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Research Article

Online Learning Self-Efficacy: Investigation of the Factors Affecting Student Learning

Çevrimiçi Öğrenme Öz-Yeterliği: Öğrencilerin Öğrenmesini Etkileyen Faktörlerin Araştırılması

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ABSTRACT

The process of pandemic brought about important challenges to all the people in the world and educational institutions have also been affected directly by this unexpected situation. It has also revealed the significance of online education and the use of technological tools for educational purposes. In this context, this study aims to investigate the learners' online learning self-efficacy within the scope of demographic variables and it also attempted to identify the perceptions of students related to tha factors that influenced their online learning self-efficacy. According to the quantitative findings, the participants' self-reported online self-efficacy levels were found to be quite high. Even though no statistically significant relationship was found between learners' online self-efficacy and gender, age and school level were found to be statistically significant variables.When the qualitative findings were taken into account, itt was found out during interviews that learners mentioned some negative and positive factors affecting their online learning self-efficacy. Support they obtained through their course instructors and resources presented to them were revealed as enabling factors whereas technical issues and motivation problems were listed as disabling factors.

Keywords: Online self-efficacy, online learning, self-efficacy.

ÖZ

Salgın süreci dünyadaki tüm insanlara önemli zorluklar yaratmış ve eğitim kurumları da bu beklenmedik durumdan doğrudan etkilenmiştir. Bu süreç ayrıca, çevrimiçi eğitimin ve teknolojik araçların eğitimsel faaliyetlerde kullanımının önemini gözler önüne sermiştir. Bu bağlamda, bu çalışmanın amacı öncelikle, öğrencilerin çevrimiçi öz-yeterlik seviyelerini belirleyip bunu demografik değişkenler açısından değerlendirmek ve sonrasında, öğrencilerin çevrimiçi özyeterliklerini etkileyen faktörlere yönelik görüşlerini ortaya çıkarmaktır. Çalışmanın nicel bulgularına göre, katılımcı beyanına dayalı öz-yeterlik seviyeleri genel olarak oldukça yüksektir. Öğrencilerin öz-yeterlik seviyeleri ile cinsiyetleri arasındaki fark anlamlı olmamasına rağmen, yaş ve eğitim seviyesi istatistiksel olarak anlamlı değişkenlerdir. Nitel bulgular değerlendirildiğinde ise, katılımcı öğrenciler çevrimiçi özyeterliklerini etkileyen faktörler üzerinde görüş bildirirken olumlu ve olumsuz faktörlere değinmişlerdir. Olumlu olan faktörler için öğretmenlerinden ve ilgili kaynaklardan aldıkları destek ve derslere katılımın kolaylığından bahsetmişken, olumsuz olarak da motivasyon sorunları ile teknolojik problemleri özyeterliklerini etkileyen faktörler olarak açıklamışlardır.

Anahtar Kelimeler: Çevrimiçi özyeterlik, çevrimiçi öğrenme, özyeterlik.

INTRODUCTION

Educational institutions have been exposed to the challenges brought by Covid-19 and this process has affected all the stakeholders equally; namely, teachers, students, parents and institutional administrators. There has been an unavoidable move towards digital tools and technology-enhanced learning processes (Camas et al., 2021; Dhawan, 2020) and as a result, teachers have been expected to start using different digital tools to prepare and to give their lessons through either learning management systems (LMS) or different software i.e. Zoom, Microsoft Teams, etc. As a result of this unexpected shift to online learning all around the world (Ali, 2020; Huang et al., 2020), some schools offered asynchronous online classes where assignments were prepared and lectures were recorded by instructors in advance and students were allowed to study in their own way (Crawford et al., 2020). For other institutions, synchronous learning/teaching was adopted at specific time periods through a certain medium. That was a period when the significance of technological tools in education has been recognized more than ever.

Computers and web-based tools have been in use for educational reasons for a long while and their prevalence has increased with the help of the advancement in internet facilities, through which 'online learning' (Wang et al., 2003; Özüdoğru, 2022) has gained popularity. However, with such an unexpected shift to online learning due to the pandemic, some important challenges were experienced by students as well (Gregori et al., 2018; Lee & Choi, 2011; Yukselturk et al., 2014). A vast majority of students have been reported to be affected by such a dramatic change in education (Adedoyin & Soykan, 2020) due to the lack of basic skills and abilities required for success in online education (Moore & Kearsley, 2005) such as time management or sufficient knowledge on the use of the necessary technologies (Taipjutorus et al., 2012). Such kind of difficulties were generally attributed to learners' psychological variables. According to Alivernini and Lucidi (2011), self-efficacy is one of these variables that are important predictors of academic success as it enables learners to adapt themselves to new learning environments.

1.1. Self-Efficacy and Online Learning Self-Efficacy

Self-efficacy simply refers to individuals' 'evaluations of their abilities to successfully organize and carry out a task needed to have designated kinds of performances' (Bandura, 1986; 1997). Similarly, Gredler (2007) defines this term as 'the belief of the learner's ability to efficiently manage novel or unexpected situations which they may encounter'. When people believe that they can achieve certain things, they perceive these tasks more courageously and they can complete them with success more easily (Malureanu et al., 2021). In educational settings, it was suggested that students having high-level of self-efficacy tend to engage in their courses more; and thus, show more resilience and lower tendency to dropout. Self-efficacy is also considered to be related to performance, learning and adaptability to new technology (Gist & Mitchell, 1992). Hodges (2008) contends that self-efficacy is rather context-specific in that once the context changes, one's self-efficacy also changes. Likewise, when there is a change in the approach of learning, this change might have an influence on learners' self-efficacy (Maathuis Smith et al., 2011). Chu and Chu (2010) state that self-efficacy is one of the fundamental issues in online education because it is a significant factor in overcoming the impact of isolation while facilitating productive and self-directed learning. In this respect, "online learning self-efficacy" refers to learners' assumptions regarding their capability to successfully execute particular tasks necessary for online education (Zimmerman & Kulikowich, 2016).

In online education settings, students are expected to participate in courses more actively compared to traditional learning settings with a higher level of motivation (Ramsin & Mayal, 2019). They are supposed to constantly monitor their learning, look for new sources of knowledge, and navigate themselves when confronted with problems (Butler & Winne, 1995; Johnson & Davies, 2014) because online learning environments are considered to be more challenging with the lack of possibilities of socialization (Cho & Jonassen, 2009). Therefore,

having online learning self-efficacy has a considerable impact on students' satisfaction regarding their own performance as a determinant factor in online courses (Lim, 2001). In sum, a higher level of online learning self- efficacy is related to success in online courses (Zimmerman & Kulikowich, 2016).

From a socio-cognitive perspective, it is necessary to note the significance of human agency indicating the role of individuals in affecting their own development. As the way individuals see themselves is significant in agency theory (Bandura, 2006), individual differences could easily have an influence on their self-efficacy beliefs and the way people view themselves will be influential in efficacy development of human beings (Gerhardt & Brown, 2006). In this sense, different individual factors could lead to variations in learners' self-efficacy and the most widely investigated individual factors affecting self-efficacy include sex, age, school level, and field of study (Aldhahi et al., 2021; Shen et al., 2013). First of all, gender differences and their roles in self-efficacy have been investigated in different settings with inconclusive results. In a study conducted in a Taiwanese context, Li (2007) conducted his study with the data coming from both male and female students and found out that male students have higher levels of self-efficacy both for computer self-efficacy and self-efficacy in general. In another study, Hung et al., (2010) studied online self-efficacy levels of male and female students and the results showed that there was no significant difference between gender and online self-efficacy and they called for conducting more empirical studies. Shen et al., (2013) on the other hand, focused on the self-efficacy components in an online learning setting and they revealed that gender, school level and the number of online courses were the factors affecting learners' online self-efficacy. They also indicated that learners' school level predicted learners' self-efficacy, specifically while they were handling digital tools. Even though the effects of self-efficacy on learning (Hung et al., 2010; Wei & Chou, 2020) and the effects of the use of technology on online learning (Dray et al., 2011) have been investigated extensively, there is a scarcity of research conducted in the Turkish setting; hence, it is believed that this study will contribute to the field of education and could bring significant implications for educational practices.

This study aimed to answer the following research questions:

- What are the perceived online self-efficacy levels of students in Turkey?
- Is there a significant relationship between students' online self-efficacy and:
    - Their gender
    - Their age
    - Their school level?
- What factors do students believe to affect their online learning self-efficacy?

METHODOLOGY

2.1. The Context

This study's aim is to reveal the online self-efficacy levels of students from different school levels in Turkey. We also aimed to find out about the participant students' beliefs about the factors affecting their online learning self-efficacy. As of the beginning of the pandemic, just like the other countries, Turkey also benefited from different distance education models. In the schools (elementary, secondary and high school levels) coordinated by The Ministry of National Education in Turkey, EBA was started with the help of satellite TV broadcast and the internet. Universities, on the other hand, made use of LMS to organize their courses both synchronously and asynchronously, which was something new for most of the learners and teachers and which created the need to use technology effectively.

2.2. The Method and Participants

A mixed method research design was utilized for this research. While the quantitative data of this study came from the questionnaires answered by 510 students that took part in online courses at different school levels (e.g., high school, university, etc.) during Covid-19 pandemic, qualitative data was obtained through semi-structured interviews which were conducted both face-to-face and through Zoom and Microsoft Teams with 30 students in order to elaborate on the quantitative findings (Creswell, 2014). Demographic information of the sample is presented in Table 1.

Table 1

Age, Gender and School Levels of the Participants

		F	**%**
Gender	Female	360	70.6
	Male	150	29.4
Age	16-18	90	17.7
	19-21	82	16.1
	22-25	164	32.2
	26+	174	34.1
Degree	High school	149	29.2
	Undergrad	163	32
	M.A	142	27.8
	PhD	56	11

As shown in Table 1, the majority of the participant students is composed of females (70.6%) while 29.4 % were males. There is a relatively close distribution of age groups, though the age group 26 + comprised relatively a bigger size (34%). As for the distribution of participants according to their school degree, 29.2% of the participants are high school students (N=149), 32% of them are university students (N=163), 27.8% of them are MA students (N=142) while 11% of them are PhD students (N=56).

For the first and the second research questions, after the necessary ethical considerations were ensured, the researchers converted '*Online Self-Efficacy Questionnaire*' (Yavuzalp & Bahçıvan, 2020) into Google Forms. Afterwards, the online questionnaire was shared with the students through social media platforms and with the support of the colleagues who took part in online education. After the data collection process was over, the data of the study was analysed via SPSS 28.0 program. For the third research question, 20 students were invited for the online interviews. The criterion sampling method was adopted to be able to identify the study group. This type of sampling involves choosing participants that meet some pre-determined criteria and it was preferred as criterion sampling can provide important qualitative component to quantitative data (Patton, 2002). In this sense, volunteering students who represent different age groups, gender and school levels participated in semi-structured interviews. The details of the participants who took part in the interviews are given in Table 2 below:

Table 2

Participants of the Interviews

Participants	Gender	Age group	School level
S1	M	16-18	High school
S2	M	16-18	High school
S3	M	16-18	High school
S4	M	16-18	High school
S5	M	16-18	High school
S6	M	19-21	Undergraduate
S7	M	19-21	Undergraduate
S8	M	19-21	Undergraduate
S9	M	19-21	Undergraduate
S10	M	19-21	Undergraduate
S11	F	22-25	Undergraduate
S12	F	22-25	Undergraduate
S13	F	22-25	M.A.
S14	F	22-25	M.A.
S15	F	22-25	M.A.
S16	F	26+	M.A.
S17	F	26+	PhD
S18	F	26+	PhD
S19	F	26+	PhD
S20	F	26+	PhD

The interviews in this study attempted to identify the participant students' perceptions of online learning during distance education. Each interview with the participants took roughly 20–25 minutes and they were conducted in Turkish. Having obtained the consent of the participant students, the researchers recorded the interviews for the analyses. When the interviews were completed, each of the researchers listened to the recordings of the interviews more than once and they transcribed them verbatim. For the coding of the data, pattern-coding process (Miles & Huberman, 1994) was followed in order to obtain the recurrent themes. According to Miles and Huberman (1994, p. 69), pattern-coding includes 'grouping large numbers of texts into small numbers of sets or themes'. Following the initial coding and the identification of the themes, the quotes that support each identified theme were selected (Mason, 2002; Miles & Huberman, 1994).

For the reliability of qualitative data, each researcher coded the whole dataset individually and then they checked the codes together. Simple percentages were utilized so as to calculate the agreements between codes. As recommended by Miles and Huberman (1994), interrater reliability was calculated by multiplying coding agreements over all the episodes by 100. The level of agreement between coders was found to be 89%, which is considered to be a satisfactory percentage as it is above 75% (Mackey & Gass, 2005). Disagreements were resolved as the coders discussed them in detail.

2.3. Data Collection Tools

The quantitative data of this study was collected through 'Online Self-efficacy Scale' (OSS) developed by Zimmerman and Kulikowich (2016) and adapted to Turkish by Yavuzalp and Bahçıvan (2019) with the participation of 2087 students and the obtained Cronbach Alpha Reliability Value is .987, which shows a high level of reliability. In the first part of the questionnaire, questions used to collect data about the participants' age, gender, and school level were included. In the second part, 21 Likert type items were listed which had five levels of agreement; namely, (1) totally agree, (2) agree, (3) undecided, (4) disagree, (5) totally disagree. The qualitative data was gathered through semi-structured interviews for which the questions were prepared by the researchers in accordance with the content of the study. Since the

participants were coming from different educational degrees, the interview questions were prepared in Turkish in order to overcome the potential language barrier for some of the participants. Two lecturers who hold a PhD in the field of educational and Turkish Language analysed the questions and stated their professional opinion about the wording of the questions and about whether the questions are suitable for the aims of the study. In line with their suggestions, we have revised the interview questions and obtained the final version. Afterwards, ethics committee approval was obtained with the official letter dated 23.04.2022 and numbered E-10017888-204.01.07-222173.

2.4. Limitations of the Study

This study includes some limitations related to its sample and its research design. The participants of this study are composed of 510 high school, university, MA and PhD students. For this reason, the findings may not be generalized to all the school levels. Further studies could also include participants from other school levels such as secondary school students, etc. In addition to the data obtained with the help of questionnaires and individual interviews, focus group interviews and the analysis of course recordings could be used to enrich the data gathered.

FINDINGS

Initially, the scale's reliability was tested based on the data gathered from this specific group of participants and related findings were given in Table 3 below:

Table 3

The Findings of the Reliability Analysis

n of Items	Cronbach's Alpha	$\bar{x}$	Median	Std. Deviation	Variance
21	.91	3.74	4	.55	.67

The scale consisted of 21 items and the results of the reliability analysis showed that the scale has high reliability based on the study's sample (α = .91) (Özdamar, 2004). For all items, the Corrected Item Total Correlation values were higher than .30. As the next step, both Kolmogorov-Smirnov and Shapiro-Wilk Tests of Normality were run to be able to find out about the distribution of the data. The results indicate that there was not a normal distribution of the data (df=15; p=.009<.05) (Pallant, 2001). Accordingly, the researchers utilized non-parametric tests in the following stages of the analysis.

For the first research question, we considered the participant learners' overall online self-efficacy levels and we ran descriptive analyses. The results show that the learners' self-reported online self-efficacy levels are quite high (M = 4.23; SD =.56075). For the second research question, we first investigated whether the participants' efficacy levels differed significantly based on gender, age, and educational level variables using Kruskal–Wallis H test. The analysis results showed no statistically significant difference in the online self-efficacy levels of the participants based on gender variable (p = 0.711 >.05). as presented in Table 4:

Table 4

Learners' Online Self-Efficacy Levels Based on Gender Variable

Groups	N	Mean	x^2	df	p
Female	360	4.24	.63	1	.71
Male	150	4.32			

However, according to the results, age is a statistically significant variable in the participant learners' online self-efficacy levels. The results are displayed in Table 5.

Table 5

Learners' Online Self-Efficacy Levels Based on Age Variable

Groups	n	$\bar{x}$	Mean Rank	x^2	df	p
13-15	19	5.00	500.00	48.295	4	.000*
16-18	84	4.00	211.75			
19-21	79	4.37	239.26			
22-25	161	4.05	234.98			
26+	167	4.60	303.47			

As the results indicate, the participants' online self-efficacy levels differed significantly based on the age variable (x^2=48.295; df = 4; p = 0.000<.05). As can be seen in Table 3, the highest reported online self-efficacy level belongs to the 13-15 age group (M = 5.00) followed by the 26+ age group (M = 4.60), while the lowest level is observed for the learners aged 16-18 (M = 4.00).

Having determined a statistically significant difference in Kruskal Wallis-H Test results, complementary comparison analyses were run for pairwise comparisons using Mann Whitney-U Test in order to identify intergroup significant differences. The results are displayed in Table 6.

Table 6

Intergroup Pairwise Comparisons

Group	N	U	Z	p
1-2	103	2959.5	2.252	.024*
1-3	98	7106.5	2.491	.021*
1-4	180	6012.0	3.111	.002*
1-5	186	10829.5	1.153	.249
2-3	163	5787.0	-1.493	.073
2-4	245	20221.0	-1.230	.219
2-5	251	11781.5	-2.789	.005*
3-4	240	6941.0	-.352	.725
3-5	246	7319.5	-.110	.912
4-5	328	20336.0	-2.030	.031*

**Groups: Group 1: 13-15 ages; Group 2: 16-18 ages; Group 3: 19-21 ages; Group 4: 22-25; Group 5: 26+ ages*

The findings reveal the significant differences between several group pairs. Accordingly, the results for Group 1, comprising the participants between 13 and 15 years old, show significantly higher rates compared to Group 2, 3, and 4 (Z=2.252 and p<.024; Z=2.491 and p<.021; Z=3.111 and p<.002, respectively). The other statistically significant difference can be observed for Groups 2 and 4 rating significantly lower than Group 5 (Z=-2.789 and p<.005; Z=-2.030 and p<.031, respectively). The results indicate that there are no significant differences between the other group pairs. Secondly, the participants' reported online self-efficacy levels were investigated based on school level variable. Table 7 below displays the results:

Table 7

Learners' Online Self-Efficacy Levels Based on School Level Variable

Groups	n	x̄	Mean Rank	x²	df	*p*
High School	149	4.05	209.40	39.849	3	.000*
Undergraduate	163	4.21	251.83			
Graduate/Master	142	4.30	270.28			
Graduate/PhD	56	4.56	351.38			

The analysis results show that the participants' efficacy levels differed significantly based on school level variable (x^2=39.849; df = 3; p = 0.000<.05). Depending on the learners' school level, the lowest online self-efficacy levels are observed among high school learners (M = 4.05). Graduate learners, however, were found to have the highest levels of online self-efficacy among all groups: the learners with PhD degree (M = 4.56) and the ones with MA degree (M = 4.30). In order to determine intergroup significant differences, pairwise comparison test were conducted using Mann Whitney-U Test. The results are presented in Table 8.

Table 8

Intergroup Pairwise Comparisons based on School Level

Groups	N	U	Z	Asymp. Sig.
1-2	313	11455.0	-.963	.335
1-3	29	7327.5	-4.529	.000*
1-4	206	3311.0	-2.337	.019*
2-3	304	7262.0	-5.537	.000*
2-4	219	3318.5	-3.046	.002*
3-4	197	662.5	-.792	.428

*Groups: Group 1: High School; Group 2: Undergraduate; Group 3: MA; Group 4: PhD

The findings reveal the significant differences between several group pairs. Accordingly, the results for Group 1, students at high school level, display significantly lower rates compared to Group 3 and 4, the students at graduate level (Z=-4,529 and p<.000; Z=-2,337and p<.019, respectively). The results also indicate that Group 2, students at undergraduate level, also show significantly lower rates compared to Groups 3 and 4 (Z-5,537and p<.000; Z=-3,046 and p<.002, respectively). The results indicate that there are no significant differences between high school students and the students at undergraduate level as well as between the MA and the PhD students.

For the third research question, the volunteering students (n=20) were asked questions about the general experience of online education to be able to identify their perceptions of this experience with the help of the semi-structured interviews. The details related to the identified themes, sub-themes, representative excerpts and frequencies are given in Table 9:

Table 9

Student Perceptions of Factors Affecting Online Learning Self-Efficacy

Theme	Sub-theme	Representative excerpts	Frequencies *(f)*
Enabling factors	Support of the course instructor and other provided resources	*'Our teacher helped me whenever I had difficulties in joining the classes or submitting the assignments.' (S4)* *'With the support videos and documents, everything was a lot easier.' (S7)*	15
	Easiness of participation in courses	'*It was very easy to join the synchronous courses. Even if I missed a class, I had the chance to watch the recording.' (S6)*	10
Disabling factors	lack of motivation	*'Sitting in front of the computer for a long time and trying to concentrate on what the teacher was saying was quite boring.' (S1)* *'As there was no real interaction, I was not motivated enough' (S20).*	10
	Technical issues	'*The most important challenge I had was due to the speed of the internet in my hometown. I could not follow synchronous classes because of that.*' (S3)	7

After the data analysis was completed, it was observed that two main themes emerged; namely, '*enabling factors'* and '*disabling factors'*. Under the first theme 'enabling factors', the participant students mainly mentioned the factors that facilitated their process of online learning and how they contributed to their general self-efficacy in the online learning setting. The most commonly mentioned enabling factor was '*the support of the course instructor and other provided resources' (f=15)*. The interviewees mentioned the possibility of getting support from their course instructors and explanatory documents prepared for them in case of challenges they experienced and also being able to participate in classes easily or watching the course recordings. One of the participants stated that:

> *'When I was supposed to take part in group activities in the break-out rooms and couldn't manage it or when I needed to submit my assignment in the online system, I had difficulties from time to time. Fortunately, there were some explanatory documents uploaded for support to the students in the system.' (S2)*

Unlike the first theme, some of the participants focused more on the negative aspects of online education leading to difficulties on students' side.The second emerging theme was 'disabling factors'. For this theme, participant students mainly complained about affective factors and technical problems. Affective factors they mentioned included '*lack of motivation'* (*f*=10) stemming from spending too much time with the computer and '*technical issues'* (*f*=7) such as speed of internet that led to difficulties related to participating in synchronous classes. One of the participants in this system pointed out that:

> *'At first I really liked the idea of taking part in classes online from home but as time went by, it became rather monotonous and I realized that I could not follow the teacher efficiently.' (S8)*

All in all, both negative and positive aspects of online education which, in some way, affect the participant students' self-efficacy have been included in the comments of the interviewees.

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

This study aimed to identify the online self-efficacy levels of students within the scope of different demographic features and it also aimed to investigate the participant students' perceptions of the factors affecting online education. The first research question in this study investigated the overall online self-efficacy levels of students that participated in online education. The results indicated that overall online self-efficacy levels of the participant learners are quite high. This finding is in line with those of the study by Yavuzalp and Bahçıvan (2020) and Özüdoğru (2022). They also found out that the participants' online self-efficacy scores were generally high when they were involved in tasks and activities in online learning environments and they attributed it to the familiarity of students with online activities. As students spend a lot of time doing activities online for a variety of different purposes, this is not considered to be a perplexing finding.

The second research question of this study focused on the relationship between online self-efficacy and some demographic variables; namely, gender, age and academic level. For the first variable, '*gender*', no statistically significant difference in the participants' online self-efficacy levels was identified similar to the findings of Wu and Hiltz (2004) and Yavuzalp and Bahçıvan (2020), Secondly, there was a statistically significant relationship between online self-efficacy and age variable and it was found out that the highest online self-efficacy score belonged to the 13-15 age group and it was followed by the age groups 26+ and 19-21, respectively. The results of the present study, on the other hand, does not show a constant proportionality between the age variable and the online self-efficacy rates of the participants. Previous research on age and online learning behaviour is also inconclusive and the age, as a variable, was handled differently in different study contexts and the definitions of words 'older' and 'younger' are missing in those studies (Chuyung, 2007). Therefore, the obtained differences might be the result of the vague and\or nonconstant distribution of the age groups.

Based on our findings, the high scores of students representing young age groups and lower school levels could be attributed to their familiarity with computers and internet technology while the high mean of the oldest age group and the highest school level could be related to their awareness of the requirements of business life related to online learning habits and internet technology. Another important finding of this study is the relationship between the participant students' school level and their online self-efficacy. It was found out that there was a significant difference between the online self-efficacy levels of learners and their school level and M.A and PhD students were found to be the groups having the highest level of online self-efficacy while the lowest level belongs to high school students. The findings indicate that the students at graduate levels had significantly higher rates of online self-efficacy compared to the students at high school and undergraduate levels. This finding supports the findings of the study by Aldhahi et al., (2021) and Shen et al., (2013) in which the authors found school level as an important predictor of online self-efficacy. One might easily argue that post-graduate education requires so much time spent on online research and familiarity with computer-related activies.

The third research question in this study investigated the students' perceptions related to the factors affecting their online learning. It was revealed that both enabling factors contributing to their online learning experience such as support of the instructor and the resources and the easiness of course participation and also disabling factors; namely, technical issues and lack of motivation were the main factors mentioned by the interviewees. Similarly, speed of internet access, the type of the device used by the students were the factors affecting learners' online self-

efficacy negatively during online learning experience of Asian students (Carter Jr et al., 2020; Mathew & Chung, 2021; Sim et al., 2021). It was stated by the authors that these negative factors were triggered by the emotional factors such as fatique, lack of engagement. The unexpected change in learners' learning habits created an insecure atmosphere and unpredictable future, which was in a way supported by technology-related problems. It was also revealed that despite the fact that students are considered to be digital natives, they are not familiar with the requirements of online learning (Parkes et al., 2015).

Even though most of the difficulties stemming from the pandemic situation is now over, online learning has become a requirement in education and psychological variables such as online learning self-efficacy has gained importance in this context. When different demographic factors contributing to the process of learning and the areas that are seen as weaknesses by students are defined, necessary interventions could be carried out to support student learning. Likewise, the definition of the factors contributing to or debilitating the online learning experiences of learners can create awareness on all the stakeholders of the process and required actions could be taken to support the learners so that they can overcome these barriers effectively.

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GENİŞLETİLMİŞ ÖZET

Giriş

COVID-19 pandemisinin ortaya çıkardığı zorluklardan bütün sektörler etkilenmiş ve özellikle eğitim kurumları ve bu kurumlar dâhilindeki tüm paydaşlar da aynı şekilde bu zorlukları yaşamışlardır. Bu süreçte dijital araçlara duyulan ihtiyaç artmış ve bu ihtiyaç teknoloji kullanımına dair becerileri gerekli kılmıştır. Öz-yeterlik, insan davranışlarını etkileyen önemli kavramlardan birisidir. Çevrimiçi öğrenme ortamları dikkate alındığında, her türlü etkinlik, etkileşim (öğretmen-öğrenci, öğrenci-öğrenci, vb.) teknoloji kullanımı vasıtasıyla gerçekleştirilir. Bu bağlamda, uzaktan öğrenme ortamında başarının belirleyicisi sadece öğrencinin özyeterliği değil aynı zamanda çevrimiçi özyeterliğidir (Wang vd., 2013). Özellikle COVID-19 pandemi sürecinde uzaktan eğitim zorunluluğunun oluşması eğitim sürecine katılan tüm paydaşları çevrimiçi özyeterliği sağlamaya mecbur kılmıştır. Bu bağlamda bu çalışma farklı yaş ve eğitim seviyesinden öğrenci gruplarını katılımcı olarak içermekte ve bu örneklem grubunu çevrimiçi öz-yeterlik seviyeleri bakımından detaylı incelemektedir. Bu çalışmaya ait araştırma soruları aşağıdaki gibidir:

- Türkiye'de farklı eğitim seviyelerinden öğrencilerin çevrimiçi öz-yeterlik seviyeleri nasıldır?

- Öğrencilerin çevrimiçi öz-yeterlikleri ile:
    - Cinsiyetleri
    - Yaşları
    - Okul seviyeleri arasında anlamlı fark var mıdır?
- Öğrencilerin çevrimiçi özyeterliklerini etkileyen faktörlere yönelik algıları nasıldır?

Yöntem

Bu araştırmada karma yöntem kullanılmıştır. Bu kapsamda etik kurul gereklilikleri sağlandıktan sonra ilk etapta katılımcılar için Yavuzalp ve Bahçıvan (2019) tarafından Türkçe'ye adapte edilen Zimmerman ve Kulilowich (2016) tarafından geliştirilen 'Çevrimiçi Özyeterlik Ölçeği' Google Forms'a aktarılmış ve online platformlar vasıtasıyla öğrencilerle paylaşılmıştır. Online anket farklı öğretim seviyelerinde (ortaöğretim, yüksek öğretim, yüksek lisans ve doktora) yer alan 510 öğrenci tarafından çevrimiçi olarak doldurulmuştur. Katılımcı öğrencilerin dağılımları değerlendirildiğinde, katılımcılarının çoğunun (n=360) kız öğrencilerden oluştuğu, 150 katılımcının ise erkek öğrenciler olduğu anlaşılmıştır. Sonrasında anket bulgularını desteklemek amacıyla farklı okul seviyelerinden gönüllü 20 öğrenci ile Zoom vb. yazılımlar kullanılarak ve yüzyüze yarıyapılandırılmış görüşmeler yapılmıştır. Çevrimiçi yapılan görüşmeler katılımcıların onayıyla kayıt altına alınmış, sonrasında ise çevriyazıya aktarılmıştır. Çevrimiçi özyeterlik ölçeği kullanılarak toplanan nicel veriler SPSS 28.0 programı yardımıyla analiz edilmiştir. Analizin ilk aşamasında, kullanılan ölçeğin katılımcı grubu dikkate alınarak güvenirlik katsayısı tekrar hesaplanmış ve .912 olarak bulunmuştur. Bu sonuca göre kullanılan bu ölçek bu çalışmanın katılımcıları dikkate alındığında yeterli güvenirlik değerine sahiptir. Daha sonra verilerin normallik dağılımı incelenmiş ve verilerin normal dağılım göstermediği anlaşılmış bu nedenle analizde parametrik olmayan testler kullanılmıştır. Sonrasında betimsel ve çıkarımsal istatistikler kullanılarak bu veri seti analiz edilmiştir. Nicel verileri desteklemek için çevrimiçi görüşmeler yardımıyla elde edilmiş nitel veriler ise içerik analizi yardımıyla araştırmacılar tarafından irdelenmiştir. Bu analiz sonucunda ortaya çıkan temalar ve alt temalar öğrencilerle yapılan görüşmelerin çevriyazıya dökülmüş halinden alınan birebir alıntılar ile desteklenmiştir.

Bulgular

Bu çalışmanın birinci araştırma sorusu, Türkiye'de farklı okul seviyelerinden öğrencilerin çevrimiçi öğrenme öz-yeterlik seviyelerini ortaya çıkarmaya yöneliktir. Elde edilen bulgulara göre katılımcı öğrencilerin beyanlarına dayalı çevrimiçi öğrenme öz-yeterlik seviyeleri oldukça yüksektir (M = 4.23; SD =.56075). Araştırmadaki ikinci araştırma sorusu kapsamında katılımcı öğrencilerin çevrimiçi öğrenme öz-yeterlik seviyeleri ile bazı demografik özellikleri arasındaki ilişki incelenmiştir. İlk olarak öğrencilerin cinsiyetleri ile çevrimiçi öğrenme öz-yeterlik seviyeleri arasında anlamlı bir ilişki olup olmadığı irdelenmiş ancak bu iki değişken arasında anlamlı bir fark bulunamamıştır ($p = 0.711 > .05$). İkinci demografik özellik katılımcıların yaşıdır. Öğrencilerin yaşı ile çevrimiçi öğrenme öz-yeterlik seviyeleri arasındaki ilişki incelendiğinde bu iki değişken arasında istatistiksel olarak anlamlı bir fark bulunmuştur ($x^2=48.295$; df = 4; $p = 0.000<.05$.). Son olarak, öğrencilerin okul seviyeleri ile çevrimiçi öğrenme öz-yeterlik seviyeleri arasında anlamlı bir fark olup olmadığına bakılmış ve anlamlı bir fark olduğu anlaşılmıştır ($x^2=39.849$; df = 3; $p = 0.000<.05$). Katılımcılar ile yapılan çevrimiçi görüşmelerde öğrencilerin çevrimiçi özyeterliklerine etki eden faktörlere yönelik görüşleri sorulmuştur. Bu noktada toplanan veriler analiz edildiğinde, katılımcı öğrencilerin olumlu ve olumsuz faktörler olarak iki boyutlu yanıtlar verdiği görülmektedir. Olumlu faktörler başlığı altında öğretmenlerden ve ilave kaynaklardan aldıkları destek, olumsuz faktörler başlığı altında ise motivasyon sorunları ile internet bağlantı hızı, vb. teknik sorunlar ifade edilmiştir.

Tartışma ve Sonuç

Farklı seviyelerde eğitim gören katılımcılarla gerçekleştirilen bu çalışmanın amacı, katılımcıların çevrimiçi öğrenme özyeterlik seviyelerinin belirlemek ve özyeterlik seviyelerini

farklı değişkenler açıdan değerlendirmektir. Buna ilaveten öğrencilerin çevrimiçi özyeterliklerini etkileyen faktörlere yönelik algılarını ortaya çıkarmak da bu çalışmanın bir diğer amacıdır. Bu bağlamda, katılımcıların çevrimiçi öğrenme özyeterlik seviylerinin oldukça yüksek olduğu ortaya çıkmıştır. Elde edilen bu bulgu literatürdeki diğer çalışmalar ile benzerlik göstermektedir (Özdoğru, 2022; Yavuzalp & Bahçıvan, 2020). Bu araştırmanın bir diğer bulgusu, ikinci araştırma sorusu bağlamında değerlendirilen katılımcıların çevrimiçi öğrenme özyeterlikleri ile demografik özellikleri arasındaki ilişkidir. Öncelikle, cinsiyet ile çevrimiçi öğrenme özyeterliği arasında anlamlı bir fark bulunamamıştır. Bu bulgu konu ile ilgili benzer çalışmaların sonuçlarını desteklemektedir (Wu & Hiltz, 2004; Yavuzalp & Bahçıvan, 2020).

Çevrimiçi öğrenme özyeterliği ile ilişkisi değerlendirilen ikinci demografik özellik katılımcıların yaşıdır. Cinsiyetin aksine yaş ile çevrimiçi öğrenme özyeterliği arasında istatistiksel olarak anlamlı farklılık olduğu anlaşılmıştır. Yaş ile çevrimiçi öğrenme özyeterliği ilişkisini inceleyen benzer çalışmaların bulguları incelendiğinde, genelde birbirileri ile çelişen sonuçlar olduğu görülmüştür. Bunun altında yatan temel neden, bu çalışmaların bağlamsal farklılıklar göstermesi ayrıca her bir çalışmadaki 'genç' ve 'yaşlı' kavramlarının farklı yaş grupları ile ifade edilmesidir (Chuyung, 2007). Öğrencilerin çevrimiçi öğrenme özyeterlikleri ile ilişkisi değerlendirilen son özellik ise öğrencilerin okul seviyesidir. Bu bağlamda öğrencilerin okul seviyeleri ile çevrimiçi öğrenme özyeterlikleri arasında anlamlı farklılık olduğu ve en yüksek özyeterlik puanlarının lisanüstü seviyede eğitim gören öğrencilere ait olduğu anlaşılmıştır. Bu sonuç ise anlamlı farklılık ifade eden benzer çalışma sonuçları ile benzerlik göstermektedir (Aldhahi vd., 2021; Shen vd., 2013) ki bu bulgu öğrencilerin lisansüstü ders ve tez aşamalarındaki bilgisayar kullanım gerekliliğindeki fazlalık ile açıklanabilir. Bu çalışmanın nitel verilerinin sonuçlarına bakıldığında, özellikle çevrimiçi özyeterliğe etki eden olumsuz faktörler başlığı altında ifade edilen motivasyon sorunları ile teknik problemlere yönelik bulgular literatürdeki benzer çalışmalara ait sonuçlar ile paralellik göstermektedir (Carter Jr vd., 2020; Mathew & Chung, 2021; Sim vd., 2021).

Çevrimiçi öğrenme kavramının artık hayatımızın önemli bir parçası olduğu gerçeği dikkate alındığında, bu sürece aktif katılım sağlayan öğrencilerin bu kavrama yönelik özyeterliği konusu da eşit derece de önem kazanmıştır. Bu çalışma ve gelecekte yapılacak benzer çalışmalar sayesinde, öğrenme etkinliğine katkısı olan ya da bu etkinliğe engel teşkil eden demografik etkenler tanımlandığında gerekli adımlar daha net bir şekilde atılabilecek ve öğrencilerin öğrenme eylemlerine katkıda bulunabilecek destek uygulamaları eğitime adapte edilebilecektir. Ayrıca öğrencilerin uzaktan eğitim sürecini etkileyen faktörlere bakış açılarının ortaya çıkarılması ilgili paydaşların konu ile ilgili gerekli adımları atmasını hızlandırabilecektir.