A MIXED-METHODS STUDY OF THE CORRELATION BETWEEN IRANIAN UNIVERSITY STUDENTS' SATISFACTION AND ANXIETY IN ONLINE CLASSESS DURING THE COVID-19 PANDEMIC

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ABSTRACT

The present study aims to investigate the correlation between university students' satisfaction and anxiety in online classes during the COVID-19 pandemic in Iran. To this aim, using a random sampling method, a sample of 430 male (n=150) and female (n=230) university students were selected at Ayatollah Borujerdi University. They filled out two questionnaires: one measuring their satisfaction and the other one measuring their anxiety in online classes. To triangulate the quantitative data, 22 university students completed a reflective written statement. To analyze the collected data, a Pearson correlation analysis, a multiple regression analysis, and a thematic coding analysis were used. Findings evidenced a moderate negative correlation between the participants' satisfaction and anxiety in online classes. Additionally, results documented that instructor, technology, and outcomes factors had the largest effects on the participants' anxiety in online classes. Complementary with the quantitative findings, the results of the reflective written statements yielded four overarching themes, including 'instructors are facilitators', 'technology makes learning easier', 'outcomes are more promising', and 'interacting with others is poor'. Finally, in light of the findings, a range of implications is suggested.

Keywords: Satisfaction, anxiety, online classes, the COVID-19 pandemic, university students, thematic coding analysis.

INTRODUCTION

In the past decades, there has been a sustainable growing interest in online classes. The reason for this explosive development is the notable advantages that online classes bring about for individuals. For example, two key advantages of online classes are flexibility and convenience (Bolliger & Hapula, 2012). Online education has opened up this invaluable opportunity for learners to access learning without any limitation of

time and place (Bower & Kamata, 2000). One of the crucial factors in the assessment of the quality of online classes is students' satisfaction. In a sense, the quality of online education is tied with students' satisfaction (Kuo et al., 2013). In the literature, some factors affecting students' satisfaction with online classes have been verified. They include instructor behavior, reliable technology, and interactivity (Bolliger & Martindale, 2004). Moreover, Kuo et al. (2013) found that students' satisfaction in online classes was closely related to student-instructor interaction, student-content interaction, and the Internet self-efficacy.

Another factor that should be considered to assess the quality of online classes is student anxiety. In fact, identifying the sources of anxiety among online students may be useful to improve the quality of online classes (Abdous, 2019). It is easy to imagine that when university students attend online classes, they have to unlearn long-lasting learning habits in traditional classes. In these new learning environments, they are pressed to involve in new learning ways (Abdus, 2019). That may be the major reason for the previous studies' findings, indicating that online students get more anxious compared to traditional classes at the beginning of the online classes (DeVaney, 2010; Zembylas, 2008). When online students do not have a clear course roadmap and do not know where to start and what to do, they get anxious. As Zembylas (2008) notes, the students who do not have the required confidence in using technological skills may lose their satisfaction during online courses and consequently may lower their performance.

Due to the abrupt dissemination of the COVID-19 pandemic, online classes have exploded across Iran. This unique situation calls for studies to disclose the relationship between students' satisfaction and anxiety in online classes. In this way, the university officials may take up urgent steps to increase the Iranian university students' satisfaction and, in turn, control their anxiety in online classes. The hope is that the current study's findings can further our understanding of the correlation between Iranian university students' satisfaction and anxiety in online classes, as well as the satisfaction factors determining students' anxiety. By meeting this aim, the Iranian university officials can control the satisfaction factors affecting university students' anxiety.

LITERATURE REVIEW

Student Satisfaction with Online Classes

One of the important factors determining the quality of online courses is student satisfaction. It is students' perceptions about their abilities to achieve success and their feelings about the outcomes achieved (Keller, 1983). As Knox et al. (1993) note, since university students aim to obtain a quality education, they spend noticeable time, effort, and money. Thus, they expect to perceive their educational experiences as satisfactory and to be of high value. Student satisfaction is a very important concept because it may ultimately lead to higher levels of motivation, engagement, learning, performance, and success (Sahin & Shelley, 2008; Wickersham & McGee, 2008).

Researchers need to develop an understanding of the factors affecting student satisfaction in online courses (Jurkowitsch et al., 2006). Appleton-Knapp and Krentler (2006) stress that identifying these factors can be of great help for universities to know how to offer their online programs. Due to this urgent need, there has been a growing body of research on student satisfaction with online courses (Abdous, 2019; Banks & Faul, 2007; Bolliger & Halupa, 2012; Walker & Kelly, 2007). For example, Ortiz-Rodriques et al. (2005) discovered that student satisfaction with online classes is affected by some factors, including communication and timely feedback, good course design with rich media for course materials, administrative issues including good software, and support service. Additionally, Bolliger and Martindale (2004) found that student satisfaction with online courses was linked to the instructor, set-up, technology, interaction, and outcomes. Furthermore, Evans (2009) concurred that faculty satisfaction, curriculum, student engagement, and flexibility correlate to student satisfaction in online classes.

In sum, the previous studies' findings documented that student satisfaction with online courses is related to persistence (Allen & Seaman, 2008), retention (Debourgh, 1999), course quality (Moore & Kearsley, 1996), and student success (Noel-Levitz, 2011). High satisfaction leads to lower attrition rates, higher persistence in learning, and higher motivation in pursuing additional online courses (Allen & Seaman, 2008; Biner, et al., 1994). As Bolliger and Halupa (2012) note, that's why higher education institutions consider student satisfaction as one of the plillars in determining the quality of online programs.

Anxiety in Online Classes

With the dissemination of modern social technologies, university students are supposed to have good digital literacy to maximize their learning in online courses (Bolliger & Hapula, 2012). Some basic technology skills required to benefit from online classes include being familiar with operating systems, using word processing, spreadsheets, and databases, working with communication and presentation software programs, and navigating the Internet (Kay, 2008). One of the factors that may act as a hindrance to the development of these basic technology skills is student anxiety.

According to Bolliger and Hapula (2012), anxiety is considered as "a conscious fearful emotional state" (p. 83). Concerning the relation of anxiety with computer use, it can be defined as a person's uneasiness, apprehensiveness, and fearfulness when using computers (Igbaria & Parasuraman, 1989). According to Beckers and Schmidt (2001), computer-related anxiety is a multi-dimensional construct, including positive and negative beliefs about computers, insecurity, nervousness, apprehension, fear, intimidation, and hesitation. The investigations on computer-related anxiety led to the emergence of the conceptualization of internet anxiety (e.g., Heinssen et al., 1987). The findings of Presno (1998) disclosed that the internet anxiety covers some factors, such as internet terminology anxiety, net search anxiety, internet delay anxiety, and general fear of internet failure. Later, Bolliger and Hapula (2012) developed a course anxiety scale. They considered three elements: computer anxiety, the internet anxiety, and online courses. According to Bolliger and Hapula (2012), their scales include some constructs, such as insecurity/confidence, anxiety, relaxation/nervousness, excitement/apprehension, enjoyment/aversion/fear, intimidation, confusion, and empowerment.

From the perspective of the socio-cognitive theory, anxiety may affect adversely thought, behavior, and physiological state of students (Banduara, 1988; Paul & Glassman, 2017). According to Paul and Glassman (2017), when a student has a high level of anxiety, they may experience maladaptive thought processes (e.g., I cannot learn in online classes), suffer physical discomfort (e.g., racing hearbeat), and avoid attending online classes altogether (e.g., avoiding online classes to learning something new). The previous study's findings evidenced that anxiety in online classes can create some detrimental effects (Bolliger & Hapula, 2012; Paul & Glassman, 2017).

When a student suffers from anxiety accompanying negative self-evaluative thoughts, they cannot keep the task-related cognitive processing. The reason, as Derakshan and Eysenck (2009) note, is that students' attentional resources are given to suppress intrusive thoughts than doing the task. The previous studies' findings (e.g., Brosnan et al., 2012; Joiner, et al., 2005; Rezai & Shams, 2014; Susskind, 2004) demonstrated that avoidance behavior is of paramount importance since high levels of anxiety result in lower attendance in online classes. To close, if the importance of anxiety in online classes be overlooked, students will be at a continuous learning disadvantage (Paul & Glassman, 2017).

Related Studies in the Literature

In the literature, a few studies have been carried out to reveal the relationship between students' satisfaction and anxiety in online classes. We review critically some of them here to lay the groundwork for the present research. In a study, Herbert (2006) investigated university students' perceptions of online learning quality. His findings revealed that the participants' satisfaction with the online learning was highly correlated with the university teachers' responsiveness to their needs and wants. Moreover, Sun et al. (2008) examined the key factors influencing student satisfaction in online courses. Their findings unveiled that student satisfaction with online courses was determined by student computer anxiety, instructor attitude toward online learning, online course flexibility, online course quality, perceived usefulness, perceived ease of use, and diversity in assessments. Further, in another study by Bolliger and Hapula (2012), the relationship between university students' computer, the Internet, and online course anxiety and overall course satisfaction was investigated. Her results evidenced a significant negative correlation between online course anxiety and the students' satisfaction. Likewise, Abdous (2019) examined the factors influencing students' anxiety in online classes. His findings disclosed that lack of clear guidelines and explanations on what to do, technical difficulties, lack of face-to-face time with faculty, risk of online distraction (waste time on social media),

lack of immediate classroom interaction with faculty and students, lack of feedback from faculty, and lack of classroom environment were associated with anxiety among online students. Additionally, his results revealed that more than half of the students (n=2127, 60.3%) placed the lack of clear guidelines at the top of their worry list, followed by technical difficulties (n=1789, 50.9%) and the lack of face-to-face time with faculty (n=1791, 50.7%).

In the Iranian context, Rezai and Shams (2014) explored the Internet anxiety of agricultural students in Zanjan University. Their findings disclosed that 24.5 percent of their participants had a low level, 45.8 percent had a medium level, and 29.7 percent had a high level of the Internet anxiety. In addition, their results revealed that the female students suffered from a higher level of anxiety compared to the male students. Moreover, their findings disclosed a significant relationship between the students' internet anxiety with their internet experience, internet self-efficacy, and internet usage. The review of the above-alluded studies revealed that there is a paucity of research on the correlation between university students' satisfaction with and anxiety in online classes in the Iranian context during the COVID-19 pandemic. To bridge this gap, the present study purported to answer the following research questions:

1. Is there any significant correlation between Iranian university students' satisfaction and anxiety in online classes during the COVID-19 pandemic?
2. Which satisfaction factors determine anxiety of Iranian university students in online classes during the COVID-19 pandemic?
3. In which ways can Iranian students' satisfaction with online classes impact their anxiety?

METHOD

Research Design

As the required data were gathered through two questionnaires and a reflective written statement, the present study is considered a mixed-methods study. In a sense, an embedded mixed-methods design was used to complement quantitative data with qualitative ones. The underlying reason to use a mixed-method design was to achieve triangulation. As Mackey and Gass (2016) note, triangulation helps researchers to delve into the diverse aspects of a topic under scrutiny by using different data collection approaches. Thus, to further our understanding of the relationship between Iranian university students' satisfaction and anxiety in online classes during the COVID-19 pandemic, a mixed-methods design was used.

Setting and Participants

The present study was run at state Aytollah Borujerdi University, Iran in spring 2021. A total of 430 undergraduate university students majoring in applied linguistics, mathematics, physics, social sciences, law, electronics, and mechanics were selected using a random sampling method. According to Dornyei (2007), a random sampling is a sampling technique where each individual in a population has an equal chance to be selected in the sample. The sample included both male (n = 150) and female (n = 280) undergraduate students, their age ranged from 18 to 25 years old, and they were freshman (n = 140), sophomore (n = 160), and junior (n = 130). To achieve the participants, the first researcher referred to the Education Deputy of Aytollah Borujerdi University and explained the present study's objectives in detail. With the agreement of the Education of Deputy, the first researcher visited the heads of departments and explained the present study's purposes. The heads of the departments agreed the first researcher to send the digital formats of the questionnaires in the WhatsApp groups which have been established with the emergence and development of the COVID-19 pandemic. It should be noted the questionnaires started with digital written consent (In Persian). First, the participants read the consent and if they agreed with its content, they were guided to the next stage to answer the questionnaires' items. The participants were ensured that their responses would remain confidential and they would be kept informed about the final findings.

Concerning the qualitative part, a sample of 22 participants was chosen randomly with the help of the heads of the departments. The sample included both male (n = 9) and female (n = 11) students and they were freshman (n = 6), sophomore (n = 8), and junior (n = 8). A digital reflective written statement along with

a written consent was sent to 28 students via WhatsApp. In total, 22 students agreed to complete willingly the reflective written statement.

Instruments

As pointed out above, to gather the required data, two questionnaires and a reflective written statement were used. The first questionnaire was Satisfaction with Online Courses Questionnaire (SWOCQ), developed and validated by Bolliger and Martindale (2004). SWOCQ assesses students' satisfaction with online classes in terms of six factors: instructor (6 items), technology (4 items), course setup (5 items), interaction (5 items), outcomes (4 items), and overall satisfaction (4 items). It consisted of five-point Likert scale items ranging from 1 (strongly disagree) to 5 (strongly agree).

The second questionnaire was Anxiety in Online Classes (AIOC), developed and validated by Bolliger and Halupa (2012). AIOC assesses students' anxiety in online classes with aspects of three factors: computer (6 items), internet (5 items), and online course (6 items). The instrument included five-point Likert scale items ranging from 1 (strongly disagree) to 5 (strongly agree).

The third instrument was a reflective written statement exploring the participants' perceptions of the effects of satisfaction with online classes on their anxiety. To prepare the reflective written statement, based on SWOCQ, the participants were invited to reflect on the following prompt:

> *Dear student,*
>
> *You are kindly invited to write a report of your perceptions and experiences of the effects of satisfaction with online classes on your anxiety. In a sense, your report is supposed to be a comprehensive reflection on the effects of the instructor, technology, course setup, interaction, and outcomes on your anxiety in the online classes. A report with nearly 300-500 words in length would be enough.*

It should be noted that to ensure that differences in the students' English proficiency did not affect the given responses, the questionnaires were translated into Persian by a expert in translation. In addition, a back translation was done to make sure that the translated and origin version elicited the same data. Then, the questionnaires were piloted on 40 university students to measure their reliability and validity. The internal consistency of SWOCQ and AIOC scales was 0.87 and 0.91, respectively. Next, regarding the face and content validity, they were given to two associate professors in applied linguistics at Lorestan University to comment on the face and content validity of the scales. Some minor modifications were applied in accordance with their comments. Finally, to ensure that all items of the scales are comprehensible enough to the participants, the researchers asked 10 students to complete each form and inform any kind of ambiguity with their items.

Data Collection Procedures

Some distinct steps were taken to collect the required data. In the first step, the scales were translated into Persian by a professional translator. In the second step, the scales were given to two associate professors in applied linguistics to examine their face and content validities. Based on their comments, some items were modified in terms of wording, ambiguity, content, and question sequencing. In the third step, the scales were piloted on 40 undergraduate university students to measure their reliability. In the fourth step, the scales were filled out by 10 students to ensure the comprehensibility and clarity of their items. In the fifth step, the scales including the written consent and the items in digital format were sent to WhatsApp groups of the students. The researchers provided the students with a voice in which they explained the present study's objectives, noted that participation in the current study is voluntary, and instructed how they can complete the scales. In the last stage, the reflective written statement in digital format was sent to twenty eight students via WhatsApp and they were asked to reflect on their perceptions in line with the given prompt.

Data Analysis Procedures

To answer the first two research questions, the collected data were entered SPSS version 23. Along with the common descriptive statistics, the inferential statistical methods, including a Pearson correlation analysis and a multiple regression analysis were run. The Pearson correlation analysis was run to examine if there was a significant correlation between the Iranian university students' satisfaction and anxiety in the online classes. Additionally, the multiple regression analysis was used to disclose how much of the variance in the Iranian university students' anxiety in the online classes during the COVID-19 pandemic can be explained by the dimensions of their satisfaction.

About the qualitative part, the participants' responses were meticulously translated into English by an expert in translation. Followed the principles and procedures introduced and validated by Braun and Clarke (2006), the researchers identified and classified the recurring themes through a thematic coding analysis. In doing so, at first, the first researcher read the students' responses over and over to understand them. Next, along with coding the responses carefully to diagnose and verify particular features in the collected data, adequate attention was given to intended factors. This, in turn, set the ground for recurring concepts and themes to emerge. Considering the central concepts coded previously and presented in the respondents' answers, the themes were identified. Then, the prevalence of the themes was demonstrated through relevant coded data that emerged from the database. Next, to go beyond the description of the data to make correct interpretive judgments about the prominent themes, the first researcher referred to the already-existing theoretical foundations. It should be noted that the accuracy and the internal validity of the coding processes were checked out through the member checking method. For this, a copy of extracted themes along with the relevant excerpts were given to five participants to see if they matched with their intended meaning. In general, the participants confirmed that there existed a high level of correspondence between the extracted themes and excerpts and their intended meanings. Concerning reliability, two analysts were recruited to examine the consistency of the coding procedures. The result of their inter-rater reliability was 0.87 which considered acceptable for the current study's objectives.

RESULTS

Results of the First Research Question

The first research question explored if there was any significant correlation between the Iranian university students' satisfaction and anxiety in the online classes during the COVID-19 pandemic. Before running the Pearson Correlation, the normality assumption was checked out using Kolmogorov-Smirnov test. The results of Kolmogorov-Smirnov statistic on the satisfaction scale ($KS_{(430)} = .42$, $p > .05$) and anxiety scale ($KS_{(430)} = .46$, $p > .05$) showed that the assumption of normality of the collected data was met. Afterward, the descriptive statistics of satisfaction and anxiety were calculated, which are summarized in Table 1. As observed, for the university students' satisfaction, $\bar{X}$ (81.20) and SD (16.54), and for their anxiety, $\bar{X}$ (105.03) and SD (20.45) were calculated, respectively.

Table 1. Descriptive statistics of the university students' satisfaction and anxiety in online classes

	N	Mean	Std. Deviation
Satisfaction	430	81.20	16.54
Anxiety	430	105.03	20.45

The correlation between the university students' satisfaction and anxiety in the online classes is reported in Table 2.

Table 2. Correlation between students' satisfaction and anxiety in the online classes

		Anxiety
Satisfaction	Pearson Correlation	-.33
	Sig. (2-tailed)	.000
	N	430

As Table 2 shows, there was a negative moderate correlation between the university students' satisfaction and anxiety in the online classes with the coefficient of 33% (r = -. 0.33, $p < 0.01$, N= 430). This implies that the more satisfied the university students were with the online classes, the less they feel anxious in them.

Results of the Second Research Question

Another research question examined how much of the variation in the university students' anxiety in the online classes could be attributed to the factors composing their satisfaction. For this purpose, a multiple regression analysis was run. Prior to proceeding with the main analysis, the data were checked for the assumptions. First of all, to assess for outliers, the value of the Mahalanobis distance was compared against a critical value using a chi-square table. The maximum value of Mahalanobis distance (19.49) was less than the critical value (22.46), showing no outliers. To check the assumption of linearity, the relationship between the sub-components of satisfaction was checked on the scatterplot matrix, and no curvilinear relationship was observed. In addition, Kolmogorov-Smirnov test was used to check the normality of the collected data from the sub-components of the satisfaction scale. The calculated results are *instructor* (KS = .61), *technology* (KS = .52), *set-up* (KS = .46), *interactions* (KS = .39), *outcomes* (KS = .42), and *overall satisfaction* (KS = .58), which were all above the significance level ($P > .05$). Therefore, this assumption was also met. After checking all the assumptions, the multiple regression analysis was run to assess the effects of the satisfaction factors on the participants' anxiety.

Table 3. The summary of multiple regression analysis on the effects of satisfaction dimensions on anxiety

	Sum of Squares	df	Mean Square	F	Sig.	R	R^2
Regression	43328.775	6	7221.46	21.791	.000	.47	.22
Residual	386644.401	423	914.53				
Total	429973.17	429					

As Table 3 indicates, ANOVA analysis revealed that the regression model in this question reached the statistical significance (F = 21.791, $p < 0.001$). In addition, the value of R^2 (0.22) is significant, which implied that 22% of the variance in the university students' anxiety in the online classes could be accounted by the satisfaction dimensions. The next step was to determine the factors which highly contributed to the prediction the university students' anxiety in the online classes.

Table 4. The results of multiple regression analysis for university students' satisfaction dimensions

	Unstandardized Coefficients		Standardized Coefficients		
Dimensions	B	Std. Error	Beta	t	Sig.
(Constant)	14.12	8.07		19.01	.000
Instructor	4.96	.81	.36	11.00	.000
Technology	4.52	.75	.28	8.56	.000
Set-up	3.96	.66	.21	7.20	.091
Interactions	2.00	.40	.17	4.72	.101
Outcomes	2.28	.30	.19	4.05	.000
Overall satisfaction	3.86	.72	.28	6.68	.083
Dependent variable: Anxiety					

As seen in Table 4, concerning the Beta values of satisfaction sub-components, the university students' anxiety was mainly affected by *instructor* ($\beta = .36$, $p < .001$), *technology* ($\beta = .28$, $p < .001$), and *outcomes* ($\beta = .19$, $p < .001$), respectively. Further, the factors of *set-up*, *interactions*, and *overall satisfaction* did not make a significant unique contribution to the prediction of the participants' anxiety because the Sig. value of these variables was greater than 0.05.

Results of the Third Research Question

The third research question explored in which ways satisfaction with online classes can affect anxiety in online classes from university students' perspectives. To answer this research question, the participants' words were subjected to a thematic coding analysis. The results yielded four overarching themes, including 'instructors are facilitators', 'technology makes learning easier', 'outcomes are more promising', and 'interacting with others is poor'.

Instructors are Facilitators

The participants stressed that instructors play a crucial role in increasing their satisfaction with and decreasing their anxiety in online classes. In this respect, one of the university students commented:

> *"When my teachers communicate the expectations of the online courses with me, I know the course objectives and requirements. In this way, I don't get confused and, accordingly, I don't get anxious during the course."*

Corroborating with the previous statement, the university students highlighted that the university teachers who allow students to be a part of the courses reduce the students' anxiety. The following excerpt shows this clearly:

> *"One of my teachers has created a positive climate in our classes. She allows us to have a role in the class activities. We can express our concerns and ideas about the course. Therefore, we feel relaxed in her class."*

Another point related to the significant role of instructors is the feedback they offer on university students' performance. In support of this, one of the university students quoted:

> *"One of the factors that may have an adverse effect on my anxiety in online classes is the feedback given by my teachers. The teachers who offer clear and timely feedback on my performance make me have a good feeling in their classes."*

Technology Makes Learning Easier

Another theme received considerable attention by the university students was 'technology makes learning easier'. The university students noted that by using technology, they have more opportunities to learn. In support of this, one of the university students commented:

> *"Learning is less demanding with the help of the modern social technologies. In online classes, my teachers and classmates are easily accessible. For example, when I have a question, I can put forward it in the WhatsApp group. Then, my teachers and classmates answer it immediately. This makes me feel less anxious in the online classes."*

Another point raised by the university students was the flexibility of the online classes. In this regard, one of the university students quoted:

> *"Online classes are really comfortable. I don't need to commute to the university every day. I save lots of time and energy. We can manage our classes and hold them when it is okay with us. In this way, a large part of my stress has really removed."*

Additionally, the participants stressed that with the help of the modern social technologies, university teachers provide more useful educational materials. In this respect, one of the university students stated:

> *"Learning in online classes is more interesting. The reason is that in the online classes my teachers offer more useful educational materials. For example, they can use interesting PowerPoints, short videos, pictures, etc. In this way, all students with different learning styles can benefit from the online classes. Therefore, they get more satisfied and feel less anxious."*

Outcomes Are More Promising

The next theme catching the university students' attention was 'outcomes are more promising". They opined that the outcomes they have got in the online classes are satisfactory. To support this, one of the participants remarked:

> *"I'm satisfied with the online classes because my scores are good. I feel that my scores correspond to my effort. I know that the more I try, the better results I can get. In this way, I can handle my stress."*

Corroborating with the previous statement, one of the university students noted:

> *"In the online classes, every student receives the results of his/her effort. I mean that there is a tangible difference between hardworking students and lazy students. The students who pend more time and energy get much better results."*

Interacting with Others is Poor

The next theme emerged from the collected data was 'interacting with others is poor'. The university students' responses disclosed that one of the factors making students be dissatisfied with the online classes and get anxious is the poor interactions. In this regard, one of the university students opined:

> *"One of the biggest problems with the online classes is the poor interactions with my teachers and students. I cannot interact with my teachers freely and I have to wait for my teachers to connect my microphone. Sometimes, my questions remain unanswered."*

In consistent with the previous remark, one of the university teachers stated:

> *"Unfortunately, in the online classes, we don't have enough opportunities to do group works. I mean that we cannot interact with each other freely to do a joint task. This deprives me of other students' assistance."*

DISCUSSIONS

The present study investigated the correlation between university students' satisfaction and anxiety in online classes during the COVID-19 pandemic. The findings evidenced a moderate negative correlation between the university students' satisfaction and anxiety in online classes. In a sense, the study's results indicated that the higher satisfaction the university students felt in the online classes, the less anxious they were. The study's findings provide support to the previous studies (Abdous, 2019; Bolliger & Halupa, 2012; Cheng et al., 2016; Levy, 2007; Muller, 2008; Park & Choi, 2009; Saade & Kira, 2007), which affirmed a decisive role of students' satisfaction in their persistence and in handling their feelings of anxiety in online classes. For example, the study's findings are consonant with those of Bolliger and Halupa (2012) and Saade and Kira (2007), reporting that students who were less anxious, experienced more satisfaction than those students with a higher level of anxiety in online learning settings.

A possible explanation of the study's findings may be attributed to this view that student satisfaction and student anxiety are closely correlated such that the former affects and determines the latter (Bolliger & Hapula, 2012). The more a higher education center can satisfy students in terms of their expectations, the less anxious are students in doing their academic duties. In a sense, in alignment with Sinclair (2011), it can be argued that when university students are more satisfied, their feelings of anxiety decrease such that it can work as a great impetus for them to continue learning. In addition, another possible explanation for the study's findings can be ascribed to this view that the more satisfied university students, the higher rate of retention and the probability of students taking more classes in the future (Booker & Rebman, 2005). By taking more online classes, university students can control their feelings of anxiety.

Besides, the study's findings documented that the instructor, technology, and outcomes factors were the strongest predictors of the participants' anxiety in online classes. A possible explanation of the study's findings, as Belanger and Jordan (2000) note, can be partly attributed to the limitations in online access and unfamiliarity with technological equipment. That is, the university students with unlimited online access might be at a less disadvantage than those with limited access. Further, the university students who might be capable of embarking upon online learning platforms might have efficiently regulated, monitored, and self-managed their learning processes (Sun & Rueda, 2012). Indeed, this explanation is in line with Hara and Kling (2000) who argue that pertinent online access is a crucial factor influencing student satisfaction. Similarly, the study's findings align with Bower and Kamata (2000), pinpointing that frustration with technology could highly result in lower satisfaction levels. Besides, the study's findings are in congruent with those of Liang and Tsai (2008) and Tsai et al. (2011), reporting that students' lack of preparedness in the use of the Internet may lead to less interaction with the instructor or classmates; hence, resulting in dissatisfaction with online learning. Further, the study's results lend credence to the perspectives of Zembylas (2008), noting that students with a low confidence level and preparedness in using technological tools may encounter some issues in online learning and, consequently, may experience low satisfaction with online courses. Likewise, the study's findings are compatible with Biner et al.'s (1994) point of view that affective factors, together with cognitive factors, are worthy of attention in predicting students' learning in online courses.

The results pertaining to the thematic coding analysis on reflective written statements of participants revealed that the students emphasized a determining role of instructors in increasing their satisfaction with and decreasing their anxiety in online classes. The same results were also found by Sun et al. (2008). Their findings evidenced that student computer anxiety, instructor, online course quality and flexibility, and diversity in assessments were crucial factors affecting students' satisfaction with online courses. Also, the study's findings are in agreement with Herbert (2006), who states that the learning quality and satisfaction with online learning are largely influenced by university teachers' responsiveness to their needs and wants. Following this line of argument, it could be argued that owing to the lack of face-to-face communication, instructors play a decisive role in online learning environments as they should elucidate the expectations and objectives of the online courses for students, motivate students to participate in online discussions, provide support, guidance, and assistance to students in every stage of learning, and monitor student progress. (Alqurashi, 2016: Moore, 1989; Sahin, 2007).

In addition, the study's qualitative findings unveiled that the quality of interactions in online courses were truly poor as it led to students' anxiety in and dissatisfaction with the online classes. The reason for this might be ascribed to the fact that the university students in online classes might not have been able to

aptly embark on group activities and class projects. They also might have had no an enough time to share and discuss viewpoints with one another, and received feedback from their peers or teachers (Bolliger & Martindale, 2004; Bray et al., 2008). The study's findings gain support from prior research (Abdous, 2019; Aman, 2009; Davis & Quick, 2001; Sampson et al., 2010). For example, Abdous (2019) posited that the risk of online distraction, technical difficulties, and lack of immediate interaction with faculties and students were of paramount reasons associated with anxiety among online students. Also, the study's findings accord with Aman (2009), reporting that learner-learner interaction as well as learner-instructor interaction were significant predictors of low satisfaction throughout the online learning process. In congruent with the study's findings, it may be posed that if the pertinent interactions were reinforced in online courses, it might have fostered students' motivation to learn, developed verbal communication, facilitated meaningful learning experiences, and spurred creative thinking (Bonk & Cunningham, 1998; Cheung & Huang, 2005).

CONCLUSIONS

With the outbreak of the COVID-19 pandemic, all universities have replaced the face-to-face classes with online classes in Iran. As online classes have expanded across the county, so does the need for research to disclose the correlation between university students' satisfaction and anxiety. To answer this urgent call, the present mixed-methods study purported to investigate the correlation between university students' satisfaction and anxiety in online classes during the COVID-19 pandemic. Findings evidenced a moderate negative correlation between the participants' satisfaction and anxiety in online classes. Additionally, results documented that the instructor, technology, and outcomes factors had the largest effects on the participants' anxiety. Complementary with the quantitative findings, the results of the reflective written statements yielded four overarching themes, including 'instructors are facilitators', 'technology makes learning easier', 'outcomes are more promising', and 'interacting with others is poor'. Based on the study's findings, it can be concluded that the more satisfied university students are, the less anxious they are in online classes.

In light of the study's findings, some implications are suggested for different stakeholders. First, the Iranian university officials need to give particular attention to university students' satisfaction in online classes. For this purpose, university instructors should be trained on how to run the online classes effectively, technology facilities should be improved, interactions among university students should be facilitated, course management should be satisfactory, and online classes' outcomes should be promising for university students. Second, the Iranian university officials need to improve university students' computer- and Internet self-efficacy by providing appropriate training before online courses start. Third, university teachers should be aware of the fact that to reduce university students' anxiety in online classes, they should provide a setting in which university students feel satisfied. To meet this aim, they should rethink their ways of teaching by attending professional development training courses. Fourth, if university teachers aim to mitigate student anxiety in online classes, they need to integrate online student orientations, planned interventions, and student-centered approaches (Bolliger & Hapula, 2012). When university students get involved actively in online classes, their anxiety reduces. This, in turn, impacts positively their learning outcomes (Brosnan et al., 2012). Fifth, university teachers should give particular attention to interactions among students. They need to offer feedback to students' performance in a timely manner and encourage university students to ask their questions and get in touch with their classmates in different ways (Kuo et al., 2013). Additionally, to increase interactions among online university students, university teachers can design and implement more collaborative tasks in their classes. Finally, university students should improve their self-efficacy in using technological skills if they want to become successful in higher education and play an active role in the evolving society (Paul & Glassman, 2017). As the previous studies documented, university students' academic performance is positively correlated with their information seeking-skills on the Internet (Zhu et al., 2011) and university students' civic engagement is highly linked with their participation in online community discussions (Moy et al., 2005).

In light of the limitations imposed on the current study, some suggestions for further research are recommended. As the participants of the current study were limited to one state university (Ayatollah Borujerdi University), future studies can include larger samples of university students at other universities to increase the generalizability of the current study's findings. Additionally, as the present study's participants were university students, further studies are needed to explore the correlation between students' satisfaction

and anxiety in online classes in elementary schools and high schools in Iran. Furthermore, a longitudinal study can be carried out to disclose how the correlation between students' satisfaction and anxiety changes over online classes. Moreover, follow-up research can explore if university students like to attend online classes after the COVID-19 pandemic. Finally, future studies can explore the correlation between university students' computer self-efficacy and anxiety in online classes.

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