Social Sciences, Humanities and Education Journal (SHE Journal)
Volume 4 (1) 73-86, January 2023 | ISSN: 2720-9946 (Online)
The article is published with Open Access at: http://e-journal.unipma.ac.id/index.php/SHE

University students' levels of anxiety, readiness, and acceptance for e-learning during the COVID-19 pandemic

Mee Jay A. Domingo✉**;** Mariano Marcos State University, Philippines
Karla Auria S. Galeon; Mariano Marcos State University, Philippines
Danica Hanna A. Pastor; Mariano Marcos State University, Philippines
John Vincent B. Toribio; Mariano Marcos State University, Philippines

Abstract: This article determined the levels of readiness and acceptance for e-learning of university students during the COVID-19. Participants were 2,035 university students who completed a restricted online survey. Data show that the students are generally ready for e-learning as they exhibit readiness in three of five areas of e-learning readiness (computer self-efficacy, self-directed learning, and learning motivations). However, the students have low mean score ratings for learner control and online communication self-efficacy. As regards their acceptance for e-learning, the data show that the students do not accept all constructs of acceptability such as performance expectancy, attitude, image, social influence, and compatibility. Moreover, results show that the level of online readiness of the students has a strong association with their level of engagement. Hence, the students' motivations for learning, computer/internet self-efficacy, learner control, self-directed learning, and online communication self-efficacy matter for the enhancement of their level of engagement. Further, the researchers learned that anxiety toward COVID-19 does not influence students' levels of e-learning readiness and acceptance; while, their level of readiness is strongly associated with their level of acceptance.

Keywords: Acceptance for e-learning; anxiety during the pandemic, distance education, readiness for e-learning

✉ mjadomingo@mmsu.edu.ph

Citation: Domingo, M. A, Galeon, K. S., Pastor, D. A., and Toribio, J. B. (2022). University students' levels of anxiety, readiness, and acceptance for e-learning during the COVID-19 pandemic. *Social Sciences, Humanities and Education Journal (SHE Journal)*, *4*(1), 73-86.

INTRODUCTION

During the height of the COVID-19, the majority of the world's educational institutions have shifted from the traditional in-person classes to virtual teaching platforms. Such a move was done to fill the academic gap made by local and national lockdowns (Fawaz & Samaha, 2021) and to support students in far-flung areas (Ali et al., 2021).

To stay true to its mandate to provide quality education, many institutions globally upgraded their virtual learning management systems to tailor fit the needs and capabilities of their students. In the locale of this study alone, in-house capability-enhancement programs for faculty were conducted to boost their teaching skills. Materials for instruction were revised and repackaged to meet the demands of the online learning context. Infrastructures were also refurbished and university network capacity was boosted to ensure quality e-learning service. Despite these major adjustments, the institutions' mode of delivery still faces challenges that may lead to more serious problems if brushed aside. These are attributed to a general lack of preparedness that led to an unsatisfactory online learning experience, promoting the notion that e-learning is a more inferior platform than that of the in-person classes (Sindiani et al., 2020).

Moreover, the COVID-19 pandemic makes the e-learning modality more challenging. It was found in the first quarter of 2021 that globally, 60% of students who study online experience anxiety (Varma et al., 2021). In another study, the respondents also reported that they experience mild stress, moderate anxiety, and mild depression (Rehman et al., 2020). Also, it was reported that e-learning adoption underscores a rise in emotional and mental sufferings among students (Ranieri et al., 2021) that greatly affected their level performances in their classes.

Lastly, the limited research on students' views regarding e-learning may have aggravated the situation. Many of the enhancements made by learning institutions were on faculty empowerment, material development, and electronic learning platforms (Deng and Tavares, 2013; Moore, 2013). However, there is a dearth of information as to the readiness and acceptance of the students for these platforms during the COVID-19 pandemic.

The apprehensions and worries in all forms that are being experienced by the students matter in their appraisal of e-learning as these may affect their readiness and acceptance of the learning modality (Cadamuro et al., 2021). Likewise, the concept of readiness and acceptance is noteworthy in the context of instruction as students' changes in behavior are based on their readiness and acceptance of the platform being used. This means that their levels of engagement and achievement may be affected by their levels of readiness and acceptance; hence, should never be discounted.

E-learning, in connection to students' readiness and acceptance, has been the subject of much international research even before the pandemic. However, there is a dearth of studies on the identification of the relationships between and among students' readiness and acceptance for online learning and their level of anxiety in times of global health crisis.

Hence, this study identifies the students' levels of readiness and acceptance for e-learning and level of anxiety during the pandemic. Also, the associations of the following: levels of readiness and acceptance, levels of readiness and anxiety, and levels of acceptance and anxiety were determined in this study. Understanding all these can guide educators, administrators, policymakers, and education ministries, in setting the online learning guidelines and initiatives that would improve its delivery.

E-learning

E-learning, sometimes referred to as online learning (Cigdem & Ozturk, 2016), refers to an instructional delivery using an internet-run device. Through the said instructional mode, lectures are delivered synchronously and asynchronously. It incorporates the various internet functions and the World Wide Web (WWW) and is considered as one of the subcategories of distance education that is gaining popularity among educational institutions around the globe. This must be so as it accommodates diversity (Rumble & Latchem, 2004), inclusion, and equity among student populace. Classroom instruction is also deemed effective because of the immediacy of response (in the case of synchronous class-set-up) and the chance for faculty and learners to work together and embrace the values of cooperation, communication (intercultural and interpersonal), and critical and creative thinking, online courses also promote the concept of accessibility (Poole, 2000) and versatility (Chizmar & Walbert, 1999).

Online Readiness

Online readiness is referred to as the state of readiness in terms of mental and physical aimed at specific online learning experiences and actions (Boris & Poulymenakou, 2004). Alternatively, it is the aptitude to the act of using internet resources (Choucri, et al., 2003) as a learning platfom, the form of instruction delivery that learners have a preference over face-to-face education (Warner et al., 1998), the effectiveness of learners in utilizing Internet and computer-aided communications intended for education (Schreurs et al., 2008), and the proficiency to involve oneself in independent learning (Tang et al., 2013). Other dimensions of online readiness from various authorities include the perception of users on the internet which eventually forms part of their behaviors and attitudes online (Tsai & Lin, 2004); teacher involvement in the e-learning process vis-à-vis students' maneuvering their learning experience (Hartley & Bendixen, 2001; Hsu & Shiue, 2005).

Hung et al., (2010) came up with the Online Learning Readiness Scale (OLRS) that examines self-directed education, motivation for learning, computer/Internet self-efficacy, learner control, and online communication self-efficacy. They investigated learners' readiness and perception towards online learning considering five dimensions. Firstly, self-directed learning or SDL which means the taking over of students of their own learning process by identifying their own learning needs and objectives, exploring their learning preferences, and evaluating their learning performance and outcomes (Knowles, 1975). Secondly, the motivation for learning or MFL refers to the process whereby goal-directed activity is instigated (Schunk et al., 2008). Thirdly, computer/Internet self-efficacy or CISE refers to the learner's own perception on his/her level of confidence in using the internet (Tsai & Tsai, 2003). Fourthly, learner control or LC includes directing own learning progress, able to maintain learning without being distracted by the other online activities, and repeating online material based on their learning needs (Chung et al., 2020). Lastly, online communication self-efficacy or OCSE refers to students' preparedness to do online communication with their teachers and fellow students, a form of communication that is crucial due in the context of e-learning due to limited face-to-face communication.

In their study, they found that the respondents have a high level of

readiness in terms of CISE, MFL, and OCSE and a low level in LC and SDL. This research has been the basis of a recent study conducted by Chung, Noor, & Mathew (2020) on 91 Malaysian students. It has been revealed that the readiness of the Malaysian students was high in CISE, moderate for SDL and MFL, and low for LC.

Another study that was also inspired by Hung et al., (2010) is that of Cigdem and Ozturk (2016) in which they explored the relationships of the components of online learning readiness and students' achievement. The results indicated that students' motivation for online learning was higher than both their CISE and their orientations to SDL. The inferential results revealed that the students' end-of-course grades had significantly positive relationships with their CISE and SDL orientations. Finally, the students' self-direction towards online learning appeared to be the strongest predictor of their achievements within the course; whereas CISE and MFL did not predict the learner's achievement significantly.

Acceptance for e-learning

Various perspectives are employed to assess the acceptability of new technology. Rogers (1983) enumerated five characteristics namely relative advantage, compatibility, complexity, trialability, and observability. In 1991, Moore and Benbasat added two constructs to that of Roger's which are compatibility or COM, which refers to the idea of considering innovation as being consistent with the existing values, needs, and experiences of potential adopters and image or IM which refers to the concept of innovation as a factor that could enhance status in one's social system . Other models used in terms of acceptance are Technology Acceptance Model or TAM by Davis, Bagozzi, & Warshaw (1989) and the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003). TAM considers perceived usefulness and ease of use by way of important factors that shape the attitude, intention, and actual behavior of users to use a new form of technology. In contrast, UTAUT holds four necessary constructs which are performance expectancy (PE) or the individual's belief that the tool increases someone's performance, effort expectancy (EE) or the perception about the degree of ease when using the tool, social influence (SI) or the individual's perception on the importance of using the tool as recommended by others and attitude toward e-learning (ATL) or the affective reaction or feeling of liking, joy, or pleasure associated with the use of technology.

Along this line, several studies were conducted as well in determining the level of acceptance of e-learning among university students. In a study conducted by Qasim and AlHamad (2020), they found that subjective norms, perceived usefulness, perceived ease of use, enjoyment, and accessibility" are the vital predicators behind the intention of students for using E-learning systems. Also, it was found in another study that there is a moderate level of acceptance of e-learning among distance learners at an open university in Malaysia (Yiong et al., 2008) and that cultural and organizational factors are contributory to one's acceptance of the learning environment (Keller et al., 2007).

Learning and Anxiety

In the teaching and learning context, anxiety, which consists of panic or distress and doubt is very common. According to Ajmal and Ahmad (2019), anxiety typically arises when individuals think that an occurrence puts them or their self-esteem at risk. The overt symptoms may include the following: cold fingers, palpitation, difficulty of breathing, sweating, headaches, hyperventilation, eating disorder, and having trouble in sleeping. Its covert symptoms may include the following: feeling agitated, fuzzy thinking, panicking, and the thought of

quitting (Morgan, 2020). According to literatures, anxiety is linked to the academic achievement of the students (Agboola & Evans, 2015), their performance in class (Shibli, 2015), and the mental and emotional outcomes in the context of distance learning (Jegede, Alaiyemola, & Okebukola, 1990).

METHODS

In determining the students' levels of acceptance and readiness for e-learning and the level of anxiety of the students during the COVID19 pandemic, the descriptive research design was used.

Students from a state-run higher education in the Philippines served as respondents in this study. During the conduct of the research, the university had 10, 938 students, of which 2, 449 responded while 39 opted not to participate. However, using Slovin's formula with a 0.02 margin of error, 2, 035 respondents were randomly selected (stratified on the different colleges of the State University) and analysed.

Three research instruments, which were adapted from different research studies, were used in this paper. The student's level of readiness for e-learning was determined using the OLRS by (Hung et al., (2010), with an RMSEA loading between 0.55 – 0.85. This survey questionnaire measures five dimensions: CISE, SDL, LC, MFL, and OCSE.

Likewise, the survey questionnaire developed by Ngampornchai and Adams (2016) was used to measure the students' level of acceptance for e-learning (Cronbach's alpha = .93). Particularly, the instrument, which was anchored on the combined constructs of the UTAUT Model (Venkatesh, 2003) and Moore and Benbasat's (1991), has six constructs. Of the six, four were from the UTAUT Model of acceptability (performance expectancy or the individual's belief that the tool increases someone's performance), effort expectancy, or the perception about the degree of ease when using the tool, social influence, or an individual's perception on the importance of using the tool as recommended by others, and attitude toward e-learning or the affective reaction or feeling of liking, joy, or pleasure associated with the use of technology) and two from Moore and Benbasat's Model (IM and COM).

Meanwhile, adopting the operationalization by Krahe et al. (2011), this article measured the level of anxiety of the students during the COVID-19 pandemic by asking them to rate how much discomfort and fear they feel toward the risks and threats of the coronavirus. Specifically, this adopted the original Beck Anxiety Inventory 1 (Reliability – Internal Consistency = 0.92) which is used to assess individual anxiety).

To warrant the validity of the instrument, a validation procedure was done to ensure that such fit in the current context of the study. It was first tried out to students and evaluated by one psychologist, a social scientist, and a guidance counselor. After the validation procedure, their comments were considered in the finalization of the final instrument.

In identifying the expected level of readiness and acceptance of the respondents, which is defined as the mean score of 3.40, Aydın and Taşçı's Model (2005) was used which has been used by other researchers in the field (Akaslan & Law, 2011; Soydal et al., 2011). As to characterizing anxiety, however, the respondents ranked the indicators. Lastly, R correlation was used to determine the relationship of the variables in the study.

RESULT AND DISCUSSION

Students' Level of Readiness for e-Learning

Table 1 shows the students' mean scores and the adjectival ratings of the dimensions of the level of readiness: computer literacy, self-directed learning, learner control, motivation for learning, and online communication/self-efficacy.

Table 1. Level of readiness for e-learning of the students.

Dimensions	x̄	VI
CISE	3.66	R
SDL	3.59	R
LC	3.36	NR
MFL	3.63	R
OCSE	3.25	NR
Total	**3.49**	**R**

Legend:
1-1.2.59 - Strongly Not Ready (SNR)
2.60-3.39 - Not Ready (NR)
3.40-4.19 - Ready (R)
4.20 - 5.00 - Strongly Ready (SR)

As shown in the Table, the students are ready as regards the three dimensions of e-learning readiness – CISE (x̄=3.66), SDL (x̄= 3.59), and MFL (x̄=3.63). However, they need to enhance more their level of readiness on these dimensions as they fall short in reaching the strongly ready range. Like the findings of Bawa (2021), the data show that the students still lack the technical skills needed in confidently using the internet and the computer as school systems expose learners to technology grounded on the technologies' availability rather than its everyday use. This should be taken seriously as internet knowledge is a resource needed for a much efficient and effective use of the internet, which to some extent, affects how the students organize and aggregate content (Mota & Cilento, 2020). Also, the students need to identify a better source of motivation in learning online as among the items in all the three dimensions, the item I have the motivation to do online learning got the lowest (x̄ = 3.37).

Meanwhile, the students as seen in the table, are not yet ready in two dimensions: LC (x̄=3.36) and OCSE (x̄=3.25). It implies that the students are not yet ready to do the following: express their ideas online, post questions online, direct their learning progress online, and disregard distractions such as other online activities. One of the reasons why OCSE got the lowest rating among the five dimensions is the medium used in the online platform – English. In the context of the students, English is predominantly used in the platform as it is the primary language used for instruction in the university. Hence, the students are compelled to use the language regardless of their level of proficiency of the language.

Overall, contrary to the study of Annamalai (2021) whose respondents are Malaysian learners, the students in this research are ready to learn online but need a few more improvements on their level of readiness as reflected in the grand mean score of 3.49 which is relatively lower than the result seen in Chung et al. (2020).

It is noteworthy that none of the dimensions and even the specific items under them got a mean score within the 4.20 – 5.00 range (strongly ready). Although the students are ready as reflected in the data, they still need to enhance their level of readiness in all the dimensions. Most importantly, the students need to exert extra efforts in enhancing their level of readiness on two dimensions: LC and OCSE.

Students' Level of Acceptance for e-Learning

In this study, the students' level of acceptance for e-learning, which refers to the perceived suitability and adequacy of e-learning as a teaching modality, was measured as shown in Table 2.

Table 2. Students' Level of acceptance for e-learning

Constructs of Acceptability	Mean	VI
PE	3.14	NA
EE	3.14	NA
ATL	3.24	NA
IM	3.22	NA
SI	3.37	NA

COM	3.08	NA
Total	**3.19**	**NA**

Legend:
1-1.2.59 - Strongly Not Accepted (SNA)
2.60-3.39 - Not Accepted (NA)
3.40-4.19 - Ready (A)
4.20 - 5.00 - Strongly Accepted (SA).

All the constructs of acceptability were rated Not Accepted by the students: PE ($\bar{x}$ = 3.14), EE ($\bar{x}$ = 3.14), AT ($\bar{x}$ = 3.24), IM ($\bar{x}$ = 3.22), SI ($\bar{x}$ = 3.37), and COM ($\bar{x}$ = 3.08).

Regarding PE, results show the disagreement of students on the idea that e-learning helps them attain better grades in their academics, higher efficiency in doing their academic requirements and in their future careers. This is because PE along with perceived playfulness, social influence, and facilitating conditions affected significantly ICT use (Alwahaishi & Snasel, 2013). The result corroborates with the findings that some administrators, including teachers discourage the use of online learning management systems due to monitoring and evaluation concerns (Keller et al., 2007). In contrary to Yiong et al.'s (2008) findings, however, Malaysian students have a moderate level of acceptance in this construct as they found their e-learning systems helpful to their learning.

In the PE construct, the item e-learning improves academic performance ranked the highest of not being accepted. This shows that e-learning is not suited to the students' preferences to learn and that other modes of learning would be more effective for them. It also implies that e-learning might be detrimental for them to learn to the fullest. The result of the study contradicts a study (Jawad & Shalash, 2020) that recognized the role of e-learning in improving students' academic achievements. In their study, it showed that students' GPA increased during the pandemic through the use of an online learning management system.

For EE, the respondents acknowledge the challenge of navigating the e-platform. This implies that e-learning threatens their comfort zone as it requires them to use something new to them. This is noteworthy since they are expected to be adaptable in navigating e-learning platforms given their skill in using technology. However, it was found to be the opposite for the technologies that they are familiar with are not necessarily related to formal instruction (Popovici & Mironov, 2015). In the context of the study, instruction is conducted face-to-face with the use of resources that fit in the online learning and ICT platforms. Because of the COVID-19 pandemic, learning became blended where most students have to use the university's virtual learning environment the first time.

As to AL, the data show that e-learning is perceived to be not good for the students and the university as inferred by the respondent's disinterest in using the platform. This perception is due to the following reasons: the need for a strong teacher-support and social interaction, availability of gadget, and poor internet connectivity. Also, students' background and adeptness to navigate instructional technologies and internet applications are contributory to their overall attitude towards e-learning (Peytcheva-Forsyth et al., 2018).

Moreover, it can be inferred from the data that e-learning does not contribute to the enhancement of the image of the students. According to Shehzadi et al. (2020), a good virtual learning management system can enhance the brand image of the university for it showcases the school's ability to keep pace with technological trends. However, students do not believe that the university's image affects their reputation personally. Results further show that students agree with the notion that students who use online learning platforms get a better education. Students are enticed by institutions that use e-learning platforms to communicate the following: up-gradation

of topics and individual progress plans, access factors which include cost-effectiveness, no geographical boundaries, and flexibility, and the technical know-how factor (Manhas, 2012).

Results regarding SI show that schools and teachers are great influencers for the use of virtual learning platforms. In today's era of Industrial Revolution 4.0, instructional technology in the guise of online learning management systems has landscaped the educational systems. Because of the COVID-19 pandemic, educational institutions shifted to online learning to deliver their services. Thus, the school including the teachers were considered as the great influencers for students to accept or be involved in e-learning.

Lastly, the data also show that e-learning does not suit the students' learning preferences (CO), current geographical location, e-learning tools, and degree programs. It was mentioned that some students do not prefer e-learning for they believe that the platform isolates them (Ullah, 2018). Some students prefer to learn with interaction or physical engagement. Since this is limited in the use of e-learning, many students are having a hard time coping. In addition, many of the respondents claim that they are unskilled in using e-learning tools. The acceptance of technology is greatly affected by the experiences of students in using it. Thus, if the students were not trained and skillful in the use of the system, then they will encounter several difficulties.

Overall, Table 2 shows that the students do not accept e-learning (x=3.19) which is contradictory to a moderate level of acceptability found in the study of Ibrahima et al. (2021). Using the Technology Adoption Model (Davis, 1989) as a lens, the low level of acceptance is due to the students' intention, performance and effort expectancies and compatibility, and attitude towards technology use. Hence, the students believe that learning electronically is not necessarily good for them.

There are, however, external factors that impact peoples' attitudes in embracing the concept of e-learning (Davis et al., 1989). These external factors include: the endorsement of a family member; the encouragement of people close to them to try e-learning for it user-friendly; a positive testimony of someone on the benefits of e-learning; and finally, a positive publicity about e-learning (Mamattah, 2016). The image and social influence dimensions are embodied in the said external factors. Because the students do not agree that e-learning helps in building a reputation as well they do necessarily think that their peers and parents have greatly influenced them, it affected their attitude of e-learning-whether it is good for them or not. The respondents are considered digital natives, which means that they are proficient users of technology. However, being a digital native does not ensure that students will accept positive e-learning as shown in their disagreement in terms of the different dimensions related to acceptance.

Students' Level of Anxiety during the COVID-19 Pandemic

To ensure that the responses of the participants in this study were not gravely influenced by any emotional state they were in during this pandemic, the level of their anxiety about COVID-19 was measured.

Specifically, they were asked to rate their feelings or present their emotional responses when they think of the COVID-19 pandemic. The table below shows the level of anxiety of the students.

Table 3. Level of anxiety of the students

Description	Mean	Verbal Interpretation
Numbness or tingling	2.13	Mildly
Feeling hot	2.04	Mildly
Wobbliness in legs	1.97	Mildly

Unable to relax	2.63	Moderately
Fear of worst happening	2.90	Moderately
Dizzy or lightheaded	2.21	Mildly
Heart pounding/racing	2.31	Mildly
Unsteady	2.30	Mildly
Terrified or afraid	2.70	Moderately
Nervous	2.79	Moderately
Feeling of choking	1.78	Mildly
Hands trembling	1.98	Mildly
Shaky / unsteady	2.00	Mildly
Fear of losing control	2.12	Mildly
Difficulty in breathing	1.80	Mildly
Fear of dying	2.39	Mildly
Scared	2.67	Moderately
Indigestion	1.77	Mildly
Faint / lightheaded	1.78	Mildly
Face flushed	1.77	Mildly
Hot / cold sweats	1.91	Mildly
Face flushed	1.77	Mildly
Mean	**2.19**	**Mildly**

Legend:
1.00-1.75 - Not at all (NAA)
1.76-2.50 - Mildly, but it didn't bother me much (Mildly)
2.51-3.25 - Moderately, it wasn't pleasant at times (Moderately)
3.26 - 4.00 - Severely – it bothered me a lot (Severely)

Table 3 shows that the students mildly ($\bar{x}$ = 2.19) experience signs of anxiety when they get to think about the threats and risks of the health crisis. The different items for anxiety have gained average to low scores.

The occurrence of these indicators and their respective frequencies suggest that the physiologically apparent or overt manifestations of anxiety would less likely manifest among the respondents, indicating that they would more likely experience the covert signs of anxiety. Yet again, it should be highlighted that they would only mildly experience these indications of anxiety about the pandemic.

Relationship between Levels of Readiness and Acceptance for e-Learning

To make more sense of the levels of readiness and acceptance for e-learning, its relationship was established as shown in Table 4.

Table 4. Relationship between level of readiness and level of acceptance.

Level of Readiness	Level of Acceptance					
	PE	**EE**	**AL**	**IM**	**SI**	**CO**
CISE	.33	.43	.30	.31	.24	.40
SDL	.43	.39	.42	.42	.30	.44
LC	.30	.36	.33	.29	.24	.40
MFL	.51**	.46	.48	.43	.34	.50**
OCSE	.39	.39	.38	.36	.29	.44
	0.600**					

Legend:
±0.00 to 0.30 – Weak Association
±0.31 to 0.50 – Moderate Association
±0.51 to 0.80 – Strong Association
±0.81 to 1.00 – Very Strong Association

** - Highly Significant ($p \leq 0.01$)
* - Significant ($0.01 > p \leq 0.05$);
ns – Not significant ($p > 0.05$)

As shown in Table 4, among the dimensions of the level of readiness, only the MFL is found to have a strong association with the dimensions of the level of acceptance – PE ($\rho = 0.513$, $p \leq 0.01$) and CO ($\rho = 0.503$, $p \leq 0.01$). This signifies that the student's belief that the tool increases their performance (PE) and the idea of considering innovation as being consistent with the existing values, needs, and experiences of potential adopters (CO) greatly affect their motivation for learning.

Generally, the level of online readiness of the students has a strong association with their level of engagement ($\rho = 0.600$, $p \leq 0.01$). Hence, the higher the level of readiness of the students for online learning, the higher their level of acceptance.

Relationship between the Levels of Anxiety, Readiness, and Acceptance

To determine whether the students' anxiety affects their level of readiness and acceptance for e-learning, their relationships were established as shown in Table 5.

Table 5. Relationship between anxiety and the levels of readiness and acceptance.

	Level of Anxiety
Level of Readiness	-0.063**
Level of Acceptance	-0.044**

Legend:
±0.00 to 0.30 – Weak Association
±0.31 to 0.50 – Moderate Association
±0.51 to 0.80 – Strong Association
±0.81 to 1.00 – Very Strong Association

** - Highly Significant ($p \leq 0.01$)
* - Significant ($0.01 > p \leq 0.05$);
ns – Not significant ($p > 0.05$)

Table 5 shows that the student's level of anxiety has no association with the students' level of readiness ($\rho = -0.063$) and acceptance ($\rho = -0.044$). This implies that the level of anxiety has nothing to do with the students' levels of preparedness and acceptance for e-learning.

CONCLUSION

The biggest challenge that the educational system faced during the pandemic is finding the best way to deliver quality education to its students. Given the circumstances, academic institutions were forced to shift from in-person classes to flexible/online learning. This abrupt shift needs to be assessed, specifically its reception by the students, primary ones that were greatly affected. Thus, the findings of the study have several implications. Firstly, the students are generally ready to embrace e-learning but could still be enhanced as they are not yet ready in terms of some areas. Hence, it is suggested that universities help in improving the students' hard and soft skills to ensure a high level of readiness among them. Secondly, the students do not accept e-learning as they feel that such is not necessary for them even this pandemic. As such, universities are encouraged to help in redefining and recalibrating the students' perceptions and attitudes towards e-learning. Thirdly, despite the magnitude of the health hazards of the pandemic, the students show mild symptoms of anxiety which do not bother them in their studies. Fourthly, since there is a significant relationship between the students' level of readiness and acceptability, programs should be implemented to enhance the dimensions of both readiness and acceptance. Lastly, the pandemic, as reflected by the student's level of anxiety, does not affect their level of readiness and acceptance for e-learning.

This research has rooms for improvement though which could be considered by future researchers. First, the researchers analysed data gathered from the self-reported survey that is prone to response bias. Hence, it is recommended that qualitative data be gathered and processed using qualitative data analysis software to paint a better picture of students' readiness and acceptability of e-learning. Second, only the associations of the level of readiness and acceptance, level of readiness and level of anxiety, and level of acceptance and level of anxiety were determined in the study. Thus, future studies could identify other correlates that might affect the students' level of readiness and acceptance. Third, despite the homogeneity of respondents suggesting a macro perspective, the results of the study could only provide insights into the challenges and opportunities that third-world or developing nations face with the implementation of e-Learning during the COVID-19 pandemic.

REFERENCES

Agboola, DI. & Evans, H. (2015). The relationship between anxiety and academic performance of postgraduate international students in a British University: A cross-sectional quantitative design. *Science Journal of Public Health*, 3(3), 331-338.

Ajmal, M. & Ahmad, S. (2019). Exploration of anxiety factors among students of distance learning: A case study of Allama Iqbal Open University. *Bulletin of Education and Research,* (49)2, 67-78.

Akaslan, D. & Law, ELC. (2011). Measuring student E-Learning readiness: A case about the subject of electricity in higher education institutions in Turkey. *Advances in Web-Based Learning - ICWL 2011. ICWL 2011. Lecture Notes in Computer Science*, *7048*. DOI: 10.1007/978-3-642-25813-8_22.

Ali, S., Gulliver, S., Uppal, M. & Basir, M. (2021). Research investigating individual device preference and e-learning quality perception: Can a one-solution-fits-all e-learning solution work? *Heliyon 7*(6). DOI: 10.1016/j.heliyon.2021.e07343.

Ali, W. (2016). Nursing students' readiness for e-Learning experience. *Gynecology & Obstetrics*, *6*(6). DOI: 10.4172/2161-0932.1000388.

Alwahaishi, S. & Snasel, V. (2013). Consumers' acceptance and use of information and communications technology: A UTAUT and flow based theoretical model. *Journal of Technology Management and Innovation 8*: 61-73. DOI: 10.4067/S0718-27242013000200005.

Annamalai, N. (2021). Online Learning during COVID-19 Pandemic. Are Malaysian High School Students Ready?. *Pertanika Journal of Social Sciences and Humanities.* 29 (3): 1571 - 1590

Aydın, CH. & Tascı, D. (2005). Measuring readiness for e-learning: Reflections from an emerging country. *Educational Technology & Society, 8*(4): 244-257.

Bawa, P. (2021). What do they think and what it matters? Views of administrators and faculty on the use of massively multiplayer online games for learning. *Computers and Open Education, 2*(2021): 1-10. DOI: 10.1016/j.caeo.2021.100034.

Borotis, S. & Poulymenakou, A. (2004). E-Learning readiness components: Key issues to consider before adopting e-learning interventions. Paper presented at the E-*Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education* 2004, Washington, DC, USA.

Cadamuro, A., Bisagno, E., Rubichi. S., Rossi, L., Cottafavi, D., Crapolicchio, E., & Vezzali, L. (2021). Distance learning and teaching as a consequence of the Covid-19 pandemic: A survey of teachers and students of an Italian high school taking into account technological issues, attitudes and beliefs toward distance learning, metacognitive skills. *Journal of e-Learning and Knowledge Society 17*(1): 81-89. DOI: 10.20368/1971-8829/1135463 (accessed 30 June 2021).

Caliskan, S., Tugun, V., & Uzunboylu, H. (2017). University students' readiness for E-Learning. *ENSAYOS, Revista de la Facultad de Educación de Albacete 32*(2). Available at: http://www.revista.uclm.es/index.php/ensayos (accessed 30 June 2021).

Chizmar, JF. & Walbert, MS. (1999). Web-based learning environments guided by principles of good teaching practice. *Journal of Economic Education 30*(3): 248–264. DOI: 10.2307/1183061.

Choucri, N., Maugis, V., Madnick, S., Siegel, M., Gillet, S., Donnel, S., & Haghseta, F. (2003). Global e-readiness-for-what. *Center for eBusiness at MIT (11)*4: 313-342. DOI: 10.1002/itdj.20022.

Chung, E., Noor, N., & Mathew, V. (2020). Are you ready? An assessment of online learning readiness among university students. *International Journal of Academic Research in Progressive Education and Development 9*(1): 301–317. DOI: 10.6007/IJARPED/v9-i1/7128.

Cigdem, H. & Ozturk, M. (2016). Critical components of online learning readiness and their relationships with learner achievement.

Turkish Online Journal of Distance Education-TOJDE 17(2): 98-109. DOI: 10.17718/tojde.09105.

Davis, FD., Bagozzi, RP., & Warshaw, PR. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science, 35*(8): 982–1003.

Davis, FD. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Q 13*(3): 319–340.

Deng, L. & Tavares, N. (2013). From Moodle to Facebook: Exploring students' motivation and experiences in online communities. *Computers & Education 68*: 167–176. DOI: 10.1016/j.compedu.2013.04.

Engin, M. (2017). Analysis of students' online learning readiness based on their emotional intelligence level. *Universal Journal of Educational Research*, *5*(12A): 32-40.

Fawaz, M. & Samaha, I. (2021). E-learning: Depression, anxiety, and stress symptomatology among Lebanese university students during COVID-19 quarantine. *Nurs Forum 56*: 52–57. DOI: 10.1111/nuf.12521.

Hartley, K. & Bendixen, LD. (2001). Educational research in the internet age: Examining the role of individual characteristics. *Educational Researcher 30*(9): 22–26.

Hsu, YC. & Shiue, YM. (2005). The effect of self-directed learning readiness on achievement comparing face-to-face and two-way distance learning instruction. *International Journal of Instructional Media 32*(2): 143–156.

Hung, M., Chou, C., Chen, C. & Own, Z. (2010). Learner readiness for online learning: Scale development and student perceptions. *Computers & Education 55*(3): 1080-1090.

Ibrahima, N., Al Raddadi, R., AlDarmasi, M., Al Ghamdi, A., Gaddourya, M., AlBar, M. & Ramadan, I. (2021). Medical students' acceptance and perceptions of e-learning during the Covid-19 closure time in King Abdulaziz University, Jeddah. *Journal of Infection and Public Health 14*: 17 – 23. DOI: 10.1016/j.jiph.2020.11.007 1876-0341.

Jawad, Y. & Shalash, B. (2020). The impact of e-learning strategy on students' academic achievement case study: Al-Quds Open University. *International Journal of Higher Education 9*: 44-53. DOI: 10.5430/ijhe.v9n6p44.

Jegede, O J., Alaiyemola, FF., & Okebukola, PA. (1990). The effect of concept mapping on students' anxiety and achievement in biology. *Journal of Research in Science Teaching*, 27(10): 951-960.

Keller C, Hrastinski S and Carlsson S (2007) Students' acceptance of e-learning environments: A comparative study in Sweden and Lithuania. *Proceedings of the 15th European Conference on Information Systems, ECIS 2007*: 395-406.

Knowles MS (1975) *Self-directed learning: A guide for learners and teachers*. New York: Associations Press.

Krahe, B., Möller, I., Huesmann, L., Kirwil, L. & Anja Berger, J. (2011). Desensitization to media violence: Links with habitual media violence exposure, aggressive cognitions, and aggressive behavior. *Journal of Personality and Social Psychology 100*(4): 630-646. DOI: 10.1037/a0021711.

Mamattah, RS. (2016). *Students' perception on e-learning* [Master's thesis, Linköping University]. Linköping University. http://liu.diva-portal.org/smash/record.jsf?pid=diva2%3A925978&dswid=-9442

Manhas, PS. (2012). Role of online education in building brand image of educational

institutions. *Journal of Economics, Finance and Administrative Science 17*(32).

Moore, MG. (2013). *Handbook of distance education (3rd ed.).* Abingdon: Routledge.

Moore, GC. & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research 2*: 192–222.

Morgan, H. (2020). Best practices for implementing remote learning during a pandemic. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, *93*(3): 135–140. https://doi.org/10.1080/00098655.2020.1751480

Mota F and Cilento I (2020) Competence for internet use: Integrating knowledge, skills, and attitudes. *Computers and Education Open 1*. DOI: 10.1016/j.caeo.2020.100015.

Ngampornchai, A. & Adams, J. (2016). Students' acceptance and readiness for e-learning in Northeastern Thailand. *International Journal of Educational Technology in Higher Education 13*(34). DOI: 10.1186/s41239-016-0034-x.

Peytcheva-Forsyth, R., Yovkova, B. & Aleksieva, L. (2018). Factors affecting students' attitudes towards online learning - The case of Sofia University. AIP Conference Proceedings 2048 020025. DOI: 10.1063/1.5082043.

Poole, DM. (2000). Student participation in a discussion-oriented online course: A case study. *Journal of Research on Computing in Education 33*(2): 162–177.

Popovici, A. & Mironov, C. (2015). Students' perception on using eLearning technologies. *Procedia - Social and Behavioral Sciences 180*: 1514-1519. DOI: 10.1016/j.sbspro.2015.02.300.

Qazim, A. & Alhamad, M. (2020). Acceptance of E-learning among university students in UAE: A practical study. *International Journal of Electrical and Computer Engineering* 10 (4): 3660~3671. DOI: 10.11591/ijece.v10i4.pp3660-3671

Ranieri, J., Guerra, F. & Giacomo, D. (2021). Buffering effect for 2nd lockdown: The role of academic e-learning adoption among generation Z. *Psychological Applications and Trends 2021.* DOI: 10.36315/2021inpact025.

Rehman, U., Shahnawaz, M., Khan, N., Kharshiing, K., Khursheed, M., Gupta, K., Kashyap, D. & Uniyal, R. (2020). Depression, anxiety and stress among Indians in times of Covid-19 lockdown. *Community Mental Health Journal (2021)*57: 42–48. DOI: 10.1007/s10597-020-00664-x

Rogers, EM. (1983). *Diffusion of Innovations* (3rd ed.). New York: Free Press.

Rumble, G & Latchem, C. (2004). Organisational models for distance and open learning. In H. Perraton and H. Lentell (Eds.) *Policy for Open and Distance Learning.* London: Routledge Falmer.

Schreurs, J., Sammour, G. & Ehlers, U. (2008) E-learning Readiness Analysis (ERA): An ehealth case study of e-learning readiness. *Int. J. Knowledge and Learning 4*(5): 496-508.

Schunk, DH., Pintrich, PR., & Meece, JL. (2008). *Motivation in Education Theory*. 3rd Edition, Pearson Education Inc., London.

Shehzadi, S., Nisar, Q., Hussain, M., Basheer, M., Hameed, W., Pakistan, B., & Chaudhry, NI. (2020). The role of digital learning toward students' satisfaction and university brand image at educational institutes of Pakistan: A post-effect of COVID-19. *Asian Education and Development Studies*. DOI: 10.1108/AEDS-04-2020-0063.

Shibli, N. (2015) The effects of anxiety on achievement and performance: A college

study. *International Journal of Scientific and Research Publications*, 5(6): 1-2.

Sindiani, AM., Obeidat, N., Alshdaifat, E., Elsalem, L., Alwani, MM., Rawashdeh, H., Fares, AS., Alalawne, T. & Tawalbeh, LI. (2020). Distance education during the COVID-19 outbreak: A cross-sectional study among medical students in North of Jordan. *Annals of Medicine and Surgery 59*: 186-194. DOI 10.1016/j.amsu.2020.09.036.

Soydal, İ., Alır, G. & Ünal, Y. (2011). Are Turkish universities ready for e-learning: A case of Hacettepe University Faculty of Letters. *Information Services & Use 31:* 281–291. DOI: 10.3233/ISU-2012-0659

Tang, SF. & Lim, CL. (2013). Undergraduate students' readiness in e-learning: A study at the business school in a Malaysian private university. *International Journal of Management & Information Technology 4*(2): 198-204.

Tsai, MJ. & Tsai, CC. (2003). Information searching strategies in web-based science learning: The role of internet self-efficacy. *Innovations in Education & Teaching International 40*(1): 43-50.

Tsai, CC. & Lin, CC. (2004). Taiwanese adolescents' perceptions and attitudes regarding the internet: Exploring gender differences. *Adolescence 39*: 725–734.

Tuntirojanawong, S. (2013). Students' readiness for e-learning: A case study of Sukhothai Thammathirat Open University, Thailand. *Journal of Learning in Higher Education 9*(1): 59-66.

Ullah, O. (2018). Students' attitude towards online learning at tertiary level. *PUTAJ – Humanities and Social Sciences 25*(1-2): 63-82. Available at: https://www.academia.edu/35679975/Students_Attitude_towards_Online_Learning_at_Tertiary_Level (accessed 30 June 2021).

Varma, P., Junge, M., Meaklim, H., & Jackson, M. (2021). Younger peoples are more vulnerable to stress, anxiety, and depression during COVID-19 pandemic: A global cross-sectional survey. *Progress in Neuropsychopharmacology and Biological Psychiatry 109*(3). DOI: 10.1016/j.pnpbp.2020.110236.

Venkatesh, V., Morris, MG., Davis, GB., & Davis, FD. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly 27*: 425–478. DOI: 10.2307/30036540.

Warner, D., Christie, G., & Choy, S. (1998). *Readiness of VET clients for flexible delivery including on-line learning*. Brisbane: Australian National Training Authority.

Yiong, BLC., Sam, HK., & Wah, TK. (2008). Acceptance of e-learning among distance learners: A Malaysian perspective. In *Proceedings of ASCILITE - Australian Society for Computers in Learning in Tertiary Education Annual Conference 2008*: 541-551. Australasian Society for Computers in Learning in Tertiary Education. Available at: https://www.learntechlib.org/p/46227/