The use of Adobe Connect in synchronous online teaching

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Abstract

The COVID-19 pandemic is a huge challenge to the world. It has interrupted many aspects of lives, especially education settings. Emergency remote education was put into practice to ensure the continuity of education while learners are physically out of universities, schools and institutes. The purpose of the present study was to investigate the effect of learners' attitude using Adobe Connect on their final course scores in synchronous online teaching. 75 participants from Qazvin University of Medical Sciences and Health Services participated in this study. Data were gathered by means of a questionnaire and final course exam. A one-way ANOVA was used in order to analyze the data. Results revealed that the attitude level significantly affected the participants' final scores (F = 18.503, p < .01). The participants who had higher attitude levels had higher final scores.

Practitioner Notes

1. First-year students experience synchronous online teaching using Adobe Connect.
2. Students have positive attitudes toward online learning using Adobe Connect.
3. Students' positive attitudes toward using Adobe Connect create higher student accomplishments.
4. Students find Adobe Connect to be a supportive online learning platform.

Keywords

Introduction

Recently, the universal effect of computer technology has made considerable changes to the concept of universities, schools and institutes. Increased Internet access provides learners with the opportunity to undertake their education online (Greenland & Moore, 2014). Online learners utilize synchronous and asynchronous types of communication via a virtual environment (Ku & Chang, 2011). All participants are connected to each other at the same time through a shared network in synchronous learning. Instructional programs and video conferencing are the examples that put synchronous learning into practice. Synchronous learning is the most common way of instructional technology since it provides participants with a sense of being in a class as well as engagement in the learning and teaching processes (Faramarzi et al., 2015).

A wide variety of multimedia resources help learners acquire the knowledge needed for their learning. The courses are presented through virtual learning environments and learners are able to be more active in learning and achieve learning goals better (Elekaei et al., 2020a). The purpose of a technology-mediated virtual learning environment is to emphasize self-regulation, independent thinking, learners' satisfaction and engagement, various thinking models and learning outcomes (Hill & Hannafin, 1997). One of the most noticeable advantages of online courses is flexibility, which makes the learning process easier for learners to overcome time and space obstacles and empower them to learn asynchronously (Waschull, 2001). It is believed that virtual learning environments can provide more convenience, flexibility, feedback and individualized learning in comparison to traditional face-to-face classrooms (Elekaei et al., 2020b; Hackbarth, 1996; Kiser, 1999). The main differences between virtual classrooms and traditional ones are the use of technology and the shift of responsibility, as well as control, to the learners.

There has been an emergency paradigm shift in teaching and learning resulting from the closure of universities, schools and institutes in the world due to COVID-19. Deep changes in habits have been induced with the support of technologies. Universities are trying to produce remarkable learning outcomes and so have moved toward innovative pedagogies. With the vast and various e-learning platforms in the market, it is hard for universities to investigate how functional and effective each platform is in order to facilitate learning. Adobe Connect software was chosen as a platform in using technology in online learning in this study for a number of reasons. It enables the instructors to present audio/video materials and documents easier in classes. A noteworthy characteristic of this software is the option it has to change the formation and the layout frames in order to fulfil the requirement of different courses. All the practical pods such as the chat, video, shared whiteboard area and list of participants can be changed to form new variations of the class space.

E-learning has experienced rapid growth over the last decade and has changed the learning process in such a way that it is becoming important to understand and assess the parameters contributing to the success of online learning instruction. Attitude is a central factor which has been found to determine behavioural intention in prior social studies (Ajzen, 2005; Eagly and Chaiken, 2007; Fishbein & Ajzen, 1975). It also has been empirically verified as a strong mediator for motivational variables to predict behavioural intention of computer technology use (Elekaei et al., 2019b; Falloon, 2012; Karatay, 2016). Ajzen (2005) defines attitude as "a disposition to respond favorably or unfavorably to an object, person, institution, or event" (p. 3). Moreover, he believes that attitude is not reachable to direct observation, so measurable responses are required. In social psychology, attitude is known as an entity that is evaluated. In other words, anything that is

discriminable or held in mind, some-times below the level of conscious awareness, can be evaluated and therefore can function as an attitude object (Eagly and Chaiken, 2007).

Exploring different behavioural characteristics of students is vital to determine the pre-requisites for an effective e-learning process. Although some research has been conducted on the effect of learners' attitudes toward distance education and online classes (Basaran & Yalma, 2020; Englehart, 2015; Lee, 2009; Torun, 2013) and despite the attempts of researchers and instructors to increase learners' attitudes toward online classes through different elements, this issue still remains one of the major concerns. Therefore, the present study sought to investigate the relationship between the attitude of students and their scores using Adobe Connect.

The present study addressed the following question: Does attitude toward using Adobe Connect significantly affect Iranian EFL learner's final course scores in online classes?

Literature review

Educational media is becoming more individualised, mobilised, and portable and advances in communication technologies have recently provided the opportunity for educators to create new educational models (Chen & Lai, 2001; Chen & Nahrstedt, 2000; Lin & Liu, 1999). The constructivist paradigm has dominated educational research over the last decade. From the constructivist perspective, the purpose of teaching and learning is to encourage and support independent as well as self-regulated learners. Bruner (1983) provides an explicit strategy, scaffolding, to direct teaching toward this objective. Scaffolding, as Bruner (1983) believes, refers to the support that teachers or even peers offer learners in order to bridge the gap between their current skill levels and a desired one. The amount of support is gradually reduced as the learners become more proficient.

Much research (Chinnery, 2006; Elekaei et al., 2019a; Naismith et al., 2004; Norbrook & Scott, 2003; Thornton & Houser, 2005) has proposed that e-learning has great potential in providing learners with large exposure to the target content and learners can do self-learning anywhere and anytime with the assistance provided by computer technology. One of the key elements of effective teaching and quality of e-learning is the learners' attitudes.

Lee (2009) conducted a study to examine the experiences of instructors as well as learners using synchronous virtual environments (Skype and Adobe Connect) for spoken English teaching and learning. Various approaches such as in-depth and semi-structured interviews, participant observation and course evaluation were used. The results revealed that participants did not have positive attitudes toward online classes and preferred teaching and learning in the traditional face-to-face environment because of the lack of sufficient interaction and social presence using Skype and Adobe Connect.

Mavridis et al. (2011) investigated whether web conferencing platforms (Adobe Connect and Big Blue Button) could support collaborative learning processes. Two case studies were conducted. The first study involved the collaboration between old and new students in Adobe Connect to provide support for implementing a compulsory assignment. The users filled out a questionnaire when the activity was done. Big Blue Button was used for the second study. Two collaborative learning techniques, jigsaw and fishbowl, were used. The results indicated that although Adobe Connect had more features than Big Blue Button, both platforms were supportive with great success. Over 90% of the users were satisfied with the collaboration in this study.

Hudson et al. (2012) considered the worth of the polling feature in Adobe Connect and the participants' attitudes toward this software as well as their levels of participation. The results of the study revealed that synchronous learning increased students' level of participation as well as cooperation.

Ng et al. (2013) considered an online problem-based learning (PBL) environment for undergraduate pathology students and examined the related pedagogical effects. Eight PBL students had four weeks of online PBL through Adobe Connect. The results showed that although the participants had positive attitudes toward online PBL using Adobe Connect, the statistical analysis revealed no significant differences in assignment grades between online and traditional PBL groups.

Torun (2013) examined the use of Adobe Connect in virtual classrooms. The students participated in the online Web Programming course. The results showed that all the students had positive attitudes toward online learning using Adobe Connect. They reported that live tutorials were undoubtedly beneficial for their learning in online classes. However, 16 students claimed that they had technical background problems. In addition, the class took 45 minutes and the students mentioned that virtual classrooms needed to be longer.

Smith et al. (2013) investigated the use of Adobe Connect in supporting students and enhancement of their learning. Participants studied chemistry at the University of New England in Australia. The results revealed that the participants had total positive attitudes and confidence toward using Adobe Connect in online classes and the results showed a great high percentage of students' scores.

Wang et al. (2013) conducted a study to understand the potential application of Adobe Connect to support students of an American and a Chinese university. The results indicated that Adobe Connect offered opportunities for synchronous communication and collaboration between teachers and students as well as among students. Moreover, it encouraged students to interact more, improved online learning by enriching synchronous communication in audio, video and text formats, provided students with instant feedback from the instructors and their peers, and increased students' motivation toward autonomous learning.

Englehart (2015) focused on early childhood educators who participated in online classes using Adobe Connect. Adobe Connect was used in two different forms to have access to students who attended online classes. One format involved Adobe Connect in joining students in classrooms at two locations and the other included using the same platform allowing students to log in to online classes from different locations. The results revealed that the students had high positive attitudes toward online classes and appreciated the convenience. However, some participants mentioned that they were not satisfied with the interactions in classes.

Erdoğdu et al. (2015) investigated the effectiveness of online learning environment for synchronous distance education. Undergraduate students who took a teacher-training program participated in this study. Ten tasks were assigned to the participants to be completed on the system in order to investigate the efficacy levels of the system. The calculation of the system usability scale was 50.75 out of 100. It was reported that distance education system was problematic regarding usability.

Elekaei et al. (2015) examined eighty EFL students to inquire their attitude toward taking three different modalities (audio-only, pictorial, and visual) of listening test. The results showed that test-takers reacted negatively toward audio-only and visual listening tests. However, the students' attitude was positive toward pictorial listening test in which a still image was included.

Çakiroğlu et al. (2016) conducted a study to find out the behaviours of the participants and instructors in online courses using Adobe Connect. The students who took part in this study attended a computer education and instructional technology program. Twenty-two online course recordings were observed and semi-structured interviews were used. The results revealed that the participants could develop programming knowledge via the learning tasks using Adobe Connect. Moreover, the instructor had the key role in the online learning community. The researchers proposed that both conceptual and strategic structures of the programming courses are important and should be taken into account in web conferencing classes.

Celikbas (2018) examined the effect of using Adobe Connect Live Learning Program (LLP) on the students in live learning conversation classes. The results showed that LLP was an impressive language tool and helped the students to talk and practice a foreign language better that what was expected.

Vurdien and Puranen (2018) conducted a study on students from Spain and Finland in order to see how they develop intercultural competence via using Adobe Connect as well as their attitudes toward using this learning instrument. The results showed that the participants' attitudes toward using Adobe connect were positive and they were interested in discovering each other's cultural traits.

Habók and Magyar (2018) examined language learning strategy use, foreign language attitude, proficiency as well as general school achievement among 868 lower secondary students. Strategy Inventory for Language Learning questionnaire has been used for data collection. The results revealed that the students metacognitive, social and memory strategies influenced foreign language attitude as well as marks.

Tafazoli et al. (2019) investigated the relationship of second and foreign language teachers as well as students' attitudes toward Computer-Assisted Language Learning (CALL) regarding age, gender and educational level in Spain and Iran. Data was collected through online questionnaires. The findings showed that there were no differences between the attitudes of Iranian and Spanish towards CALL regarding age, gender, and educational level.

Basaran and Yalma (2020) wanted to develop a scale to evaluate students' attitudes toward using interactive web-conferencing systems in online courses. A draft scale was settled with 29 items chosen from an item pool which was based on a review of the literature and the participants' views. The draft scale was given to 1100 undergraduate students in a distance program in theology. The participants took courses using Adobe Connect as a video conferencing system. A factor analysis was used, and the scale made up of four factors including user expectations, preferences, attitudes and problems regarding web-conferencing systems. It was reported that Adobe Acrobat Connect provided an effective learning environment for the participants to participate actively in trainings by interacting with each other as well as faculty members. Moreover, the results showed that Adobe Connect helped students share their experiences and work cooperatively.

Cabangcala et al. (2021) examined technological competence and attitude towards online learning of 1408 college students who had no experience of using the new mode of teaching and learning. Attitude towards Online Learning Questionnaire (AOLQ) was used for data collection. The findings indicated that students had positive attitude towards online learning.

Ahmed et al. (2021) examined the influence of synchronous and asynchronous learning modes in academic writing. Pretest and posttest questionnaires as well as a semi-structured interview were

used for data collection. They found that synchronous feedback was more effective to develop the quality of participants' writing and their motivation.

Online education is changing higher education. The advancement of technology has made Adobe Connect an accessible tool in teaching and learning because it is a promising tool that can allow students to connect across geographical and cultural boundaries to promote interactions and engagement within the virtual environment. Although research has shown that Adobe Connect is a valuable tool in education, fewer studies have been conducted on its effectiveness at universities. Since synchronous learning will continue to proliferate in higher education, it is important to evaluate the impact of Adobe Connect on students' scores as well as students' attitudes regarding using this tool.

Method

Design

The present study aimed to discover the relationship between final course scores of learners and their attitudes toward using Adobe Connect in online education. Therefore, a quasi-experimental research design was chosen. The procedures include quantitative analysis. The main purpose of quantitative research methods is to generate and develop mathematical models, theories as well as hypotheses. As Creswell (2014) pinpointed, the quantitative approach involves research in which the researchers ask specific questions, collect numeric data from participants and analyse the numeric data using statistics. Samples of the study were selected non-randomly.

Participants

Seventy-five participants were nonrandomly selected for this study. They were first-year Iranian students (both male and female) studying Occupational Health Engineering and Health Management Services in the second semester of 2019-2020 at Qazvin University of Medical Sciences and Health Services. The participants' ages ranged from 18 to 25.

Materials and instruments

A web-instructional program was administered to investigate the relationships between the participants' level of attitude toward using Adobe Connect and their final course scores. Adobe Connect was selected as the platform in using technology toward the learning process in this regard. Adobe Connect is a video conferencing tool which can be used for synchronous presentation, communication and providing access to educational resources. The classes were settled by the instructor on a pre-specified date and time and the participants had access to the recordings of synchronous classes. The General English course in the second semester of 2019-2020 was chosen and the book *Active Skills for Reading 2* (Anderson, 2011) was selected to be taught in this course.

The following instruments were used in order to answer the research question: An attitude questionnaire and the multiple-choice final exam.

A language learning attitude questionnaire on a five-point scale from "strongly disagree" to "strongly agree" was sent to the participants in order to examine the test-takers' attitudes and feeling toward the project. The questionnaire was constructed by the author was designed based on the guidelines proposed by Cohen, Manion and Morrison (2013). The internal consistency of the questionnaire was $\alpha = .81$. In addition, all the items had item-total correlations of greater than 0.3 which means the questionnaire items were reliable in measuring the same construct. Then, the

final exam which was on a multiple-choice format was administered online two weeks after the treatment.

Procedures

Instructions and guidelines on how to install Adobe Connect and Flash Player (needed for audio and video) in computers, and use a webcam, USB headset, voice and video chats as well as the various Adobe Connect functions were gathered and sent to the learners in the form of a pdf. General English course included three credits and online sessions of this study were set around a 3-hour time period with a 15-minute break. The instructor was in charge of providing detailed information on the topic, making better understanding of the course material, clarifying information given to the learners, taking the attendance, assessment and marking learners active during the class. The final grade for the course was the number of points earned by a learner on the final exam in accordance with the curriculum of General English Course of Qazvin University of Medical Sciences. After the course was finished, a language learning attitude questionnaire on a five-point scale from "strongly disagree" to "strongly agree" was sent to the participants and then the students took their final exam. The questions were designed to acquire students' reactions and attitudes on using Adobe Connect.

Data analysis

In order to answer the research question, which was the attitude of the students on using Adobe Connect, a one-way ANOVA was used. Moreover, the post hoc Scheffé test procedure was used to locate the differences among the groups.

Ethics

The study has been reviewed and approved by the Research Ethical Committee of the University (REC.76/06/1531).

Results

The research question sought to see whether attitude toward using Adobe Connect affects Iranian EFL learner's final course scores in online classes. To this end, participants were divided into three equal groups of high, medium and low levels of attitude based on their scores on the language learning questionnaire. ANOVA was used to see the effect of attitude level toward the final course scores. Table 1 includes the descriptive and test statistics. Based on Table 1, the high attitude group has the highest mean (mean = 18.93), followed by the medium attitude group (mean = 17.35) and the low attitude group (mean = 16.29). In addition, F-value is significant (F = 18.503, $p < .01$). Therefore, the differences among the three attitude groups in the final exam are significant.

Table 1:

Descriptive and test statistics for the ANOVA on attitude and final course scores

	Attitude	N	Mean	Std. Deviation	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Final Course Scores	High	25	18.93	3.15	17.87	19.99
	Mid	25	17.35	2.87	16.43	17.97
	Low	25	16.29	3.04	15.24	17.34
	F = 18.503		Sig. = .002			

To locate the differences among the groups, the post hoc Scheffé test procedure was used, yielding the following results:

Table 2:

Post hoc multiple comparison of attitude groups in the final course scores

(I) Attitude Group	(J) Attitude Group	Mean Differences (I-J)	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
High	Mid	2.04[*]	.016	.29	3.79
High	Low	4.18[*]	.000	2.43	5.39
Mid	Low	2.27[*]	.004	.52	4.02

*. The difference is significant at the 0.05 level.

Discussion

An opportunity was provided for learners to undertake courses online with the new millennium and emergence of the Internet. The present study sought to examine the relationships between the students' attitudes and their scores in virtual environments using Adobe Connect. The results showed that the participants' attitude level significantly affected their final scores. The participants who had higher levels of attitude performed better in the final exam. This finding supports that of Mavridis et al. (2011) who found that Adobe Connect was supportive in collaboration between the students and the instructor as well as among the students. This finding is in line with Hudson et al.'s (2012) finding. The results revealed that online learning increased students' level of participation as well as cooperation. The results of this study also lead support to those of Torun (2013) who reported that live tutorials were undoubtedly beneficial for learning in online classes. Moreover, the present study strongly supports Smith et al.'s (2013) study who found that participants had total positive attitudes and confidence toward using Adobe Connect in online

classes, with the results showing a high percentage of students' scores. The finding of this study is compatible with that of Wang et al. (2013), Englehart (2015) and Çakiroğlu et al. (2016) who found that the students had high positive attitudes toward online classes and Adobe Connect offered opportunities for synchronous communication and collaboration between teachers and students as well as among students.

In addition, the results of this study are in line with Celikbas's (2018) results. The results showed that Adobe Connect Live Learning Program was an impressive language tool. It helped the students to talk and practice a foreign language better that what was anticipated. The findings of the present study also support those of Vurdien and Puranen (2018). They investigated the students' attitudes from Spain and Finland toward using Adobe Connect to develop intercultural competence. The results showed that the participants' attitudes toward using Adobe connect were positive and they were interested in discovering each other's cultural traits.

The finding of this study is compatible with that of Basaran and Yalma (2020) where participants took courses using Adobe Connect as a video conferencing system. The results revealed that Adobe Acrobat Connect provided an effective learning environment for the participants to participate actively in trainings and helped them share their experiences and work cooperatively.

Furthermore, the findings of the present study support those of Ahmed et al. (2021). They examined the effect of synchronous and asynchronous learning modes in academic writing and found that synchronous feedback was more effective in order to develop the quality of participants' writing as well as their motivation.

However, the result of this study is in contrast to that of Lee (2009), who found that the participants were not satisfied with online classes and preferred the traditional face-to-face environment. In addition, the finding of this study is different from that of Ng et al. (2013) who found that that although the participants had positive attitudes toward online PBL using Adobe Connect, the statistical analysis revealed no significant differences in assignment grades between online and traditional PBL groups. The results of this study also contradict those of Erdoğdu et al. (2015) who showed that distance education system was problematic regarding usability.

Conclusion

This article has investigated the relationships between the students' attitudes and their scores in virtual environments using Adobe Connect. Although online classes and virtual environments are not new in education around the world, various questions regarding the effectiveness of the modes and conditions arise since the situation, which is caused by COVID-19 pandemic is different compared to e-learning in normal circumstances. Since e-learning is a huge area, understanding the barriers as well as the gaps are important in order to achieve the best results.

Teachers and instructors are using different online platforms for teaching as well as conducting online examinations. Moreover, it is essential to utilize various teaching strategies to deliver the knowledge and guide the learners to reach their learning goals or expectations. In addition, distance language learning program can be stressful for many students like any other new experience. Therefore, more research is needed to focus on students' anxiety as well as the techniques to build their confidence.

The present study is significant for instructors, course designers and university faculties to consider learners' attitudes in designing online courses in order to promote successful learning,

academic performance, as well as satisfaction and provides a picture of factors affecting virtual environment especially learners' attitudes.

Moreover, higher education institutes can further consider the factors that contribute to online education preferences. This study showed the effect of students' attitudes on online education and how students' attitudes can affect education modality preferences in the future.

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