


Online course satisfaction in a holistic flipped classroom approach

Ulaş İlic^{a*} 

^a Pamukkale University, Turkey.

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Abstract

The present study aimed to investigate the satisfaction of pre-service teachers with the completely online course instructed with the flipped classroom model. The study was conducted with the explanatory sequential mixed design. The participants included 117 pre-service teachers. Data were collected during the 2020-2021 academic year fall semester with the Online Course Satisfaction Scale and face-to-face interviews. The study findings demonstrated that the pre-service teachers were satisfied with the online course. The satisfaction level of female participants was higher, and the differences were not significant based on the student department. On the other hand, the participants stated that there were systemic and instructor-oriented problems. Furthermore, it was determined that ease of use was an important factor in predicting satisfaction. Ease of use varied based on PC ownership, but not based on tablet ownership. Satisfaction did not differ based on both PC and tablet ownership. It was found that the flipped classroom model exhibited interactional challenges. However, the model had advantages due to its structure that allowed flexibility. It could be suggested that the findings of the present study would contribute to future studies that would address flipped classroom method and satisfaction with online courses.

Research Article

1. Introduction

History is full of important events that changed the world. The Covid-19 pandemic that started in 2019 is one of these historic events. The epidemic that started in the last months of 2019 in China was recognized as a pandemic by the World Health Organization (WHO, 2021). In the pandemic, more than 150 million Coronavirus cases were identified and over 3 million people died globally (Worldometer, 2021). According to the Republic of Turkey Ministry of Health (2021), 6.458.630 cases and 57.559 deaths were recorded in Turkey. In almost all countries, to prevent the proliferation of the pandemic, education was mostly conducted online. It was observed that this was more prominent in higher education institutions. Similar practices were adopted in Turkey, and the Council of Higher Education decided on 03.26.2020 that 2020 spring semester would be instructed completely with distance education (YÖK, 2020). Following this decision, except the applied and science courses, distance education was adopted in most programs. The Council of Higher Education suggested that education could be conducted with distance education. After this suggestion, Pamukkale University announced that the education would continue mainly with distance education in all academic departments (Pamukkale University, 2020a). It was announced that only certain courses in practice-oriented disciplines could be conducted face-to-face. Approximately one month after this announcement, it was announced that the interactive distance education model was adopted for this process (Pamukkale University, 2020b). It was stated that the process was student-centered, the course

* Corresponding author. Department of Computer Education & Instructional Technology, Pamukkale University, Turkey.
e-mail adress: uilic@pau.edu.tr

materials would be available before the live courses, and the activities such as reinforcement, interpretation and evaluation should be conducted with the course material in the courses. It was emphasized that the students should also examine the uploaded material before the class and participate in the interactive classes, except for legitimate excuses. On the other hand, it was announced by the Distance Education and Research Center that the Flipped Classroom learning and instruction approach should be employed in this process (Uzaktan Eğitim Uygulama ve Araştırma Merkezi, 2020). Although the general announcements and the method titles employed by the center were different, it was observed that the content was actually the same. Thus, the application aimed the students to examine the content uploaded to the system by the lecturer before the live online class, and discuss the topic in the live class and reinforce it with associated activities. It was also suggested to conduct more detailed investigations after the class.

2. Literature

2.1. Flipped Classroom

Flipped classroom is one of the significant distance education approaches. The model has been defined by several scholars. For example, Bergmann and Sams (2012) described it as conducting traditional classroom activities at home and doing homework assignments in the classroom. The most accepted definition was proposed by Bishop and Verleger (2013). According to them, in the method, instruction is computer-assisted and conducted outside of the classroom, and group activities are conducted in the classroom to support learning. According to the Flipped Learning Network (FLN) (2014), there are 4 main elements in the flipped classroom technique. These include flexible environment, learning culture, intentional content and professional educator. On the other hand, Chen et al. (2014) reported that these pillars would be insufficient in higher education. According to them, progressive activities, engaging learning experiences and diversified platforms should be added to the 4 elements. Among these factors, allowing flexible environments differentiated the flipped classroom approach from other models (Filiz & Kurt, 2015). The flipped classroom focuses on the student rather than the teacher and encourages the students to experiment. Flipped classroom is also an effective learning model that leads to active and meaningful learning during both in-class and out-of-class learning activities (Forsey et al., 2013). It was determined that the model improves learner motivation and performance more when compared to conventional instruction (Lai & Hwang, 2016; Smit et al., 2014). One of the advantages of the flipped classroom is the availability of instant feedback in simultaneous sessions conducted after the students are ready (Hattie, 2009). It should be noted that the method has certain disadvantages as well as the above-mentioned advantages. For example, it was reported that learning outcomes would remain low without proper counseling and support (McLaughlin et al., 2013; Sun et al., 2017). Material content is another important factor in the flipped classroom method. Shimada et al. (2017) reported that extremely long material would not motivate the students to prepare for the class. Students prefer summarized material rather than supplementary material. Thus, there are several factors that can affect the success of the flipped classroom method. These factors include personal computer ownership, tablet ownership and ease of use. Thus, these variables are addressed in the following paragraphs.

2.2. Personal Computer (PC) Ownership

Bandura (1997) analyzed the impact of PC ownership and self-efficacy on learner behavior in his social cognitive theory. Computer self-efficacy could affect an individual's learning behavior (Mann et al. 1999). In the literature, certain studies demonstrated that PC ownership increased computer self-efficacy (Selwyn, 1998; Teo et al., 2002). Furthermore, it was reported that PC owners adopted more positive attitudes towards technology use in education (Akgün & Topal, 2015; Cavas et al., 2009; Gökal et al., 2019; Harvey & Wilson, 1985; Rahimi, 2011; Roussos, 2007). Owners of PC feel more confident and comfortable (Kahveci et al., 2011). On the other hand, other studies argued that PC ownership does not affect the attendance in online courses (Kharma, 2019). It was also determined that perceptions about distance education did not differ based on computer ownership (Gündüz & İşman, 2018). Considering the place of

PC ownership in technology use, its importance in online learning and its situation in distance education, it is thought that it will be useful to examine this variable in terms of flipped classroom approach.

2.3. *Tablet Ownership*

Today, mobile devices are more popular than conventional computers. One of these mobile devices is the tablet computers. These devices have various interactive features (Churchill et al., 2012). They significantly contribute to student engagement due to the above-mentioned features (Amelink et al., 2012). Previous studies demonstrated that these devices were better suited to e-learning when compared to computers (Pratama & Scarlatos, 2020). Tablet computers allow more active participation in activities (Manuguerra & Petocz, 2011) and further collaboration as well (Lauricella & Kay, 2010). On the other hand, mobile devices also have several limitations. For example, distraction during a class is among the most common disadvantages (Fried, 2008; Lauricella & Kay, 2010; Wurst et al., 2008). In addition to this, the users may experience concentration problems and lower working memory capacity (Hadlington, 2015). Considering the contributions of having a tablet to active participation and student engagement, and its advantages in e-learning environments, it was thought that it would be useful to evaluate this variable within the scope of the study.

2.4. *Ease of Use*

Perceived ease of use is the primary factor in acceptance of technology (Venkatesh & Davis, 2000). Perceived ease of use was defined as the belief that the individual could use technology with less effort, while perceived usefulness was described as the belief that the individual's performance would improve when a technology is employed (Davis, 1989). Furthermore, there are several barriers to technology use in education. One of these is the resources (Sánchez-Prieto et al., 2019). The individual's comfort in the employment of a device is expected to improve with the individual's resources. Considering the ease of use's key role in technology adoption and emphasis on the impact of these conditions in the context of the use of information technologies (Lai et al., 2012; Ngai et al., 2007), it would be useful to include the ease of use as a variable in the research.

2.5. *Online Course Satisfaction*

One of the most important variables in online learning environments is learner satisfaction (Yukselturk & Yildirim, 2008). Online course satisfaction is among the most significant factors in the determination of quality of distance education by higher education institutions (McGorry, 2003). The factors considered in this determination include interaction (Croxtton, 2014; Lister, 2014; Roper, 2007), communication with peers (Kurucay & Inan, 2017; Liaw & Huang, 2013), supplementary learning activities (Chen, 2014; Lister, 2014; Tibi, 2015), timely and descriptive feedback (Britto & Rush, 2013; Wallace, 2003) and explicit description of the tasks and the grading system (Ralston-Berg et al., 2015). Furthermore, technical issues (Bolliger & Martindale, 2004), teacher traits (Fedynich et al., 2015; Martin-Rodriguez et al., 2015), course design and content (Jaggars & Xu, 2016; Lister, 2014; Ralston-Berg et al., 2015) are among the effective variables. The factors were considered imperative for an effective online course (Kauffman, 2015; Kurucay & Inan, 2017; Martin-Rodriguez et al., 2015).

2.6. *Aim of the Study*

It could be argued that the model adopted by the higher education institution in the present study was based on the model reported by Chen et al. (2005). In this model, the pre-classroom material was shared asynchronously, while activities and discussions were conducted in simultaneous classes. Exams were conducted face to face. The only difference between Chen et al.'s (2005) model and the implemented technique was the fact that the exams were conducted online due to the pandemic. Since the implemented model was also a flipped classroom application, online course satisfaction was quite important. Ease of use, PC ownership, and tablet ownership were also essential variables. In the literature, there are several studies on the advantages of the flipped classroom method, including online satisfaction (Chen et al., 2014; Forsey

et al., 2013; Lai & Hwang, 2016; Smit et al., 2014). However, variables associated with learners were never analyzed in a completely online flipped classroom environment. Thus, the present study aimed to determine online course satisfaction levels of learners in a flipped classroom environment. In addition, reason of the satisfaction level and other variables that may affect this variable were examined.

1. What is the online learning satisfaction level of the participants?

1.1. What is the reason behind the online learning satisfaction level of the participants?

2. Is there a difference between online learning satisfaction levels based on gender?

3. Is there a difference between online learning satisfaction levels based on department?

4. Does ease of use predict satisfaction?

5. Do ease of use and online learning satisfaction differ based on PC ownership?

6. Do ease of use and online learning satisfaction differ based on tablet ownership?

7. What are the views of the learners about the decision to adopt distance education?

8. What are the views of the learners on the flipped classroom model?

3. Methodology

3.1. Research Model

The present study was conducted with the explanatory sequential design, a mixed research method. The mixed design entails collection and analysis of both quantitative and qualitative (Onwuegbuzie & Leech, 2006). In explanatory sequential design, initially, the quantitative and qualitative data are collected in sequence and the latter is employed to support quantitative data (Creswell, 2003). First, the quantitative data were collected with the Online Course Satisfaction Scale in the present study, and the transcripts of face-to-face interviews conducted with both pre-service teachers and faculty members were analyzed.

3.2. Data Collecting Tools

The study data were collected with a scale and face to face interviews.

The Online Course Satisfaction Scale (OCSS), developed by Bayrak et al. (2020), was employed in the study to gather data regarding online course satisfaction. The 5-point Likert type scale includes 10 items in a single factor. All scale items are positive. It was reported that OCSS was suitable for general population, although it was developed with college students. The Cronbach Alpha internal consistency coefficient was calculated as .90 or above in both study 1 and study 2. In the present study, the Cronbach Alpha was determined as .91. Above-mentioned data demonstrated that the internal consistency of the scale was high (Nunnally & Bernstein, 1994).

The interview form developed by the author was used to collect data for the open-ended questions. The form was reviewed by 3 Computer and Instructional Technologies Education specialists. Then, the questions were reviewed by a linguist and an assessment and evaluation specialist. The interview form was revised based on the reviews and finalized to include the following questions:

- What do you think about the decision to adopt distance education?
- What do you think about online learning satisfaction?
- What is the reason behind the online learning satisfaction level of the participants?
- What do you think about the flipped classroom approach?

Demographic questions about the participant age, gender, department and ease of use were included in the scale. Participants were asked to score the ease of use variable between 1 and 10 points.

3.3. Study Group

The study group included 117 pre-service teachers attending the Faculty of Education at a state university in the 2020-2021 academic year fall semester. Participant age varied between 18 and 22. Besides, most pre-service teachers were female (77.8%).

The criterion sampling method was used to select the study group. The assignment is conducted based on certain preexisting criteria or criteria determined by the authors in this method (Yıldırım & Şimşek, 2011). Thus, the sampling criteria included attendance at Pamukkale University Faculty of Education, enrollment in a course during the 2020-2021 academic year fall semester and attendance in the registered course throughout the semester. Furthermore, only volunteering participants were included in the study due to ethical concerns. Also, to avoid ethical problems, the pre-service teachers were coded with the letter "S" and the faculty members were coded with the letter "T" and their names were kept confidential. Interviews were conducted with 6 pre-service teachers and 4 faculty members as well. Most of these pre-service teachers are female (66.6%) and their age ranges from 18 to 21. All faculty members are male and their ages varied between 32 and 42.

3.4. Data Analysis and Interpretation

Before the data analysis, missing data were examined. No problem was determined. Normal distribution of the data was tested to determine the type of analysis that would be conducted in the next stage. The sample size is expected to be at least 15 in each compared group (Pallant, 2001). It was determined that the necessary conditions were met.

Table 1.

Statistics regarding the variables

Variable	N	Min	Max	\bar{X}	SD	Skewness	Kurtosis
Satisfaction	117	15.00	50.00	37.99	7.75	-.811	.602
Ease of use	117	1.00	10.00	7.19	2.31	-.844	-.029
PC ownership	117	0.00	1.00	.77	0.42	-1.295	-.330
Tablet ownership	117	0.00	1.00	.13	0.34	1.953	1.930

The skewness and kurtosis for both the participants and other variables were between -2 and +2 as given in Table 1. It was found that the distribution of the data was normal (George, 2011). Kolmogorov-Smirnov test was used for groups with 30 or more participants to determine normal distribution (Akbulut, 2010). It was determined that there was normal distribution. Furthermore, according to Çokluk et al. (2010), histograms and quantile graphs should also be employed to determine normal distribution. The analyses demonstrated that all variables exhibited normal distribution as well. Thus, independent samples t-test, a parametric test, was employed. On the other hand, non-parametric tests were used for the data associated with the third research problem. This was due to the fact that the group did not exhibit a normal distribution based on the department. The research problems and the analyses conducted to resolve these problems are presented in Table 2.

Table 2.

Research problems and associated analyses

Research problem	Employed analysis
1. What is the online learning satisfaction level of the participants?	Descriptive statistics
1.1. What is the reason behind the online learning satisfaction level of the participants?	Qualitative analyses
2. Is there a difference between online learning satisfaction levels based on gender?	Independent samples t-test
3. Is there a difference between online learning satisfaction levels based on department?	Kruskal-Wallis and Mann-Whitney U

4. Does ease of use predict satisfaction?	Simple linear regression
5. Do ease of use and online learning satisfaction differ based on PC ownership?	Independent samples t-test
6. Do ease of use and online learning satisfaction differ based on tablet ownership?	Independent samples t-test
7. What are the views of the learners about the decision to adopt distance education?	Qualitative analyses
8. What are the views of the learners on the flipped classroom model?	Qualitative analyses

The quantitative analyses indicated in Table 2 were conducted with a statistical software. The significance level was accepted as .05 in statistical analyses. The qualitative study data were analyzed with a spreadsheet software. In the spreadsheet, the themes and codes determined in the content analysis conducted on the responses were written on each line. Furthermore, the transferability of the study findings was improved by including direct participant quotes.

3.5. Validity and Reliability

Data were diversified to improve the internal validity of the study. This method allows the researcher to check, compare and verify different types of data (Patton, 1990). Thus, both the OCSS data and face-to-face interview data collected from the pre-service teachers and faculty members were used. In addition, the participant rights about participation in the study were briefly mentioned. Also, direct participant quotes from face-to-face interviews are presented to improve the study reliability. The Cronbach Alpha coefficient was reported after the development of the scale and the internal consistency coefficients calculated in data analysis were presented as well. In addition, open-ended questions were analyzed by another expert with a PhD in Computer Education and Instructional Technology. Cohen's Kappa statistic was examined to calculate the reliability between these coders. This value was found as $\kappa = .91$ which can be stated that the concordance between coders is high (Landis & Koch, 1977).

4. Findings

The findings obtained with the analyses conducted based on the research problems are presented under eight main topics. First, descriptive statistics findings for satisfaction based on gender and department are presented. Then, the findings associated with the predictive power of the ease of use for satisfaction are presented. This is followed by the findings on the effect of the ease of use, PC and tablet ownership on satisfaction. Finally, the findings are concluded with the views on distance education decision and the flipped classroom approach.

4.1. Satisfaction of the Participants with Online Learning

Descriptive statistics were used to investigate pre-service teachers' satisfaction with online learning. Furthermore, their responses to the interview questions were employed to investigate the reasons behind their satisfaction. The findings obtained with the descriptive statistics conducted on satisfaction with the online learning environment, considering that the total possible score in the scale was 50, it was observed that the mean score was quite high ($M = 37.91$; $SD = 7.46$). On the other hand, it was determined that there were students who stated that they were not satisfied with the online environment. It was considered beneficial to include the answers to the interview questions to investigate the reasons for satisfaction. In the analysis, it was found that the negative views were about the system. All participants shared negative answers about the system. Student S2 stated the following: "I think the biggest problem with the system was being kicked out of the course all the time. I do not even remember how many times my connection dropped. Even if I was not, I always experienced audiovisual problems. In fact, one of the teachers thought that I stayed online while I was busy with other tasks. How can I understand someone I hear intermittently and how such a class would be efficient?" S6, on the other hand, stated the following: "We were victimized during the exam. It was obvious that the system would collapse because the attendance was quite high." Also, the faculty member T4 stated that "The system was inexistent. I do not think the system was successful, but in such a short time, a high number of individuals could reach the system. If the efforts did not cease during summer term, a better system could have been achieved." According to the instructor,

although there were problems in the system, the process was successful overall. Also, the same instructor stated the following: "The transformation was slow. The pandemic hit as a rapid wave. We were not mentally ready for distance education." The instructor also stated that certain measures were adopted in the process, but it would take time for the system to be efficient. The next common criticism was about the instructors. It was determined that there was a disagreement between the participants on this issue. Seven participants mentioned strengths of the instructors, while 6 emphasized the problems. The most prominent criticism about the instructors was the lack of emphasis on the classes. S4 addressed the issue in detail and stated the following: "... there were teachers whose faces I never saw during the semester, and I will not recognize them if we meet on the street because their cameras were always off. This gave me the impression that I was not in the classroom... I mean, it was like watching an informative video rather than a class, the impact was more or less the same. And some teachers were very indifferent, when there was a problem with the course, they were inaccessible..." On the other hand, the faculty member T2 stated the following: "I do not think that online education had many advantages because the instructors aimed to complete the class without any complaints instead of spending an effort for the students to acquire the required knowledge and skills." Seven participants stated that certain instructors did their best. For example, S2 stated the following: "Yes, the teachers were generally very good. In fact, for me, a few of them managed the process best way possible." Criticizing the instructors, T2 stated the following: "There were also instructors who continued the process to serve the purpose," indicating that there were also instructors with advantages in the process.

4.2. Participant Satisfaction with Online Learning Based on Gender

On the second research question, the results of the independent-samples t-test, which was conducted to determine the differences between the participant scores in online course satisfaction based on gender, are presented in Table 3.

Table 3.

Online satisfaction scores based on gender

Group	n	\bar{X}	SD	df	t	p	Eta Squared
Female	91	39.02	7.152	115	3.141	.002	.097
Male	26	34.00	7.327				

The findings presented in Table 3 demonstrated that the female participants had higher scores than males in terms of online course satisfaction ($t_{(115)} = 3.141$; $p < .05$; $\eta^2 = .097$). It was suggested that this could be due to the fact that female pre-service teachers prioritized the process and the components of the process more than the male pre-service teachers.

4.3. Participant Satisfaction with Online Learning Based on Department

Kruskal-Wallis test was employed to determine the differences between the online course satisfaction scores of the pre-service teachers. The results of the Kruskal-Wallis test, where the scores of the participants were analyzed based on their department are given in Table 4.

Table 4.

Online satisfaction scores based on department

	n	Mean Rank	df	χ^2	p	Difference
1	8	56.63	4	19.92	.001	3-4, 4-5
2	17	67.53				
3	49	57.03				
4	11	96.32				
5	32	45.25				

1: Elementary Science Education; 2: Mathematics Education; 3: English Language Teaching; 4: Early Childhood Education; 5: Psychological Counseling and Guidance

The analysis results presented in Table 4 demonstrated a significant difference between the online course satisfaction scores of the students based on the student department ($\chi^2_{(4)}=19.2$; $p<0.05$). Mann-Whitney U test was conducted to determine the group or groups that led to this difference. The test results revealed that there were significant differences only between English Language Teaching and Early Childhood Education ($U=93$; $p<.005$) and Psychological Counseling and Guidance and Early Childhood Education ($U=30$; $p <.001$) departments. The difference was in favor of the Early Childhood Education in the both groups. As seen in the participant responses to the questions on their satisfaction levels, the lack of consensus about satisfaction with the instructors was consistent with this finding.

4.4. Predictive Power of Ease of Use on Satisfaction Level

Within the context of the fourth research question, simple linear regression analysis was conducted to determine whether the ease of use score was a significant predictor of the online course satisfaction score. The model achieved with this analysis is presented in Table 5.

Table 5.

The Summary of the simple linear regression model

Model	R	R ²	Adjusted R ²	Overall Model Test			
				F	df1	df2	Sig.
1	.573	.273	.267	43221	1	115	.000

The analysis results demonstrated that ease of use was a significant predictor of students' satisfaction with online learning ($R^2= .273$; $F_{(1,115)} = 43.221$; $p<.001$). The simple linear regression equation obtained with the data could be written as follows: The Online Course Satisfaction Score = $25.439 + 1.730 \times$ Ease of Use Score. Thus, it could be suggested that students who did not experience problems in online classes were more satisfied with the online learning environment. It was considered that this due to adequate opportunities that the learners experienced.

4.5. Ease of Use and Online Learning Satisfaction Based on PC and Tablet Ownership

The independent-samples t-tests were conducted to determine the differences between the participant scores in online course satisfaction based on PC and tablet PC. The results are presented in Table 6.

Table 6.

Independent-samples t-test results

	PC Ownership		\bar{X}	SD	df	t	p
	n						
Ease of use	Nonowner	27	6.26	2.521	115	-2.452	.016
	Owner	90	7.48	2.184			
Satisfaction	Nonowner	27	40.15	7.315	115	1.660	.100
	Owner	90	37.34	7.803			
	Tablet Ownership		\bar{X}	SD	df	t	p
	n						
Ease of use	Nonowner	102	7.17	2.256	115	-.480	.632
	Owner	15	7.47	2.295			
Satisfaction	Nonowner	102	38.14	7.258	115	.874	.384
	Owner	15	36.33	8.837			

As seen in Table 6, pc owners had higher scores than nonowners in terms of ease of use. ($t_{(115)} = -2.452$; $p<.05$). On the other hand, no significant difference was determined bases on PC ownership. This may be due to the fact that individuals have found different PCs to access the environment over time. There was also no significant difference between the ease of use and satisfaction scores based on the tablet ownership

variable. Similar to the findings on PC ownership, the ease of use scores of tablet owners were higher when compared to those who did not own a tablet ($\bar{x}_{\text{owner}} > \bar{x}_{\text{nonowner}}$). Also, the satisfaction scores of those who did not own a tablet were higher ($\bar{x}_{\text{nonowner}} > \bar{x}_{\text{owner}}$). It could be suggested that the fact that the course design was not suitable for tablet devices which are more interaction oriented affected these findings. Thus, 6 participants stated that there were problems due to the instruction staff. S4 stated the following: "... there were teachers whose faces I never saw during the semester and I would not recognize them if I see them on the street, because their cameras were always off. This gave me the impression that I was not in the classroom... I mean, it was like watching an informative video rather than a class, the impact was more or less the same." S1 stated the following: "This was my first year. I do not know my classmates or the instructors in my class."

4.6. Participant Views on Distance Education Decision

Participants were asked about their views on the distance education decision in the interviews. All participants stated that they considered the distance education decision by the institution right and normal. Furthermore, a student and two instructors stated that the decision was late. For example, T4 stated the following: "The decision should have been made earlier. Similar conditions were experienced during the spring term. People have a right to know what will happen to them." The instructor emphasized that they should have been more prepared based on prior experiences.

4.7. Participant Views on the Flipped Classroom Approach

Unlike the distance education decision, there was no consensus on the flipped classroom application. Six participants emphasized the disadvantages of the approach. Three participants stated that there was not adequate interaction in the system. For example, S1 stated the following: "This year was my first year. I did not know my classmates or the instructors in my class." Also, 2 students emphasized that not everyone had access to the required facilities to access the system. Five participants stated that the approach had certain advantages. On the issue, S4 stated the following: "First, I think that students had the opportunity to watch the classes without any time constraints and as many times as they wanted without any restrictions, which was an advantage of the system," emphasizing the prominent advantages of the system as reported in the literature. Instructor T4 stated the following: "I think this model should be applied even outside of the distance education. Maybe it was not named as such, but somehow that was inevitable. The pandemic only accelerated the process. But it will take time," underlining that it was a step towards the future.

5. Discussion

The present study aimed to determine online course satisfaction in a flipped classroom environment. For this purpose, satisfaction levels of 117 pre-service teachers were investigated. It was considered that the study findings would contribute to understanding satisfaction, which is one of the most important factors in flipped classroom environment. Furthermore, it was suggested that comprehension of the model, which was compulsory and conducted completely with distance education during the pandemic, could contribute to future designs.

The study findings demonstrated that learners were generally satisfied with the system. This finding was in line with the literature (Bayrak et al., 2020; Chen et al., 2014). However, the interviews revealed certain systemic troubles. Although students were generally satisfied with the system, the problems mentioned by the students reflected the dynamic structure of satisfaction that could be affected by various variables (Kauffman, 2015; Kurucay & Inan, 2017; Martin-Rodriguez et al., 2015). The problems were mostly associated with the system and the instructors. This finding was consistent with previous studies in the literature (Bolliger & Martindale, 2004; Fedynich et al., 2015; Martin-Rodriguez et al., 2015; Ilic, 2020).

The study findings revealed that female students were more satisfied with the model when compared to males. This finding was consistent with the literature where it was concluded that females prioritized the

the process and were therefore more satisfied (Gonzalez-Gomez et al., 2012). On the other hand, the finding was also in contrast with studies where it was reported that males were more interested in e-learning systems, leading to higher performances among males (Xu & Wang, 2006) and the studies that did not report a gender-based difference (Bayrak et al., 2020; Harvey et al., 2017). Also, the study findings revealed there were no general differences between satisfaction levels based on the department. Previous studies reported that system components were among the important factors that determined satisfaction (Bolliger & Martindale, 2004). Thus, this could explain the small differences between the departments. The determined differences between the departments could have been caused by non-systemic elements such as interaction and instructor traits that significantly affect online learning satisfaction. This finding was also in line with the literature (Croxtton, 2014; Fedynich et al., 2015; Lister, 2014; Martin-Rodriguez et al., 2015; Roper, 2007).

It was determined that ease of use was a significant predictor of online satisfaction. It was concluded that both systemic and personal facilities should be sufficient for this comfort. It is known that the ownership of resources affects technology use in education (Sánchez-Prieto et al., 2019). The study findings were consistent with the fact that both ownership and ease of use were among the leading factors for technology acceptance (Venkatesh & Davis, 2000). On the other hand, comfort varied based on PC ownership. This finding was consistent with the literature (Akgün & Topal, 2015; Cavas et al., 2009; Gökal et al., 2019; Harvey & Wilson, 1985; Rahimi, 2011; Roussos, 2007). It was concluded that satisfaction did not differ based on PC ownership. This finding was in line with previous study results that individual perceptions about distance education did not differ based on PC ownership (Gündüz & İşman, 2018; Kharma, 2019). It was also found that both ease of use and satisfaction level did not change based on tablet ownership. Resources have an impact on ease of use (Sánchez-Prieto et al., 2019). Tablet computers are important due to their interactive nature (Amelink et al., 2012; Churchill et al., 2012). Thus, the finding that ease of use did not differ based on tablet ownership was surprising. However, the interview findings demonstrated that the course was instructed with a design that did not allow interaction, and the above-mentioned finding could be expected. On the other hand, tablet ownership did not lead to a difference in satisfaction. It was reported in the literature that interaction, communication with peers, and supplementary learning activities were important factors behind satisfaction (Chen, 2014; Croxtton, 2014; Kurucay & Inan, 2017; Liaw & Huang, 2013; Lister, 2014; Roper, 2007; Tibi, 2015). The present study finding that was not consistent with the literature could be due to the course design that was not adequate for interaction and communication.

In the study, it was concluded that the distance education decision was correct. This finding was parallel with the view that education should be second to health during a pandemic (Bozkurt & Sharma, 2020). However, the participants argued that the decision was late. This finding was consistent with serious planning and programming requirements for distance education systems (Bozkurt & Sharma, 2020; Haag et al., 2004; Moore & Kearsly, 1996; Palloff & Pratt, 2007).

The pros and cons of the flipped classroom model were determined based on the study findings. Thus, it was concluded that the most significant problem was lack of interaction. This finding was in contrast with the fact that the flipped classroom approach is focused on interaction (Chen et al., 2014; Forsey et al., 2013). However, without proper orientation and support, these advantages could turn into disadvantages (McLaughlin et al., 2013; Sun et al., 2017). On the other hand, it was found that the model had a future since it provides a flexible environment for the students. This finding was consistent with the advantages of the flipped classroom model reported in the literature (Filiz & Kurt, 2015; Flipped Learning Network, 2014).

6. Conclusion and Suggestions

In conclusion, it was determined that learners' satisfaction with online learning was high. On the other hand, it was concluded that there were problems associated with the system and instruction staff. The online learning satisfaction varied based on gender, it did not differ based on the department. It was determined

that ease of use was a significant predictor of satisfaction and PC ownership significantly changed the ease of use. However, it was concluded that computer ownership did not have an impact on satisfaction, and similarly, tablet ownership did not affect ease of use or satisfaction. It was found that the adopted distance education system had also disadvantages due to the lack of interactive facilities. However, it was concluded that flexibility was one of the main advantages of the flipped classroom approach. It could be suggested that the present study findings on learner satisfaction were valuable for the analysis of the flipped classroom model, which was conducted completely online in the present case. However, further studies are required on the topic:

- Future studies could be conducted on different institutions to compare the findings reported in the present study.
- In the present study, the satisfaction variable was scrutinized. Future studies on student achievements could be beneficial.
- Future studies could be conducted on readiness for online learning and satisfaction.
- Future quantitative studies could be designed to investigate both flipped classroom model and satisfaction in depth.

Some practical suggestions were given based on the results as well:

- In such settings, the students' online course satisfaction levels should be taken into account both before the lesson and at the end of the semester. In this context, actions to improve the system should be employed.
- Flexibility of the system is one of the advantages of the online flipped classroom room settings. Thus, this issue should be considered in these systems.
- The lack of interactive facilities is the foremost disadvantage of the current system. Settings that will enable interaction should be created and interaction should be encouraged.
- Ease of use is a significant predictor of satisfaction. Therefore, attention should be paid to the factors that can positively affect the ease of use in the system.

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