SYNCHRONOUS AND ASYNCHRONOUS E-LEARNING

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Abstract:

Due to Covid - 19 pandemic, many changes have occurred in education. There were several decisions made from the government, on how students should be taught online; there were two ways of teaching students, asynchronous and synchronous online teaching. The students were obliged to learn from home, so it has been important to know they're feedback on e-learning. By the research studies where student are participants, it is received a lot of feedback from their experience. Instead the teachers, depending on their ideas and planning on what's best for students, decided how to teach students from home and assess them too. Furthermore, in this article a number of research papers were reviewed, in order to compare both synchronous and asynchronous e-learning and which one is more beneficial for the students at home. From all the research methods, the ones taken into consideration from the studies were questionnaires, pre- tests, post-tests and surveys. Hence, approximately 50 articles were reviewed, and depending on their content and the correlations with the topic of this review, only 20 studies were chosen that were related to the topic generally. The overall study results show that even though there could be a preference for both e-learning methods, both synchronous and asynchronous e-learning methods if combined right, it could help teachers and learners have a successful course and results.

Keywords: synchronous, asynchronous, e-learning, assessment, literature review

Abstrakt:

Për shkak të pandemisë Covid - 19, shumë ndryshime kanë ndodhur në arsim. Kishte disa vendime të marra nga qeveria, për mënyrën se si studentët/nxënësit duhet të mësojnë online; ekzistonin dy mënyra të mësimdhënies së nxënësve, mësimi asinkron online dhe sinkron online. Studentët ishin të detyruar të mësonin nga shtëpia, kështu që ka qenë e rëndësishme të dihet përshtypja e tyre për mësimin elektronik. Nga studimet kërkimore ku studentët ishin pjesëmarrës, merren shumë reagime nga përvoja e tyre. Ndërsa mësuesit, varësisht nga idetë e tyre dhe planifikimi se çfarë është më e mira për

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studentët, vendosën në mënyrë të pavarur se si t'i mësojnë studentët nga shtëpia dhe si t'i vlerësojnë ata. Për më tepër, në këtë artikull janë rishikuar një numër i punimeve kërkimore, në mënyrë që të krahasohet mësimi elektronik sinkron dhe asinkron dhe cili prej tyre është më i dobishëm për studentët në shtëpi. Nga të gjitha metodat e hulumtimit, ato të marra në konsideratë nga studimet ishin pyetësorët, para-testet, post-testet dhe sondazhet. Prandaj, afërsisht 50 artikuj u shqyrtuan, dhe varësisht nga përmbajtja e tyre dhe korrelacionet me temën e këtij shqyrtimi, u zgjodhën vetëm 20 studime që kishin të bënin me temën në përgjithësi. Rezultatet e përgjithshme të studimit tregojnë se edhe pse mund të ketë një preferencë për të dy metodat e të mësuarit elektronik, si sinkron ashtu edhe asinkron metodat e të mësuarit nëse kombinohen drejt, mund të ndihmojë mësuesit dhe nxënësit të kenë rezultate të shkëlqyera.

Fjalët kyçe: sinkron, asinkron, e-mësim, vlerësim, rishikim i literaturës

1. Introduction

Online learning is a process which takes place in a virtual classroom environment, where both parties collaborate; the teacher as the instructor who tries to use different strategies to convey the right amount of input, and on the other side the students as the participants who try to receive as much information as possible, furthermore partake in order to understand a certain daily lesson. As stated by Buzzetto-More (2007):

> "*E-Learning is important for economic development, both of individuals and of society. Today's global economy requires a labor force that is educated, highly skilled, and technologically literate. Moreover, as jobs evolve in response to the changing economy, workers need to learn new skills throughout their lives.*" (p.1)

Table 1: Types of Education models (Taken by Buzzetto-More, 2007, p.6)

Model Feature	Traditional education model	Distance education system (e-Learning)
Principle Knowledge sources	Teacher	knowledge bases in education system, any knowledge source accessed physically or electronically
Additional Knowledge Source	books, manuals, audio and video materials	traditional sources, teacher
Assessment	only by teacher	System and teacher who is responsible for final assessment
Quality of education	dependents on teachers' quality, degree of knowledge, and ability to teach that knowledge	depends on electronic knowledge sources quality, other didactic materials, and the teaching style (such as collaborative learning)

According to Table 1, there are some differences shown in two education models, the traditional education method in a classroom, where the teacher is the main source and every activity is face to face, instead in the e-learning model, both the teacher and the students depend on different online sources, there is more collaboration, however still the teacher is entitled as an instructor.

There are three ways of online learning, asynchronous, synchronous and hybrid online learning. The asynchronous online learning is an unsynchronized method of learning, granted that the attendance of the teacher and the students can be distinct. The synchronous method is the opposite, the attendance of a teacher and a students should be simultaneous, they should meet online on whichever platform is decided to work on, and cooperate just as they do in a classroom. Instead the hybrid method is a combination of both synchronous and asynchronous ways of learning online.

1.1 Synchronous E-Learning

A synchronous learning environment is an environment where the teacher and the students meet online on a specific online platform for teaching and communicate about a lesson. The collaboration between the two has showed us that synchronous learning can have its advantages and disadvantages. As stated by Skylar (2009):

"Advantages of using a synchronous learning environment include real time sharing of knowledge and learning and immediate access to the instructor to ask questions and receive answers. However, this type of environment requires a set date and time for meeting, and this contradicts the promise of "anytime, anywhere" learning that online courses have traditionally promoted." (p.71)

It is important to state that no matter the geographical distance, synchronous learning gathers students together. Hence, some students have difficulties in the traditional classroom, they are introvert by nature, so the environment they are in, in their homes, makes them feel more comfortable, less stressed. According to Perveen (2016), *"Lessons can be recorded and added to an e-library. Using the archived e-library, students can access and replay teacher's lectures as many times as necessary to master the material."*(p.23) As known a synchronous class, means first starting a videoconference with a camera, the teacher and the students are all gathered. It should be a learner centered class, where the teacher gives the instructions in the beginning and afterwards the students have all the attention. By having a synchronous class, it should grow into a student-centered environment and the students give their replies, depending on the activities. As stated by Mick & Middlebrook (n.d) during the synchronous method of e-learning, participants have the real-time engagement, which tend to be associated with student satisfaction, student learning, and lower rates of attrition. *"Such synchronous interactions can help to avoid miscommunications and students have an immediate feedback."* (p.131) Furthermore, Tabatabaei and Sharifi (2011) stated that *"…discussion forums, online chat rooms have a greater potential of enhancing language teaching and learning because they provide*

synchronous, real-time interaction among participants. Participants have to process what they read on the screen quickly and give their response instantaneously." (p.837)

Nevertheless Mick & Middlebrook (n.d.) also stated that "*…synchronous media can create significant scheduling challenges particularly if the teacher wants to speak with the entire class, but even for one to-one interactions.*"(p. 131).

Moser & Smith (2015) suggest some practices for the conduct of Synchronous Online Courses:

1.	Provide a welcome message that is displayed approximately 15 minutes before class.
2.	Notify Class of your presence and encourage equipment checks.
3.	Provide easily accessed methods to connect/enter the virtual classroom
4.	Record class meetings.
5.	Discourage unnecessary use of video sharing.
6.	Maintain virtual office hours.
7.	Pre-load software that will be used during class presentation.
8.	If possible have more than one monitor/display
9.	Equip your teaching/production facility with various video options.
10.	Use electronic Textbooks and other reference materials.
11.	Encourage (require?) students to participate in virtual study sessions/group meetings.
12.	Integrate additional software systems to augment the virtual classroom experience.

Table 2: Practices for the conduct of Synchronous Online Courses
(Adapted by Moser & Smith, 2015, p.46-48)

The table above shows all the steps that should be taken from the beginning until the end of the class. It is important for teachers to have a guideline and a curriculum for the classes, and also integrate software to include all of the skills, so students can have a better online learning experience.

Another disadvantage as stated by Chen, Liu, & Wong (2007):

"*…if one learner's listening skills are not as advanced as his/her classmates, instructor may feel the need to speak more slowly during the video conferencing session. But then the more advanced classmates may not be amenable to such accommodations. Thus, the lower-level learner may require some additional assistance outside the classroom if the learners cannot be stratified in a more refined sense.*" (p.221)

1.2 Asynchronous E-Learning

The National Education Association (n.d.) discusses that online courses should be asynchronous and scheduled, since there should be a flexibility for students. However, it was stated that there should be a time frame where the students should complete the assignments, and it is an advantage for students to have the activities "24/7" and access them whenever they want to. (p.6)

According to Perveen (2016), "*Asynchronous environments provide students with readily available material in the form of audio/video lectures, handouts, articles and power point presentations. This material is accessible anytime anywhere.*" (p.22) Raymond, Atsumbe, Okwori, & Jebba (2016) gave some examples of online teaching tools "*the teacher may*

decide to deliver his lesson through Videotape, YouTube, Digital Video Disc (DVD) or Podcast while the students can later respond through the use of communication modes like email." (p.4) When the response is delayed, the students use critical thinking more, and the more they think about a problem they construct the response instead of giving a spontaneous answer. Instead while there is a distance the shyness is reduced, and this moderates the fear of the teacher and there is less pressure. (Perveen, 2016, p.22) "*Conversely, students enjoy the flexibility and the work at your own pace style provided in asynchronous environments.*" (Coogle & Floyd, 2015, p.174)

1.3 Assessment in E-learning system

Assessment is a way of measuring how much the collaboration between the teacher and the students has come into effect. According to Jamornmann (2014) "*Assessment, defined as the activity of measuring learning, aims to collect data about students' learning achievement, at the same time, reflecting teaching effectiveness of instructors*" (p.26).

In an online class be it synchronous or asynchronous, it's important to motivate students by giving them constant communication and providing feedback. As claimed by Barbosa & Garcia (2005) "*Online assessment is an important step inside the e-learning process because gives convenient feedback to all participants in the process, helping to improve the learning and teaching experience.*" (p. F3B-5) If the students can't meet with the teacher, unlike in the traditional classroom, the motivation should be given to them in other ways, by making their classes interesting. As Marshall & Kotska suggested "*Because of advances in technology, we are able to continue teaching and assessing students when we cannot meet them in person. We can also incorporate best practices from teaching approaches used in on-ground instruction to make online learning engaging.*"(2020, para.3)

There's not much difference in the normal traditional classroom and online one. Normally, there's the presence and face-to-face difference, but a good teacher can improvise and be creative while assessing students. According to Gaytan (2004) "*The following assessment tools (used in traditional classrooms) can successfully be adapted for online delivery: essay exams; thought- provoking discussion questions; and projects that require students to demonstrate proficiency in content knowledge, solving problems, working well with each other, and communicating effectively.*" (p.29)

2. Methodology

The articles for this review were retrieved mostly from database searching research papers in Google Scholar and Research Gate. The articles which were reviewed were published from year 2004 until year 2020, and they were all published by different International Journals. The search terms used mostly to find these research papers were synchronous, asynchronous, e-learning assessment, e-learning, etc. Approximately, 50 papers were reviewed, but 20 articles were chosen as materials related with the topic of this article review. However, only 5 research papers were selected to compare the results of which method is more helpful in an e-learning environment: synchronous e-learning

or asynchronous e-learning. The methods used from the authors where observations, surveys, questionnaires, pre-tests and post-tests.

The following research questions are examined in this review:

1) The usage of which method is more beneficial and wanted in the e-learning environment: synchronous or asynchronous?
2) Is using the appropriate assessment methods, helpful and motivational in e-learning?

3. Discussion

The usage of Synchronous and Asynchronous seems simple for the teachers, but not having the students in front of them, the teachers are half blind in these situations. The teacher doesn't know how much the students have improved with the e-learning. That's why a lot of research is undertaken for this area. As stated by Al-Shagran & Sahraoui (2017) *"E-Learning must go through evaluation process to check its capability for achieving the outcomes expected from using it."*(p.1)

Perveen (2016) conducted a study, in which three research methods were used: observation, the collection of students' opinions via a structured questionnaire and the student's discussion about the preference of a/synchronous modes on the Graded Discussion Board (GDB). *"82% of the participants favored synchronous mode, whereas about asynchronous mode 57% responded positively…62% (n=578) were in favor of a blend of synchronous e-language learning and asynchronous e-language learning and 1% (n=9) were in favor of synchronous e-language learning."* (Peerven, 2016, p.34) Furthermore, based on the findings the research concluded that both synchronous and asynchronous e – language learning should be blended.

Emmanouilidou, Derri, Antoniou, & Kyrgiridis (2012) conducted a study, in which there was a pretest and a posttest to see if there was knowledge improvement. Forty nine in-service elementary physical educators with teaching experience, were randomly divided into synchronous, asynchronous, and control group. *"Before their participation in the program, physical educators' knowledge of student assessment was limited since only about the 40% of questionnaire items were answered correctly… The post-test showed that both experimental groups answered correctly an average of 62% of questionnaire items, meaning a percentage of knowledge improvement of 52% and 59% for the synchronous and asynchronous instructional group, respectively."* (Emmanouilidou, Derri, Antoniou, & Kyrgiridis, 2012, p.202)

Skylar (2009) conducted a study, in which forty-four pre service general education and special education students enrolled. All students received both conditions: synchronous interactive web conferencing lectures and asynchronous text-based lectures. The instruments used in this study included a pretest, posttests, student satisfaction survey, and a pre/post computer literacy survey. The results of this analysis suggest that both types of lectures (asynchronous text-based and synchronous web conferencing) were effective in delivering online instruction. As stated by Skylar (2009),

"The results of this analysis suggested that both types of lectures are effective in delivering online instruction. In addition, almost three-fourths (30 of the 41 students) of the students indicated that they would rather take an online course that uses synchronous web conferencing lectures than an online asynchronous text-based lecture course. This finding suggests the importance of interactivity on student satisfaction in a course. Lastly, the research study supports the finding that students participating in an online course perceive an increased level of their technology skills."(p.82)

The study conducted by Ogbonna, Ibezim, & Obi (2019) used two instruments, a pre- and post-tests, which were administered to two non-equivalent and non-randomized groups of students. The study was conducted in two secondary schools in Nigeria. *"The findings of this study show that teaching word processing through synchronous and asynchronous e-learning modes increased the cognitive academic achievement of students in word processing. The data further shows that students taught through asynchronous e-learning showed higher cognitive achievement than those taught through synchronous e-learning."* (p.7)

The study conducted by Xie, Liu, Bhairma, & Shim (2018) comprised of 38 students, who had prior experiences with synchronous and asynchronous e-learning courses and computer mediated discussions. Based on the findings, the researcher proposes a blend of synchronous and asynchronous e-learning patterns and their communication tools to devise a supreme environment for e-learning. Hence, Xie, Liu, Bhairma, & Shim (2018) stated that:

"1. Students felt more comfortable using asynchronous communicational tools in comparison to synchronous communication tools as they could easily access those offline. Moreover, students strongly agreed that the presence of instructor and prompt feedback during a class makes them learn better. Furthermore,
2. Asynchronous mode is beneficial for doubtful and shy students. It might be uncomfortable with computer mediated discussions.
3. Since synchronous and asynchronous e-learning environments and communication tools have their advantages and disadvantages, a blend of synchronous and asynchronous models should be suitable." (p.273)

4. Conclusion

The purpose of this study was to analyze previous studies on the advantages and disadvantages that are met while having a synchronous and asynchronous methods of learning and teaching. Furthermore, provide an answer which of these methods is better for learners.

As noted by Midkiff & DaSilva (2000) *"The success of web-based learning requires taking advantage of the additional opportunities this new medium brings."* (para. 12) Teachers should be trained to use different tools and interactive programs during the e-learning process, or have a modern guideline on how to teach and asses' students, whichever method they use. Because as it was concluded in this review, a blend of synchronous and

asynchronous methods is mostly requested from students. Furthermore, according to Cleveland-Innes & Ally (2004) "*In order to facilitate learning in the affective domain, we suggest that education must look more carefully at processes of interaction with others to foster learning outcomes.*" (p.18)

By reviewing the results, the researchers are still divided on which learning method to use, because there will always be cons and pros in using each of them. In this case the teacher itself can decide based on the environment and the conditions met how to blend both synchronous and asynchronous and make an effective impact on learner's education process.

Conflict of interest

The authors declare no conflicts of interest. Furthermore, the author declares that there is no significant financial aid received for this study.

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