, as did entire population. Sense of uncertainty and stress caused by this situation has changed all relationships at a severe level. The loss of employment, the stress that students experience in learning, and accessibility problems that disrupt learning activity, and uncertainty about measuring and evaluating the online learning process also cause serious anxiety in students.

In the context of the detailed background given above, this study is designed to explain the anxiety caused by online education in terms of perceived social support and life orientations in the context of Covid19. In the study, first of all, students' attitudes towards the integration of information and communication technologies into education, the success anxiety caused by covid conditions and online education adaptation problems, the external factor of social support and the internal factor of life orientations to control this anxiety were determined. Then, the mediator and moderator effects of social support and life orientations on anxiety were measured.
It was also considered as a supporting objective that the findings on distance education, student cohesion, and accessibility problems would be beneficial to policy making. The research includes students who continue their education and training in higher education institutions during the pandemic period. Online education students were chosen as the sample for this study.

The main purpose of the study is to evaluate students' interactions with the education system, their social support, their optimistic or pessimistic life orientations, and the mitigating and mediating effects of anxiety created by students' perceived negativities.

**Literature Review**

**Theoretical and Conceptual Background**

The importance and speed of integrating information technologies into the academic system as a teaching tool have increased. Likewise, the benefits of providing online resources to support traditional teaching methods in universities are well known (Ruzgar, 2005). While being online is not seen as a big change for many universities worldwide, students' readiness and access to technological tools should always be considered. In terms of the age group, students receiving a university education are incredibly skilled at using modern technologies such as information technologies, digital technologies, etc. There are definitions such as digital natives, millennium generation, network generation, and digital generation for the younger generation in the literature. The population in this age group is highly knowledgeable about understanding the logic of digitalization. From the moment they open their eyes to the world, they meet mobile phones, tablets, and computers (Shava et al., 2016). From this point of view, students' attitudes towards integration into the technology-assisted education system are positive. Despite all this, the student population, opportunities to use information technologies, the availability of computers, tablets, and smart tools necessary for online learning activities, and their means of access to the internet vary. The fact that there is a difference between using information technologies as a part of daily life and using them for educational purposes should also be considered. Although they are proficient in technology, they may lack the theoretical knowledge necessary for certain professions. Given the pandemic conditions, most students were found to have great difficulty accessing online education, primarily due to poor Internet access or various other disadvantages. There is no doubt that information technologies are an integral part of everyday life and that ICT literacy has become a functional requirement for almost all competencies. Students must have the right attitudes and perceptions about ICT to integrate technology into the teaching process effectively (Ali, 2020; Mirzajani et al., 2016).

Can the problems experienced in internet access, the lack of technological infrastructure and knowledge on using ICT technologies, the anxiety created by the uncertainties in the evaluation of the teaching process be controlled with social support and life orientations? Or can the level of anxiety be explained by social support and life orientations? In order to answer these questions, it is seen that there is a serious accumulation of knowledge in the literature review. Although there is no direct information about the research subject, there are qualified studies that form the basis of explaining the research arguments.

Almost all studies have revealed a positive relationship between lack of social support and anxiety (Lakey and Cronin, 2008). Almost all studies have found a relationship between perceived social support and happiness (Lakey and Orehak, 2011). Experimental studies on social support have found that positively perceived support protects more from psychosomatic health disorders than actual social support. Schwarzer and Leppin (1991) found that the correlation coefficient between perceived support and health was statistically significant. Social support is not a single concept, but a mixture of different concepts that define the content and characteristics of social support in different ways (Barrera, 1986). Hirsh (1980) proposes to consider the elements of social support in terms of four types of support: Emotional support, evaluation support, information support and instrumental support. When many definitions in the literature are reviewed, it is seen that social support focuses on the resources and interactions of the individual or their subjective evaluation by the individual. According to Uchino (2009), many studies suggest that “perceived support” has a positive effect on reducing one's stress. However, the effects of accepted support and perceived support differ from each other (Uchino, 2009). Sometimes, social support is destructive if a person's social interactions with members of their social network are negative (Davis and Swan, 1999; Rook, 1984). According to one view, receiving support poses a threat to self-esteem, as the supporter feels that he or she can realize their weakness and inability to cope with their problems on their own (Fisher et al., 1982). Some researchers suggest that inequality in the support process may lead to a situation where the recipient feels responsible towards the support provider, which may exacerbate their problems (Dunbar et al., 1998).

Receiving social support from other people can cause a change in an individual's self-esteem, increase the individual's awareness of his/her own condition, create additional problems and make them public, lead to unwanted debt obligations, and also cause an individual to become overly dependent on other people (Bolger et al., 2000). Therefore, social support is a complex phenomenon that determines the satisfaction or dissatisfaction of the recipient depending on the individual needs and expectations in the support provider and support recipient interaction. It is important to note that despite their passive role, the support recipient is an active participant in social interaction, and therefore the level and quality of support largely depends on their behavior and emotional-personal characteristics (Vasserman et al., 2008). It is assumed that the size, composition and accessibility of a social network affect the amount of social support resources provided to the individual and can determine the level of perception (Cutrona and Russell, 1987). At the same time, Vaux and Harrison (1985) states in his studies that the presence of spouses and close friends in the social network composition is more effective on the perception of social support than the total size of a social network. Another determinant of perceived social support is a person's social participation, that is, the number of social connections they have with members of
their social network. Some studies have shown that the individual's high frequency of social contact is closely related to the perception of positive social support. When the results of many studies are summarized, the results show that there is a systematic relationship between the individual's perception of support and the level of happiness. The higher the perceived support, the higher the level of happiness. Numerous social support researchers who have tried to explain the relationship between perceived support and optimism have concluded that interaction with a particular supporter affects the level of happiness of the supported. One reason why people with perceived support are happier may be their tendency to interpret others' new, supportive actions as supportive (Lakey and Cassady, 1990). It can be said that people who perceive their close environment (family, friends) as supportive are happier than people who doubt their own environment's ability to support them. In contrast, the relationship between social support and perception of happiness reflects both the personality traits of the support recipient and the relationship between the subject and the support object. Optimism, which is accepted as a component of happiness, is a component of subjective well-being that affects physical and mental health. World perception and behavior vector are perceived differently according to the level of optimism. Unlike optimism, pessimism reflects the mood, emphasizing not only negative but also worse consequences of events.

Bradburn (1969), describing the content and structure of subjective well-being, draws attention to the fact that positive and negative affect play an important role in the definition of this concept, and that what determines the general sense of satisfaction with life and well-being is the difference between positive and negative effects. Optimism also symbolizes belief in the possibility of a better future, the victory of good over evil, and the victory of justice over injustice. An optimist knows that life is not accidental and that at the end of the road, "good" will surely triumph over "evil." Moreover, being optimistic means believing not only in the "good" but also in the "best". The optimist is not satisfied with what has been achieved, he wants something more perfect.

As opposed to optimism, pessimism is the expectation of a negative outcome. To compare pessimism with optimism, consider two employees at a workplace, one optimistic and one pessimistic. When both are offered a promotion opportunity, the optimist expects to be chosen for the promotion, while the pessimist expects not to be chosen. Pessimists' negative expectations lead to negative emotions and ultimately give up pursuing the goal (Scheier and Carver, 1992). The optimist will not hesitate to apply for promotion, while the pessimist may think the position application is a waste of time as he/she expects rejection. For the measurement of optimism, researchers draw attention to the four issues to consider:

i. Examination of Life Orientation Test (LOT) items reveals that some optimistic and pessimistic thoughts may not be inherently incompatible. One can look at "the brighter side of things" without "relying on good things."
ii. Whether the goals are proximal or distal can be an essential variable when optimism and pessimism are considered.
iii. One individual can be optimistic in one area, and pessimistic in another (Marshall et al., 1992).
iv. "It is useful to distinguish between optimism tendency and event-based optimistic expectations" (Taylor et al., 1992).

Experiencing stress-related anxiety in an environment of uncertainty caused by the education process's disruptions seems to be the usual outcome. Anxiety is a mental condition that is accompanied by psychological symptoms such as distress, excitement, and fear of something bad happens at any time, in addition to accompanying physiological symptoms (Karamustafalıoğlu and Yumrukçal, 2011). Life orientation and perceived social support are of great importance when controlling anxiety in an environment of uncertainty caused by the asymmetric information spread in the media regarding the pandemic. It is believed that life orientations, which have two sub-dimensions, optimism and pessimism, have a moderator effect on anxiety levels.

Optimism is the expectation of positive outcomes. This expectation is "relatively stable" and does not change significantly over time, and applies to any area of one's life. Optimists expect that they can achieve their goals. Their positive expectations motivate them to achieve goals even in the face of adversity. Having positive expectations leads to positive feelings about the goal, as success is only a matter of time (Scheier and Carver, 1992). On the other hand, another variable that affects the perceived anxiety level is perceived social support. Social support is the support provided by an individual's inner circle (Yılmaz et al., 2008). As a means of external control, social support is estimated to have a moderating effect on anxiety. It can be stated that social support, in the form of family support, friend support, and support from a significant other, will help people in coping with anxiety. In cases of crisis-like emotional stress, individuals need to lean on family members and friends who are seen as a natural helping hand. This support alleviates the anxiety and concern experienced by individuals.

**Research and Methodology**

Many educational institutions use information communication tools such as computers, projectors, tablets, smartphones, iPads, and interactive whiteboards. Their use also attracts students. However, many educational software and learning applications on the internet are different from these. In order for students and other educators to benefit from the on-line teaching process at the maximum level, the equipment, infrastructure and equipment must have sufficient ICT infrastructure and support services. Students' familiarity with information technologies is an important advantage for success in online education. However, many of the following determinants of technological infrastructure and experience cause concern for the parties (Ali, 2020):

i. Complexity of Online education
ii. Equity concerns in access,
iii. Expected declines in student achievements
iv. Concerns over the compliance of the regulation of digital educational content with the objectives,
v. Availability of the content on different devices and mobile devices
vi. Low bandwidth, including offline solutions
vii. Qualification of support staff for online education
viii. Providing educational Internet access in a way that ensures equal opportunity to all students
ix. Organizing supportive guidance on how to use and access remote and online learning content
x. Difficulties in teaching some academic subjects online

Although educational institutions all over the world have switched to distance education in order not to interrupt their activities, it has not been possible to overcome the lack of technology and experience. There was still uncertainty and disagreement about how and what to teach, the workload of students and educators, the teaching environment, equal access to education, and the interaction of elements in the process (Zhang et al., 2020).

It was considered as a problem that these uncertainties affected the students, who are the main inputs of the education process, more and would cause anxiety on the students. Based on this problem, the following hypothetical model was designed for our research:

![Figure 1: The hypothetical model designed for the research](image)

According to the designed research model (Fig. 1), the following specific objectives were set to achieve the purpose of the study to determine whether:

i. accessibility problems cause anxiety,
ii. perceived social support has a moderating effect on anxiety caused by online access problems.
iii. the optimistic life orientation and social support have a moderating effect on the anxiety experienced in online access.
iv. the pessimistic life orientation has a mediating effect on the anxiety experienced in online access.

For this study, it was necessary to reach students who had internet access and were able to participate in distance education. For this reason, the web-based questionnaire, which was organized only to collect data, was delivered to the students via social media groups over the internet, through the student affairs unit of the universities, via e-mail addresses registered in the student information system. Convenience sampling was used to collect data. In order to generalize the sample to university students in Turkey, attention was paid to the large number of participants. As a sample, it was tried to reach the universities in the western black sea.

First, data were collected from 400 participants from Bolu Abant Izzet Baysal University and Kocaeli University students through a pilot study. The survey questions were revised through this study. Then, the comprehensive data collection phase was started. Personal information, including e-mail addresses, was not requested in the study. Students were encouraged to respond to the questionnaire by informing them that the information would be used for research purposes only.

The data collection was started on May 12th, 2020, and closed on May 21st, 2020. In this study, scales with many items left blank or systematically filled and marked with incorrect items were not included in the evaluation. The study included 5682 university students in the western Black Sea region in Turkey. The age of the participants varied between 19 and 32. Ethical approval of the current study was accepted by the Ethics Committee of the Istanbul Esenyurt.

The research problem is related to the Pandemic process, and this problem should be considered in its context. The method of this research is quantitative, relational and cross-sectional. The research also has a heuristic feature since it was designed to collect preliminary information that will help identify the problem and develop hypotheses because there were no similar studies specific to this context. The ex post facto purposeful sampling technique was used to allow exploration without manipulating the current social support and life orientations on the students’ anxiety caused by online access problems.
The data were collected through an online survey designed by researchers. The survey consists of five parts; Part A identifies the participants' socio-demographic characteristics, such as age, gender, place of residence, possessed IT tools, income, and residence status. Section B is the Life Orientation Test (LOT-R) developed by Scheier et al. (1994).

**The LOT Orientation Test (LOT-R) Scale**

The LOT-R measures pessimism and optimism. The LOT-R is frequently used in optimism research (Scheier et al., 1994). Scheier and Carver describe optimism as a two-pole structure (Scheier and Carver, 1985). Other researchers believe that optimism and pessimism are orthogonal but associated structures (Chang et al., 1997; Dember et al., 1989; Marshall et al., 1992; Myers and Steed, 1999). In the life orientation test scoring, the 3rd, 7th, and 9th items are reverse coded. Moreover, the 2nd, 5th, 6th, and 8th items are not scored. The participants mark each item on a 4-point scale: 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree. The LOT-R was reported to have strong internal reliability, with Cronbach's alpha reliability of 0.82 (alpha=0.82). The total score of the scale is calculated by adding the answers to the items. Lower scores in the scale indicate pessimism, while higher scores indicate optimistic individuals.

**The Structural Criteria for Online Education Survey**

Part C is a scale developed by the researcher for this study to determine the structural criteria for online education, such as online education system management, accessibility, and user-friendly design. In this 5-point Likert style scale, participants were asked to assess the online education system in a favorable (max 5) or negative (min 1) way in terms of the presence of the criteria given. A pilot study was carried out to conduct the measurement tool's validity and reliability studies. The Cronbach's alpha coefficient of the scale was measured as alpha=0.86.

**The Generalized Anxiety Disorder-7 Inventory**

Part D consists of the Generalized Anxiety Disorder-7 (GAD-7) Inventory, developed by Spitzer et al. (2006). The scale consists of one dimension and 7 items. It's a 4-point Likert type scale (0=Not at all, 1=Several days, 2=More than half the days, 3=Nearly every day). The scores taken in the scale are in the range of 0-21. There are no reverse coded items on the scale. The cut-off points for the total score in the scale are 5, 10, and 15 points for mild, moderate, and severe anxiety, respectively. The GAD diagnosis of the participants with a total score of 10 and above needs to be investigated and verified by other methods. The Turkish adaptation of the scale (alpha=0.89) was carried out by Konkan et al. (2013).

**The Social Support Scale**

Part E consists of the social support scale. The Scale of Perceived Social Support was developed by Zimet et al. (1988). In Turkey, the construct validity of the scale, concerning depression and anxiety measurements, was first evaluated by Eker and Arkar (1995). The factor structure, validity, and reliability of the scale were further revised by Eker et al. (2001). The sub-scales of the Multidimensional Scale of Perceived Social Support (MSPSS) include support from family, friends, and a significant other. Internal consistency of scale and sub-scales (Eker and Arkar, 1995; Kazarian and McCabe, 1991; Zimet et al., 1988) and test-retest correlations Zimet et al. (1988) were found adequate by Eker et al. (2001).

**Procedure**

Before the questionnaires were distributed, the participants were asked to give honest answers to the questions in the questionnaires. The participants were also informed that their answers would not be shared with anyone else, and that the data would only be used for research purposes. Following the collection of the questionnaires, the answers given by the participants were recorded and analyzed.

**Data Analysis**

SmartPLS 3.2 and Lisrel 93.0 package programs were used to analyze the effect of social support and life orientations on the anxiety caused by online education at home in Covid conditions. The collected survey data, correctly filled out by 5682 students, were analyzed in detail. The data were analyzed using SmartPLS 3.2 and Lisrel 93.0 package programs. The questionnaire data along with the descriptive statistics are summarized in this section. First, validity and reliability tests of the scales used in the research were carried out. To test the research scales' validity and reliability, the data were subjected to SEM analysis using SmartPLS 3.2 program. Table 1 shows the confirmatory factor analysis results, and Table 2 shows the Cronbach's alpha, composite reliability (CR), and average variance explained (AVE) values for our variables. The item number 2, 4, 5, and 6 of the accessibility management systems, item no 1 of the family support, and item no 2 of the friend support were removed due to lower factor loads. Hair et al. (2017) have indicated that researchers often obtain weak factor loads in social science studies. They stated that instead of automatically removing indicators with values below 0.70, the effect of item removal on the composite reliability coefficient (CR) and content validity of the structure should be carefully examined. In general, they recommended that indicators with external loads between 0.40 and 0.70 should be considered for removal only if they lead to an increase above the recommended threshold in the composite reliability (CR) or the average variance extracted (AVE). In this context, considering the internal consistency reliability of the variables, the PLS-SEM analysis showed that the Composite Reliability Coefficient (CR) was above 0.80, which is considered the most critical reliability criterion (Sonmez Cakir and Adiguzel, 2020), and the AVE (Average Variance Extracted) value was more significant than 0.50,
indicating a fit. Although it is deemed sufficient that the CR value should be above 0.70, Fornell and Larcker (1981) have stated that the CR value must be over 0.80 for good convergent validity. Compared to AVE values, CR values must be greater than AVE. When Table 1 is examined, it appears that the CR values meet the recommendation of Fornell and Larcker (1981) and are more significant than the AVE values. Therefore, indicators whose values are less than 0.7 were not removed after the reliability and validity conditions were met. However, as can be seen in Table 1, Cronbach's alpha values of the optimism and pessimism are in the range of 0.6 and 0.7; however, since the CR and AVE values of these variables meet the required thresholds, it is concluded that the model meets the reliability and validity criteria required.

Table 1: Confirmatory Factor Analysis Results of the Scales

| Anx1 | Anx2 | Anx3 | Anx4 | Anx5 | Anx6 | Anx7 | OT1 | OT2 | OT3 | OT4 | OT5 | OT6 | OT7 | OT8 | LO1 | LO2 | LO3 | LO4 | LO5 | LO6 | PSS1 | PSS2 | PSS3 | PSS4 | PSS5 | PSS6 | PSS7 | PSS8 | PSS9 | PSS10 |
|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|
| 0.813 | 0.812 | 0.818 | 0.812 | 0.776 | 0.736 | 0.765 | 0.901 | 0.896 | 0.942 | 0.944 | 0.826 | 0.760 | 0.855 | 0.582 | 0.703 | 0.833 | 0.774 | 0.860 | 0.762 | 0.617 | 0.899 | 0.898 | 0.741 | 0.904 | 0.747 | 0.908 | 0.675 | 0.717 | 0.786 | 0.815 |

Anx: Anxiety; Use: Useableness; Help: Helpfulness; Eff: Effectiveness; Opt: Optimistic; Pes: Pessimistic; Fam: Family; Fri: Friend; SiO: Significant Other

The results of the analysis of the discriminant validity are presented in Table 2. The necessary condition for the discriminant validity is that the square root AVE value for variables should be higher than the correlations between variable pairs (Fornell and Larcker, 1981). The table shows the square root AVE values in the diagonal. When Table 2 is examined, it is observed that the square root AVE values of the variables are higher than the correlations between the variable pairs. Thus, it is concluded that our measurements meet the discriminant validity criteria.
Findings and Discussions

Findings

An analysis was conducted through the Lisrel program to investigate the moderator effect of social support in the relationship between university students’ anxiety and their perceived level of access to distance learning courses during the Pandemic. In Model 1, students’ level of access to distance learning courses was found to have a significant and negative effect on anxiety ($B = -1.469, p<0.01$). Since access problems were coded as “high score, low problem” and “low score, great problem,” the negative effect means that access problems cause anxiety. In the second phase, perceived social support, the moderator variable, was included in the analysis (Model 2). With the inclusion of the perceived social support, the levels of access to distance learning courses continue to affect anxiety ($B = -1.045, p<0.01$). In the third stage, the moderator variable (AL x SS) was included in the analysis (Model 3). As can be seen from the model, online access problems are independent of the social support moderator. In other words, social support has no statistically significant effect on the relationship with online access anxiety ($p>0.05$). Accordingly, it was determined that social support had no moderator effect on the anxiety caused by students' low level of access to distance learning courses. To test other research hypotheses, the data were subjected to path analysis using the SmartPLS 3.2 program. The results of the path analysis are presented in Table 3. Supported relationships were also shown with blue, together with their significance.

Table 3: Model test statistics

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<tr>
<th>Variables</th>
<th>Anxiety</th>
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<td></td>
<td>B</td>
<td>B</td>
<td>B</td>
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<tr>
<td>Model 1</td>
<td></td>
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<tr>
<td>Constant</td>
<td>13.313</td>
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<td></td>
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<tr>
<td>1 Accessibility</td>
<td>-1.469**</td>
<td></td>
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<tr>
<td>$F= 22.611; R=0.197; R^2=0.047$</td>
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<tr>
<td>Model 2</td>
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<tr>
<td>Constant</td>
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<td>1 Accessibility</td>
<td>-1.045**</td>
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<tr>
<td>2 Social support</td>
<td>-0.657**</td>
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<tr>
<td>$F= 20.377; R=0.261; R^2=0.065$</td>
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<td>Model 3</td>
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<tr>
<td>Constant</td>
<td>8.724</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Accessibility</td>
<td>-1.044*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Social support</td>
<td>-0.654**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.AL x SS</td>
<td>0.013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$F= /2.664; R=0.261; R^2=0.068$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$N = 5682, * p &lt; 0.05, ** p &lt; 0.01, Standardized Beta Coefficient was used. AL: Accessibility Level; SS: Social Support$</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To test the study’s hypotheses, path analysis was performed on the data by the SmartPLS 3.2 software. Table 3 shows the path analysis results. Supported correlations were indicated by presenting the significance in blue. A two-step construction procedure was used to test the hypotheses regarding the moderator effects of Family Support, Friend Support, Significant Other Support, and optimism (Chin et al., 2003). The PLS approach enables us to explicitly estimate the scores’ standardized latent variables after the results are saved (Tenenhause et al., 2005). For eliminating the collinearity issues, the product indicator approach was used to establish the
interaction terms (Chin et al., 2003), which requires standardized items of constructs and computation of the interaction term by multiplying the constructs' each item with all the moderator items. Here, each item of the useableness, helpfulness, effectiveness, Significant Other support, family support, friends support, and optimist were standardized. Then, the standardized items were multiplied after this procedure. The new total indicator for the interaction items, which represent the moderators, does not pose a serious problem since PLS path modeling is not affected by large numbers of the indicators, as stated proved by Chin et al. (2003).

The assumption that the pessimism dimension of the life orientations included in the model acts as a mediator variable between online education access and anxiety, the mediating role between these two variables was investigated. We applied the procedure by Baron and Kenny (1986) to test the mediating role of the pessimistic life orientation mediator variable between online education access and anxiety. In this context, we created three different SEM models, as shown in Table 4. We used the Baron and Kenny (1986) procedure to test the mediating effect of pessimism between accessibility and anxiety. For this purpose, we performed three different SEM models, as shown in Table 4.)

Table 4: Path analysis for causality relationships between variables

<table>
<thead>
<tr>
<th>Paths</th>
<th>r</th>
<th>Original Sample(O)</th>
<th>P Values</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useableness -&gt;Anxiety.</td>
<td>-0.164**</td>
<td>-0.044</td>
<td>0.134</td>
<td>Not Supported</td>
</tr>
<tr>
<td>Helpfulness -&gt;Anxiety</td>
<td>-0.041</td>
<td>-0.009</td>
<td>0.715</td>
<td>Not Supported</td>
</tr>
<tr>
<td>Effectiveness -&gt;Anxiety</td>
<td>-0.226</td>
<td>-0.119</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>Optimistic. -&gt;Anxiety</td>
<td>-0.359**</td>
<td>-0.269</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>Moderating effect _Fri. _use. -&gt;Anx.</td>
<td>0.279</td>
<td>0.000</td>
<td>Supported</td>
<td></td>
</tr>
<tr>
<td>Moderating effect _Fri. _Eff -&gt;Anx.</td>
<td>-0.187</td>
<td>0.003</td>
<td>Supported</td>
<td></td>
</tr>
<tr>
<td>Moderating Effect _Use._Fam. -&gt;Anx.</td>
<td>-0.335</td>
<td>0.000</td>
<td>Supported</td>
<td></td>
</tr>
<tr>
<td>Moderating effect _Eff._Fam. -&gt;Anx.</td>
<td>0.164</td>
<td>0.008</td>
<td>Supported</td>
<td></td>
</tr>
<tr>
<td>Moderating Effect _Opt._Use. -&gt;Anx.</td>
<td>0.086</td>
<td>0.002</td>
<td>Supported</td>
<td></td>
</tr>
<tr>
<td>Moderating effect _Fri._Help. -&gt;Anx.</td>
<td>0.019</td>
<td>0.716</td>
<td>Not Supported</td>
<td></td>
</tr>
<tr>
<td>Moderating effect _Eff._SiO. -&gt;Anx.</td>
<td>0.032</td>
<td>0.488</td>
<td>Not Supported</td>
<td></td>
</tr>
<tr>
<td>Moderating effect _Opt._Help. -&gt;Anx.</td>
<td>-0.022</td>
<td>0.375</td>
<td>Not Supported</td>
<td></td>
</tr>
<tr>
<td>Moderating effect _Help._Fam. -&gt;Anx.</td>
<td>0.079</td>
<td>0.097</td>
<td>Not Supported</td>
<td></td>
</tr>
<tr>
<td>Moderating effect _Help._SiO. -&gt;Anx.</td>
<td>-0.026</td>
<td>0.480</td>
<td>Not Supported</td>
<td></td>
</tr>
<tr>
<td>Moderator _Opt._Use. -&gt;Anx.</td>
<td>-0.032</td>
<td>0.268</td>
<td>Not Supported</td>
<td></td>
</tr>
<tr>
<td>Endogenous variable</td>
<td>R²</td>
<td>0.181</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anx. Anxiety; Use: Usefulness; Help: Helpfulness; Eff: Effectiveness; Opt: Optimistic; Fam: Family; Fri: Friend; SiO: Significant Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A partial mediating role of pessimism was identified in the relationship between accessibility-management systems and anxiety as shown in Table 5. In the case of lack of pessimism, the degree of the relationship between accessibility-management systems and anxiety was β = -0.183, p<0.01; however, after the inclusion of pessimism in the model, the degree of the relationship between accessibility-management systems and anxiety falls to β = -0.168, p<0.01.

Table 5: The mediating role of pessimistic

<table>
<thead>
<tr>
<th>Paths</th>
<th>β</th>
<th>p</th>
<th>Model B</th>
<th>β</th>
<th>p</th>
<th>Model C</th>
<th>β</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use</td>
<td>-0.082</td>
<td>0.011</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>-0.086</td>
<td>0.011</td>
<td></td>
</tr>
<tr>
<td>Help</td>
<td>-0.011</td>
<td>0.668</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>-0.008</td>
<td>0.750</td>
<td></td>
</tr>
<tr>
<td>Eff.</td>
<td>-0.183</td>
<td>0.000</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>-0.168</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Use</td>
<td>---</td>
<td>---</td>
<td>0.005</td>
<td>0.859</td>
<td>0.011</td>
<td>0.736</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Help.</td>
<td>---</td>
<td>---</td>
<td>0.002</td>
<td>0.935</td>
<td>0.031</td>
<td>0.268</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eff.</td>
<td>---</td>
<td>---</td>
<td>0.156</td>
<td>0.000</td>
<td>0.088</td>
<td>0.010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pessimistic</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>-0.079</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>Anxiety</td>
<td>0.063</td>
<td>Anxiety</td>
<td>---</td>
<td>Anxiety</td>
<td>0.067</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pessimistic</td>
<td>---</td>
<td>Pessimistic</td>
<td>0.014</td>
<td>Pessimistic</td>
<td>0.026</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Use: Usefulness; Help: Helpfulness; Eff: Effectiveness
Discussion

The Covid-19 Outbreak has necessarily limited daily social life due to isolation. As a remedy for this obligation, more than one billion students who started online education almost all over the world had to continue their education life with this system. Providing accessibility in online education has become the critical success factor of the process at this point.

Another factor in accessing online education, together with the infrastructure and technological competence in providing it, is students' anxieties and the psychological problems they cause. It is usual for students/teachers to experience anxiety in this process that they have not experienced before and includes some uncertainties. Both parties have faced problems such as their compatibility with information communication technologies, the ease, effectiveness, and memorability of the interface they use, and their problems in accessing online education. In addition to these problems, the fact that young people stay away from social life and the end of this process cannot be predicted has increased the dose of anxiety and stress.

Study results illustrate that the difficulties experienced in accessing online education cause stress on students. Although the research does not aim to identify this stress directly, it is predictable for students. In the online education process, all stakeholders were concerned about the process's functionality and subsequent qualification. However, inevitably, students' anxiety level is higher because they are in regions with insufficient infrastructure when they go to the places where their families live. The limitations in accessing internet access economically and the uncertainty about the evaluation process of education also factor into their anxiety. The factors that cause this anxiety and stress should be considered by education politicians, institutions related to infrastructure, and all those involved in the system, and necessary measures should be taken. Students and teachers studying at primary, secondary, and high school levels are supported with internet access, whereas university students are not provided with this support. Because university students are old enough to take on their responsibilities, they have been at a disadvantage compared to other students in tackling access problems, as they have a low priority of demanding and waiting for family support economically. It has also been observed that social support does not reduce this stress.

It is clear that the authorities, taking all of these into consideration, also provide free internet access for university students within a limit, eliminating some of the access problems. With the technological infrastructure, it is expected that the relevant institutions will provide the country with equal opportunities.

While some universities have experience with online technologies and the educational model, partly due to the service they provide through distance education, many universities lacked this experience. This caused many universities to falter in the transition to online education and its implementation in the first weeks.

At the beginning of the pandemic process, uncertainties about how the online education system will function also caused stress. With the completion of a training period in this way, it can be expected that uncertainties will partially decrease in the following periods. However, it is not clear how the deficiencies seen in this period will be complemented and compensated and where online education developments will evolve. Differences in the practices of universities have also caused students and educators to question and confuse the system. To prevent such problems, it is recommended that the system's decision-makers promptly inform all stakeholders and include all options to be implemented in future difficulties. When this happens, it is clear that the process will be more relaxing and reassuring for students, their families, and educators.

While the study dealt with various aspects of the effects of the online education system on students, it was not concerned with the teachers' feelings, which are an essential part of the system and mostly bear the main responsibility. This issue is a part that must be discussed and researched. Because no matter how well you set up a technological or procedural system, success, efficiency, and effective results will only be achieved through the people who will implement it. Therefore, the teachers' difficulties in the online teaching process should be investigated, and if possible, their suggestions should be listened to.

Conclusion

This study aimed to evaluate students' anxiety from interactions with the online learning environment made necessary by the Covid-19 pandemic limitations imposed on social life. The results of the study confirm that when universities, caught unprepared for online education, could not make the educational learning environment sufficiently accessible, the students suffered from anxiety. It was found that the availability of online learning system and learning support systems do not cause anxiety, but the lack of effective learning activity and low optimism do cause anxiety. Perceived support from friends and family, and overall optimism seem to reduce the anxiety effect caused by online learning system usability. Furthermore, it is observed that perceived support of friends and family reduce the anxiety effect caused by the low learning activity criterion. Statistical analysis of results found that students' perceived social support and optimistic life orientation made it easier for them to cope with this anxiety. The partial mediating role of the pessimism dimension of life orientation was present in the relationship between online system accessibility, learning management systems, and anxiety. In the mediation test, it was determined that pessimism affects the formation of anxiety. Moreover, the pessimistic sense of life orientation caused students to feel the consequences of anxiety more deeply. Results confirmed that the level of access affects anxiety. Optimistic life orientation has a regulatory effect on the anxiety experienced in online access, and the hypothesis that the pessimistic life orientation in online access has a mediating effect on the anxiety experienced was partially confirmed. It was determined that the optimistic dimension of life orientation has a regulatory effect on online access anxiety.
However, the usefulness of information technologies, design support, and learning activity do not affect optimistic life orientation on anxiety. On the other hand, the pessimistic dimension of life orientation has a partial mediating role on online access-related anxiety. As such, the factors that cause anxiety and stress should be considered by educational policy makers, institutions considering their learning management system infrastructure, and all those involved in teaching in order to take appropriate steps.

As a result of this research, it will be useful for future researchers to investigate the subject of "how attractive the students are to use the internet and online education at home". Many habits and rules that post-pandemic life has changed make it attractive to research this subject.

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Conflicts of Interest: The authors declare no conflict of interest.

References


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