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Synchronous and Asynchronous E-learning Styles: Exploring the Effectiveness of Virtual Classes on Tertiary Level EFL Learners

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Abstract: Educators have known for a long time that some students prefer specific learning approaches. Learning preferences or learning styles are terms used to describe these strategies. The Covid-19 pandemic challenged the universities to give students online classroom instruction that was both easily adaptable and enabled high-quality learning. As a result, a wide range of synchronous and asynchronous digital teaching and learning environments have emerged. While some courses offered a mix of both, others focused on either synchronous or asynchronous learning and teaching. It was analyzed whether the majority of synchronous or asynchronous teaching and learning environments in higher education were connected with particular student experiences and outcomes in a survey study with 50 participants from different private universities in Bangladesh. This paper explores two modes of online assessment, Synchronous- where there is real-time interaction, and Asynchronous- where there is no real-time interaction. The goal of this study was to determine students' preferred learning styles between synchronous and asynchronous e-learning modes and to compare e-learners' learning styles to their academic success. The findings suggest that, from the participants' perspective, the instructional methods used in the two teaching and learning settings differ regarding their ability to facilitate social interaction and basic psychological requirements. There were distinctions between synchronous and asynchronous settings that were recognized. Furthermore, when the students were being compared in two different settings, more or less the participants in synchronous settings expressed their satisfaction with basic psychological requirements for competence reinforcement and relatedness, as well as overall fulfillment with the online instructions. Higher technological acceptance was associated with better outcomes throughout the board for all students.

Keywords: EFL E- learners, E-Learning styles, Synchronous, Asynchronous, Tertiary level

INTRODUCTION

Over the last few years, learner-oriented approaches in instruction have emphasized the influence of learner activities, learning materials, and learning content. The recent learning theories have shown interest in the role of learners as one of the essential points of any learning process. Learner roles have become popular among educators as well. Approaches can be knowledge-oriented, learner-oriented, assessment-oriented, and community-oriented. According to Froyd & Simpson (2008), these approaches have considered individual differences the most important role for the learners. Improving and adapting these approaches is a challenge. Individuals benefit from self-paced learning. They manage their learning rate, activities, time, and information flow. E-learning centers and Virtual Universities allow e-learners to learn in their preferred manner. Quizzes, assignments, presentations, oral tests, discussions, self-assessment, peer assessment, and E-portfolio are online assessment

methods. The demand for e-learning courses is expanding quickly. This profession needs skilled researchers and educators to successfully address some difficulties. This research focuses on synchronized and asynchronous E-learning systems by reviewing their theoretical underpinnings and foundations. Planned learning defines distance education. According to Moore and Kearsley (1996), distance education is defined as organized or planned learning, which usually takes place outside the educational institution and demands special teaching techniques, unique teaching methods, electronic communication or technological support, administrative and organizational arrangements. The sudden necessity to adjust to teaching and learning due to the COVID-19 pandemic tested instructors' and students' digital readiness worldwide. The result is a technique known as Emergency Remote Teaching (ERT, Hodges et al., 2020). According to Zawacki-Richter (2020), Almost all face-to-face teaching was replaced by online teaching modes in ERT. Daigle and Stuvland (2021) found this need to account for differences between modalities addressing, for example, reduced satisfaction with online learning in a study conducted before the pandemic. They dubbed this the "social presence gap" and suggested that teachers invest in closing it to level the playing field across modalities.

The objectives of this study were to determine the learning styles of synchronous and asynchronous e-learners and compare e-learners' synchronous and asynchronous learning styles and habits of based on their academic performance

LITERATURE REVIEW

Synchronous and Asynchronous E-Learning

Modes of providing e-content in an online classroom, interactive tools, learners, instructors, forms of engagement, and other characteristics classify synchronous and asynchronous e-learning. Synchronous online learning requires students to log in at a set time each week. Asynchronous online learning doesn't entail live video lectures and allows students to view materials any time during the week. The live instruction component distinguishes asynchronous from synchronous learning.

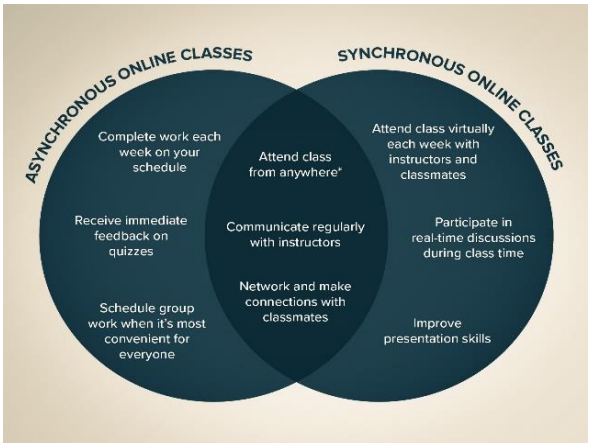

Figure 1: Synchronous and Asynchronous Learning in Venn Diagram (Adapted from Distance Education & E-learning, 2020)

Adaptability is an important criterion for evaluating individual differences in learning styles. Instant chatting, blogs, and threaded conversations are asynchronous learning methods. These tools help students and teachers replicate classroom information exchange and social construct. Synchronous e-learning is popular in education. This online educational setting has no physical meetings. Many pupils struggled with learning remotely. For example, Bedenlier et al. (2021) discovered that students were uncomfortable using their webcams in synchronous settings.

Educational Performance

Educational performance is multidimensional variable that both internal and external classroom circumstances can influence; hence the authors used learning styles as a predictor of classroom elements concerning academic performance groups. This research takes an outcome-focused approach, attempting to categorize academic performance in terms of the learning outcomes that are intended to match or the specific competencies designed to evaluate. As a result, the outcome-centric approach is a taxonomy process, and the taxonomy's overall generality can have benefits and drawbacks. Because of the taxonomy's generic nature, it can be used in various disciplines (Anderson, Krathwohl, & Bloom, 2001). Researchers are eager to analyze e-learners' learning styles and academic performance in

multiple types of e-learning. As a result, researchers are evaluating whether or not there is a substantial difference between successful educational performance groups and particular learning styles in the mode of synchronous and asynchronous e-learning, based on the earlier technique. Students must have good digital abilities to conduct academic work and complete learning activities successfully (Kim et al., 2019). These characteristics can help to erase the border between online and face-to-face learning and offer a sense of personalization.

METHODOLOGY

Participants

The participants were between the ages of 24-26 years old and undergraduate students. In this case study, the questionnaire was distributed physically and electronically (Google Docs forms through emails). The study's target population was selected with purpose. Later, 50 respondents were chosen from the large target population using the convenience sampling method, as most of them were willing to participate in the study. All of the participants had Bengali as their first language. They learned English as a Foreign Language (EFL).

Instruments

A mixed method to interpret diverse research types based on research requirements has been used to meet the research objectives. To investigate, an 18-item questionnaire survey was formulated to determine students' learning styles. At the same time, the casual-comparative method was applied to compare synchronous and asynchronous e-learners' learning styles based on the student's academic performance. The questionnaire was created with the participants in mind, considering all of the situational, contextual, and authoritative factors. The questionnaire included yes-no questions, multiple-choice questions, and five-point Likert scale items.

The questionnaire was set in 3 different sections:

a. Synchronicity or the delivery form of teaching
b. Comparison of two modes of learning styles
c. Academic performance is based on activities and feedback.

Sampling

An e-learner test was used to identify 29 synchronous and 21 asynchronous e-learners for sampling from different private universities in Bangladesh. This study has a total sample size of 50 selected e-learners. These students began their virtual courses to complete their degrees during the Covid-19 pandemic. A multistage sampling approach was used to conduct the sampling techniques within virtual institutions. Private universities that had offered their courses in an online mode were identified in the first round.

In the second step, renowned universities with good online teaching tools and facilities were chosen by random sampling. In the third step, selected university students were sent an e-questionnaire. By stratified random sampling, synchronous and asynchronous learners were identified among individuals who filled out the e-questionnaires in each online situation. The e-questionnaire was provided to the students with the approval of the university authorities, and they filled it out and enthusiastically submitted their responses.

RESULTS

Synchronicity or The Delivery Form of Teaching

This section shows the synchronicity or the delivery form of teaching**.** The students were asked in item no.1.1 (yes/no type) of the questionnaire whether their institution provides technical support for distance learning to the students. 85% of the students of different private universities responded that their institution provides technical support for distance learning. Only 15% of the students responded that they do not get any technical support for distance learning from their institutions. In item no. 1.2 they were asked if they had access to a device for distance learning. 100% of the participants responded

that they had access to a device and in item no 1.3 (MCQ type), the kinds of devices they have access to were found. Surprisingly, the majority of the students use mobile phones (57.1%) as their medium of distance learning. The second highly used device is their personal computer which is (50%). The notable thing is that although some universities offer technological support, they did not use their university computer for distance learning. In item no. 1.4 when the students were asked how their universities were delivering lecturers during the Covid-19 pandemic, they answered that their universities were delivering lectures using a different method during the covid-19 pandemic. They used Skype, Zoom, Google Meet, and other tools to connect with students. The lectures were still recorded, but they were not held in classrooms. About 85.7% of the students had live-stream classes. 100% of the students answered yes when asked if they had participated in the classroom activities and if they had received instant feedback in item no. 1.5 and 1.6. From part one of the questionnaire, it was clear that most students had live or synchronized classes during the pandemic and preferred it, greatly participated, and got instant feedback.

Comparison of Two Modes of Learning Styles

In the second part of the questionnaire, the participants were asked questions to compare the two modes of learning styles. In item number 2.1, the participants were asked how much time they spend each day on an average on distance education. 42.9% of students answered they used to spend 3-5 hours each day. The results of item no. 2.2 show that the majority of the participants (50%) agreed with the statement that live classes are more engaging and effective. In item number 2.3 the majority of the participants strongly agreed (35.7%) with the statement that offline (recorded) classes are more convenient and flexible. Another remarkable finding in item number 2.4 is that, face-to-face communication (through video conferencing) is vital for them while learning remotely. About 64.3% of students agreed with the statement that self-learning is difficult for them in a given time frame. In item number 2.6 most of the participants (71.4%) agreed with the statement that Internet connectivity issues hampered their real-time learning.

Academic Performance Based on Activities and Feedback

This section of the paper deals with academic performance based on the participants' activities and the teachers' feedback. A five-point Likert scale was used for item no. 3.1 to 3.5, in which 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly disagree.

Table 1: Academic Performance Based on Activities and Feedback (item. 3.1- 3.5)

Item No.	1	2	3	4	5	Mean
	%	%	%	%	%	
3.1	0	7.7	0	53.8	38.5	4.22
3.2	0	0	8.3	75	16.7	4.08
3.3	0	46.2	30.8	15.4	7.7	2.54
3.4	0	7.7	38.5	46.2	7.7	3.46
3.5	0	15.4	46.2	38.4	0	3.22

Here, five items of the questionnaire go under Table 1. The majority of the participants (53.8%) agreed that real-time discussion is essential to make an excellent academic performance in item no. 3.1. A large number of the participants agreed (75%) that receiving immediate feedback on class activities can improve their online learning in item no 3.2. In item no. 3.3 most of the participants disagreed with the statement that performing in front of their teacher and classmates is stressful. Most of the participants in item no. 3.4 were optimistic about delivering presentations in online classes as they think live online classes have improved their presentation skill. In item no. 3.5 Most participants (46.2%) were neutral when they stated that limited interaction with their teachers in an online class could hamper their course results. The results of item no. 3.6 indicate that 42.9% of participants feel optimistic about distance education. The maximum number of participants (85.7%) were satisfied with the teaching style that their institution has provided for online teaching.

DISCUSSION AND ANALYSIS

Based on the research and comparisons made within learners' learning styles, it was discovered that there was a considerable difference between the two modes of learning styles and students' academic performances. The data drawn from the findings show that the participants get proper technical support therefore almost all of them were able to attend online classes whichever mode it is. They had devices for distance learning. Mobile phones and Personal computers have made it easier for them. Evidently, the students prefer to sit in their homes and attend classes as they have accessible devices.

They had both recorded classes and live stream classes, and getting instant feedback in live stream classes were highly preferred by them. The analyses of the second part of their responses indicate, that live synchronous classes seemed more engaging and effective and as a result along with the class duration they invest 3-5 more hours per day for their academic study. On the other hand, asynchronous classes were convenient and flexible whereas internet connectivity issues can be a minus point for synchronous classes. For discussing complex concepts or deep reflection, synchronous interaction has been found to be less useful (Hrastinski, 2010). As performing in front of their teacher and classmates is not stressful, they simply prefer live stream classes more than recorded lessons. The difficulty of self-learning can be a con of asynchronous classes whereas face-to-face communication and instant feedback make it easier for the students to get the lesson in synchronous classes.

The findings of the third part of the questionnaire indicate that real-time discussion is important to make a good academic performance and receiving immediate feedback on class activities can improve their online learning, which can be benefit of synchronous teaching. Abstract Conceptualization (AC) and Reflective Observation (RO) are the major learning abilities of someone who prefers an Assimilating learning style. People with this learning style favored arranging information logically and clearly, learning by observing and thinking, reading, lectures, analytical approaches, logic values, data, and science vocations, and personalized learning. Researchers suggest that synchronous e-learning be made easier by providing interactive synchronous tutorials on concepts, theory, and numerical simulations. These individual learning projects include reflection on text material, synchronous chat tools, and e-face-to-face communication with instructors as a coach or helper. As a result, preferring abstract conceptualization is processing in the direction of imparting meaning to the items that are relevant to Converging and Assimilative learning styles. The converging style, which asynchronous students chose, excels at putting concepts and theories into practice. Asynchronous students prefer to solve problems, find solutions to challenges, and make decisions about them throughout the decision-making process. They would rather deal with technical concerns than interpersonal and social ones. Individual learning tasks that allow for practical uses, online laboratories, that provide information in a variety of formats such as text, video, visual, and audio, experimenting with new ideas, simulation tools, labs, and implementations, and doing individual assignments are some of the preferred and appropriate ways of learning among asynchronous e-learners.

Being optimistic about delivering presentations in online classes, the participants think that live online classes have improved their presentation skills. Remaining Neutral when told that limited interaction with their teachers in an online class would harm their course results suggests that they get enough interaction in online classes. Converging and Assimilating styles are the most popular among students in asynchronous e-learning, followed by Diverging and Accommodating styles. Because converging and assimilative methods are comparable in abstract thinking, students who prefer both styles may have a similar experience in an asynchronous e-learning environment. As Kolb (2005) reported, Students who employ abstract conceptualization place a higher priority on scientific approaches to problem resolution over the artistic features of the concrete experience dimensions. The findings revealed that there had been less effect on selected forms of learning, such as online or traditional classroom, and the capacity to complete the courses. Participants were enthusiastic about distance education and satisfied with the teaching styles. Using natural language, real-time interpersonal communication, and instant feedback are the key advantages of synchronous online learning (Blau et al., 2017). For most students, the requirement to participate in online learning was challenging. Cultural

differences may impact the learning process when interpreting findings from specific national contexts (Chiu, 2022). The study was conducted on a small number of individuals in a relatively short period. If the survey were conducted on many students and diverse participants, the results could differ from the existing ones.

CONCLUSION

This paper attempted to outline the following concluding remarks and recommendations that can be recorded. Synchronous and asynchronous settings are not uniform environments, but they provide various learning choices. It was noted that there was a less substantial difference between asynchronous e-learners' learning styles and their academic performance. Furthermore, the findings show a link between these environments and conditions for student involvement and indices of satisfaction, learning behavior, and perceived learning outcomes.

In higher education, technology's deliberate and intentional use to enable adaptive and equitable learning opportunities is of continuing and growing relevance. Higher education should encourage active, learner-centered learning, particularly in online environments. To help modify future higher education online learning, these beneficial first-hand experiences with virtual learning under real-world situations must be combined with existing findings from organized research on online education.

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