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A Systematic Literature Review: Students' Perception of Asynchronous and Synchronous in Learning

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A B S T R A C T

The rapid development of digital technology has significantly transformed educational practices, particularly through the implementation of synchronous and asynchronous learning modes in higher education. This study aims to conduct a systematic literature review of students' perceptions of synchronous and asynchronous learning. The literature search was conducted across three academic databases, namely Google Scholar, Scopus, and ERIC, using the keywords students' perception, synchronous learning, and asynchronous learning. The inclusion criteria consisted of peer-reviewed journal articles published between 2021 and 2026, written in English, and focusing on students' perceptions of online learning modes. After applying the selection criteria, seven relevant articles were identified and analyzed. The findings indicate that students generally perceive both learning modes positively, although for different reasons. Synchronous learning is appreciated for its real-time interaction, immediate feedback, and strong sense of social presence, whereas asynchronous learning is valued for its flexibility, self-paced nature, and accessibility. Furthermore, most students tend to prefer a blended learning approach that combines the strengths of both methods. The study concludes that integrating synchronous and asynchronous learning strategies can more effectively address diverse student needs and improve overall learning outcomes in online education.

Keywords: *Students' Perception, Asynchronous and Synchronous*

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INTRODUCTION

The rapid growth of information and communication technologies has significantly transformed the educational environment, particularly in higher education. The integration of digital technologies into teaching and learning has accelerated over the past decade, reshaping how knowledge is delivered, accessed, and constructed. In line with Technology was also advancing and developing rapidly (Tatnall & Fluck, 2022). The spread of the Coronavirus has directed to thoughtful changes in all sectors of life worldwide (Cavallo & Forman, 2020; Haleem et al., 2020), especially education ultimately (Murphy, 2020; Rundle et al., 2020). Learning is generally defined as a process through which individuals acquire knowledge, skills, attitudes, or values through experience, study, or teaching. In the context of higher education, learning involves active engagement between students and instructors to achieve specific educational outcomes. With the advancement of technology, learning has evolved into various forms, including online learning, which enables students to access educational content through digital platforms (Alzahrani, 2023).

Online learning has become more widespread, especially after global disruptions like the COVID-19 pandemic. Online learning has become an integral part of contemporary education due to its ability to provide flexibility, accessibility, and continuity of learning. In higher education, effective online learning requires carefully designed pedagogical strategies that accommodate students' diverse learning needs and technological readiness. Teachers and lecturers are required to employ appropriate pedagogical approaches, adopt diverse instructional techniques, and integrate various media to enhance students' English learning.

In order to achieve the intended learning outcomes, particularly in online instructional settings, both synchronous and asynchronous learning modalities may be implemented, depending on instructors' pedagogical decisions and preferences.

Since the pandemic, synchronous and asynchronous learning have emerged as two of the most commonly used instructional methods in educational settings, offering flexibility for both educators and learners. There are three important elements of learning (Koohang, 2009). The first one is learning activities design that should promote cooperation, scaffolding, dealing with the real world, and social negotiation. The second is learning assessment which consists of instructor, peer, and self-assessment. The last one is about the instructor's role as the guide, coach, and feedback provider for the students. In other words, that when learning activities encourage cooperation and real-world connections, students become more engaged and motivated.

In this context, two primary modes of online learning have emerged as dominant frameworks: synchronous learning, which occurs in real-time with direct interaction between instructors and students, and asynchronous learning, which allows students to access materials and complete tasks at their own pace without real-time constraints (Siregar et al., 2022). In line with (Salmon, 2013) stated that the environment of synchronous learning provides interaction in real time between students and teachers that can be collaborative in nature within the e-tivities. According to (Wayan, 2016), Synchronous learning is when students and instructors exchange information and interact simultaneously in an online learning community by using a predetermined time using learning technology including internet conference, satellite, video teleconferencing, and chat.

The synchronous learning approach is when students and lecturers exchange information and interact simultaneously in an online learning community using a set time using learning technology, including internet conference, satellite, video Exploringteleconference, and chatting (Lewis & Clarke, 2016). In addition, a synchronous learning environment is where lectures and students meet on a special online platform to teach and communicate about a lesson (Amiti, 2020). (Mick & Middlebrook, 2020) also argue that during the synchronous learning approach, students have a real-time engagement, which tends to be associated with student satisfaction, student learning, and lower rates of reduction.

Synchronous learning refers to a mode of online learning in which teachers and students interact in real time using digital platforms such as video conferencing, live chats, and virtual classrooms. This type of learning enables immediate feedback, direct communication, and active participation (Hidayati et al., 2023). It can conclude that synchronous learning occurs when learners and teachers communicate and exchange information in real time within an online learning environment. This interaction happens at a pre-agreed time using various learning technologies. Nowadays, we know various synchronous online learning tools. There are Zoom, Skype, Google Meet, WhatsApp, Microsoft Teams, Moodle, Twitter and etc.

In employing synchronous learning within the teaching and learning process, there are inevitably both advantages and disadvantages. One of the main advantages of synchronous learning is the enhancement of social presence and engagement. Students can ask questions directly answered by the tutor, or facilitator, participate in discussions, and receive instant clarification from instructors. Activeness in a learning will be seen like in a face-to-face room. This interaction contributes to a more dynamic and collaborative learning environment (Mulbar et al., 2023). However, synchronous learning also has limitations. It requires a stable internet connection because interaction occurs in real time, participants cannot access the session at a later time unless it is specifically rescheduled. Moreover, this format provides limited opportunities for participants to engage in extended reflection or prolonged thinking and adherence to a fixed schedule, which may create challenges for students with limited access to technology or those who have conflicting responsibilities (Siregar, 2022).

Meanwhile, Asynchronous learning, students and educators are in different times (Vidhiasi, 2021). According to (Wayan, 2016), asynchronous learning is learning freely not bound by time, where students can interact with specific materials and with each other at times

of their choosing. One of the things that can be done is when students post their thoughts, on a day that is determined by themselves and other students comment on posts such as discussion forums. In line with (Hrastinski, 2008) Asynchronous learning allows students to access materials anytime and anywhere, providing maximum Qlexibility.

Furthermore, the approach of asynchronous learning is learning freely without being limited by time, where students can interact with specific material and each other at a time of their choice, students can post their thoughts on a self-determined day, and other students can provide comments such as discussion forums (Hosier & Allison, 2016). Moreover, the asynchronous environment provides material to students in the form of audio or video lectures, handouts, articles, and PowerPoints that can be accessed anytime and anywhere (Perveen, 2016). Asynchronous learning is a mode of online learning that does not require real-time interaction. Students can access learning materials such as recorded lectures, discussion forums, and assignments at their own pace and convenience (Machawan & Freda, 2024).

Asynchronous learning does not happen in real time, so students and teachers do not need to be online together. Using an LMS, teachers provide pre-prepared materials that students can access anytime, anywhere. Examples include self-paced modules, video streaming, virtual libraries, lecture notes, and discussions via platforms like WhatsApp, Google Classroom, Edmodo, and Quizizz. In other words, students and teachers can access the information and materials at any time without time restrictions, giving them greater flexibility in arranging their schedules.

Similar to synchronous, in asynchronous learning in its use there are advantages and disadvantages. The primary advantage of asynchronous learning is flexibility. It allows students to manage their own learning schedules and revisit materials as needed. For advantages, are very high dialogue quality can be achieved using a discussion structure and giving participants more time to think about what to post. Students who take part in. Additionally, this mode encourages self-regulated learning, where students take responsibility for their own progress and learning strategies (Alzahrani, 2023). Despite its benefits, asynchronous learning may reduce opportunities for immediate interaction and feedback. First, it tends to be impersonal, creating a lack of meaningful interaction. Many students are not capable of independent learning, which makes them less collaborative and unable to receive timely feedback. Second, this mode demands a high level of discipline from students, as they must accomplish as much learning as they would in a traditional classroom. Without supervision and guidance, students are likely to give up easily. Moreover, because interaction is difficult to achieve, students often study different materials independently, thereby reducing opportunities for discussion. Third, asynchronous learning is time-consuming for instructors. Although interactive tutorial materials—such as those using Web, non-commercial Moodle, or Blackboard—can be excellent resources for students, preparing them requires a significant investment of time. Many faculty members spend extra hours creating these interactive tutorials in addition to their full teaching responsibilities. This can lead to lower levels of engagement and a weaker sense of connection between students and instructors (Hidayati et al., 2023).

Several applications are commonly used to support both synchronous and asynchronous learning modes. For synchronous learning, platforms such as Zoom, Google Meet, Microsoft Teams, and Skype facilitate real-time interaction through video conferencing and chat features (Martin et al., 2020; Gherheș et al., 2021). For asynchronous learning, applications including Google Classroom, Edmodo, Moodle, Canvas, WhatsApp, and Quizizz enable flexible, self-paced access to learning materials and discussion boards (Means et al., 2014; Fabriz et al., 2021).

METHOD

Description of the sample

According to (Pandey, 2024) a literature review is a systematic process that identifies, summarizes, and synthesizes existing knowledge relevant to a specific researh question, serving as a foundational element in the research process. This study adopts a literature review methodology to investigate A Systematic Literature Review: Students' Perception of Asynchronous and Synchronous in Learning. The review process followed several stages, including identification, screening, eligibility assessment, and final selection of articles. The literature search was conducted across three academic databases: Google Scholar, Scopus, and ERIC, to ensure broader academic coverage and improve the quality of selected studies.

The initial search identified 42 articles published between 2021 and 2026. After removing duplicate records, 31 articles remained. These articles were screened based on titles and abstracts, resulting in 15 potentially relevant studies. A full-text review was then conducted using predetermined inclusion and exclusion criteria. Finally, 7 articles met all eligibility requirements and were selected for detailed analysis.

Article selection criteria

This article examines recent research according to the following inclusion criteria:

Articles focus on students' perception of asynchronous and synchronous in learning.
Articles published from Google Scholar, Scopus, and ERIC.
Last 5 years, i.e. articles published from 2021 to 2026,
Articles provide clear explanation of strategies, method and discussion used by teachers.

While for exclusion criteria are:

Articles not focused on students' perception of asynchronous and synchronous in learning
Lack of empirical or theoretical basis
Articles published before 2020
Articles in non English languages.

FINDINGS AND DISCUSSION

This study synthesized seven empirical studies published between 2021 and 2026 to examine students' perceptions of synchronous and asynchronous learning in higher education. The analysis reveals that students generally hold positive perceptions toward both learning modes; however, their preferences are shaped by different pedagogical experiences and contextual factors, including interaction quality, learning flexibility, instructor support, and technological accessibility. Information on article characteristics, research design, and related key findings are presented in Table 1.

Table 1. Summary and Characteristics of the Selected Final Article

No	Authors	Sample	Research Design	Finding
1.	Nor, H., Wijaya, M. (2023)	3rd and 5th semester students at UIN Antasari Banjarmasin and UIN Raden Intan Lampung.	Descriptive quantitative based on online survey	The students' perceptions were positive in terms of Learning platforms, Learning Materials, and Learning Activities in online learning both Synchronous and Asynchronous.
2.	Siregar, A., Wahyuni, R., Taini, Z. (2023)	50 students at faculty of teacher training and education in University of Muhammadiyah Sumatera Utara.	Qualitative descriptive method. (Questionnaires and interview)	More students like synchronous learning mode than asynchronous learning mode

3.	Apriana., Anggarini, L. (2023)	2nd semester students at the Civil Engineering study program ITPA Pagar Alam.	A Descriptive research.	Most students gave the responses to synchronous and asynchronous and advantages both two learning modes.
4	Mulbar, U., Ismiyati, N., Zaky, A. (2023)	120 students of Mathematics Education Study Programs.	A Descriptive research.	The results showed that the mean scores of the synchronous approach were higher on teaching methods, learning opportunities, assessment and feedback, learning resources, and overall satisfaction aspects; blended learning on organization and management, learning community, and student opinion aspects; and had the same on academic support aspect
5.	Friska, Y. (2021)	167 EFL students from accounting department of Universitas Pamulang	Online survey through google form	The findings show that students' perceptions on synchronous and asynchronous e-learning in ELT are positive.
6.	Daswan, P.D.D., Ariyani, A., Rayhana, R. (2025)	English Education students of the class of 2022 at Universitas Negeri Makassar.	A descriptive qualitative	Students have a negative perception of synchronous mode and a negative perception of asynchronous mode. However, students' perceptions changed to positive when synchronous and asynchronous methods were combined. Students perceived blended synchronous and asynchronous modes as a perfect combination for online learning.
7.	Az zahra, A. S., Suryaman , M. (2021)	Students of the University of Sigaperbangsa Karawang, Faculty of Teacher Training and Education	A Comparative Descriptive Method.	The respondents agree that the synchronous and asynchronous learning methods achieve good categories in terms of material aspects, active learning, learning motivation, and dialogue quality.

Based on the analysis of the selected studies, students' perceptions of synchronous and asynchronous learning show varied but generally positive results. Most of the studies indicate that both learning modes are effective in supporting the learning process, although students tend to have different preferences depending on their learning needs.

Several studies reveal that students have positive perceptions toward both synchronous and asynchronous learning. For example, (Nor & Wijaya, 2023) found that students showed positive perceptions in terms of learning platforms, learning materials, and learning activities in both modes. Similarly, (Friska, 2021) reported that students' perceptions

of synchronous and asynchronous e-learning in English Language Teaching (ELT) were generally positive. In addition, (Zahra & Suryaman, 2021) found that both learning methods achieved good categories in aspects such as material delivery, active learning, learning motivation, and quality of interaction.

However, some studies indicate a stronger preference for synchronous learning. (Siregar et al., 2022) found that more students preferred synchronous learning compared to asynchronous learning. This preference is also supported by (Mulbar et al., 2023) who reported that synchronous learning had higher mean scores in teaching methods, learning opportunities, assessment and feedback, learning resources, and overall satisfaction.

On the other hand, students also recognize the advantages of asynchronous learning. (Apriana & Anggarini, 2023) reported that students responded positively to both synchronous and asynchronous modes and acknowledged the benefits of each approach. This indicates that asynchronous learning remains important, especially in terms of flexibility and independent learning.

A contrasting perspective was reported by one of the reviewed studies. (Daswan, 2025) found that students initially had negative perceptions of both synchronous and asynchronous learning. However, their perceptions became positive when both methods were combined. This suggests that blended learning, which integrates synchronous and asynchronous modes, is perceived as more effective and ideal for online learning environments. Overall, the findings indicate that while students generally perceive both learning modes positively, they tend to favor synchronous learning for interaction and engagement, and a combination of both modes for optimal learning experiences.

This finding is particularly significant because it demonstrates that students' satisfaction is influenced less by the learning mode itself and more by instructional design quality. The integration of synchronous and asynchronous elements appears to mitigate the limitations of each individual mode. Synchronous learning compensates for the lack of interaction often associated with asynchronous environments, while asynchronous learning addresses the scheduling constraints commonly found in synchronous instruction.

These findings can also be interpreted through constructivist learning theory, which emphasizes both social interaction and independent knowledge construction. Synchronous learning supports collaborative meaning-making through immediate discussion and feedback, whereas asynchronous learning facilitates reflective thinking and self-directed engagement. The combination of these approaches creates a more balanced learning ecology that supports diverse learner needs. Overall, the analysis demonstrates that students' perceptions of online learning are shaped not by a simple preference for one mode over another, but by the extent to which instructional strategies effectively combine interaction, flexibility, and learner support. This reinforces the argument that blended learning represents the most pedagogically responsive model for contemporary online education.

CONCLUSIONS

This systematic literature review found that students generally have positive perceptions of both synchronous and asynchronous learning because each mode provides different instructional benefits. Synchronous learning is valued for promoting live interaction, immediate feedback, and stronger social engagement, while asynchronous learning is appreciated for its flexibility, accessibility, and support for self-paced study. However, the findings indicate that using only one learning mode may not fully address students' diverse learning needs. Students respond more positively when both approaches are integrated into a blended learning model that combines interaction with flexibility. The review also highlights important implications for educational practice, suggesting that teachers should design learning activities that balance real-time communication and independent learning opportunities. Educational institutions should also provide adequate technological support, reliable internet access, and professional development for effective blended learning

implementation. Future research is recommended to explore the most effective integration of synchronous and asynchronous learning across different disciplines and educational contexts.

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