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PEDAGOGICAL AND TECHNOLOGICAL ASPECTS OF BLENDED SYNCHRONOUS LEARNING IMPLEMENTATION

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Abstract. Blended learning (BL) is a new methodology that combines online learning with traditional classroom instruction. This study examines the impact of blended synchronous learning on student engagement, academic performance, and overall learning engagement. The study examines critical elements of successful blended learning, including teaching methods, the use of modern technology, and institutional support. The study's findings indicate that blended synchronous learning provides students with significant autonomy and control over their learning process, thereby increasing their motivation and engagement. Enhanced feedback and interactive interactions between students and instructors enhance lesson engagement and promote active participation. However, several challenges were identified, including a mismatch between online and offline student groups, increased cognitive demands on instructors, and increased student dependence on technology. This research identifies key factors for the successful implementation of synchronous blended learning, including pedagogical strategies, the use of modern digital tools, and their practical application. A comparison of the academic performance of full-time and distance learning students was also conducted. The results showed that the participation rate of distance learning students was 85%. However, 42% of distance learning students encountered technical barriers, compared to 25% of full-time students. Successful implementation of blended learning requires the creation of a technological infrastructure, improved teaching

methods, advanced training for teachers, and preliminary preparation of students in the intricacies of this format. The results of the study are expected to contribute to the improvement of teaching practices, the expansion of blended synchronous learning in higher education institutions, and its effectiveness.

Keywords: blended learning, synchronous learning, educational technologies, pedagogical strategies, interactive learning, online and offline formats, teaching methods

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АРАЛАС СИНХРОНДЫ ОҚЫТУДЫ ЖҮЗЕГЕ АСЫРУДЫҢ ПЕДАГОГИКАЛЫҚ ЖӘНЕ ТЕХНОЛОГИЯЛЫҚ АСПЕКТІЛЕРІ

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Аннотация. Аралас оқыту (BL) - бұл онлайн білім беруді әдеттегі сыныптағы оқытумен біріктіретін жаңа әдістеме. Бұл зерттеу аралас синхронды оқытудың студенттердің қатысуына, оқу жетістіктеріне және білім беру тәжірибесіне жалпы бейімділігіне әсерін зерттеуге арналады. Зерттеу білім беру әдістемелерін, заманауи техникалық құралдарды қолдануды және институционалдық қолдауды қамтитын аралас оқытуды табысты енгізудің маңызды элементтерін зерттейді. Зерттеудің нәтижелері аралас синхронды оқыту студенттерге айтарлықтай дербестік пен олардың білім беру тәжірибесін бақылауға мүмкіндік беретінін көрсетеді, осылайша олардың ынтасы мен белсенділігін арттырады. Білім алушылар мен оқытушылар арасындағы кеңейтілген кері байланыс және интерактивті әрекет сабақтарға қызығушылықты арттырады және оқу процесіне ынталы түрде қатысуға ықпал етеді. Сонымен қатар белгілі бір мәселелер, соның ішінде онлайн және офлайн студенттік топтар арасындағы сәйкес келмеуі, мұғалімдерге когнитивтік талаптардың жоғарылауы және оқушылардың технологияға тәуелділігінің

артуы сияқты мәселелер анықталды. Ұсынылып отырған зерттеу жұмысында синхронды аралас оқытуды сәтті енгізудің негізгі факторлары, оның ішінде педагогикалық стратегиялар, заманауи цифрлық құралдарды пайдалану және оларды іс жүзінде пайдалану көрсетілген. Сондай – ақ, күндізгі және қашықтықтан оқитын білім алушылардың академиялық көрсеткіштерін салыстырмай түрде көрсетеді. Нәтиже бойынша қашықтықтан оқитын студенттердің қатысу деңгейі 85% болғанын көрсетті. Дегенмен, қашықтықтан оқитын білім алушылардың 42%-ы техникалық кедергілерге тап болса, кампуста білім алатын студенттердің 25% -ы тап болғанын байқауға болады. Аралас оқытуды сәтті жүзеге асыру технологиялық инфрақұрылымды құруды, педагогикалық техниканы жетілдіруді, педагогтардың біліктілігін арттыруды және студенттерді осы форматтың қыр-сырына алдын ала дайындауды қажет етеді. Зерттеу нәтижелері педагогикалық тәжірибені жақсартуға, жоғары оқу орындарында аралас синхронды оқытуды енгізуді кеңейтуге және оның тиімділігін арттыруға мүмкіндік береді деп күтілуде.

Түйін сөздер: аралас оқыту, синхронды оқыту, білім беру технологиялары, педагогикалық стратегиялар, интерактивті оқыту, онлайн және офлайн форматтары, оқыту әдістері

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ПЕДАГОГИЧЕСКИЕ И ТЕХНОЛОГИЧЕСКИЕ АСПЕКТЫ РЕАЛИЗАЦИИ СМЕШАННОГО СИНХРОННОГО ОБУЧЕНИЯ

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Аннотация. Смешанное обучение (BL) — это новая методология, сочетающая онлайн-обучение с традиционным преподаванием в классе. В данном исследовании предпринята попытка изучить влияние смешанного синхронного обучения на вовлеченность студентов, академическую успеваемость и общую вовлеченность в процесс обучения. В исследовании рассматриваются важнейшие элементы успешной реализации смешанного обучения, включая методики обучения, использование современных технологий и институциональную поддержку. Результаты исследования показывают, что смешанное синхронное обучение предоставляет студентам значительную автономию и контроль над своим процессом обучения, тем самым повышая их мотивацию и вовлеченность. Расширенная

обратная связь и интерактивные взаимодействия между студентами и преподавателями повышают интерес к урокам и способствуют активному участию в учебном процессе. Однако были выявлены некоторые проблемы, включая несоответствие между онлайн- и офлайн-группами студентов, повышенные когнитивные требования к преподавателям и возросшую зависимость студентов от технологий. В предлагаемой исследовательской работе определены ключевые факторы успешной реализации синхронного смешанного обучения, включая педагогические стратегии, использование современных цифровых инструментов и их практическое применение. Также проводится сравнение академической успеваемости студентов очной и дистанционной форм обучения. Результаты показали, что уровень участия студентов дистанционной формы обучения составил 85%. Однако, как видно, 42% студентов дистанционной формы обучения столкнулись с техническими барьерами, в то время как среди студентов очной формы обучения с ними столкнулись 25%. Успешное внедрение смешанного обучения требует создания технологической инфраструктуры, совершенствования педагогических технологий, повышения квалификации преподавателей и предварительной подготовки студентов к тонкостям данного формата. Ожидается, что результаты исследования будут способствовать совершенствованию педагогической практики, расширению внедрения смешанного синхронного обучения в высших учебных заведениях и повышению его эффективности.

Ключевые слова: смешанное обучение, синхронное обучение, образовательные технологии, педагогические стратегии, интерактивное обучение, онлайн- и офлайн-форматы, методы обучения

Introduction. Nowadays, many universities offer students more flexible learning options through the use of current technologies. Blended synchronous learning models leverage rich media synchronous technologies like web conferencing, virtual worlds, and videoconferencing to make sure that distant students are actively involved in the learning process. In addition to improving students' interest and performance in the classroom, this methodology makes learning more accessible to them. The blended synchronous learning approach involves simultaneous virtual interactions between instructors and students, regardless of their physical locations (Kurkimbayeva, 2023). The overarching goal of this research was to determine how different mixed synchronous learning session designs affected student participation and performance. According to the study's findings, active learning relies heavily on well-designed materials (Hill, 2012). Furthermore, it is acknowledged that selecting and successfully utilizing the appropriate technology in line with communication needs is crucial. Furthermore, owing to both technology and human variables, the degree of collaborative engagement is seen at varying degrees. The heavy mental strain is a major issue with blended synchronous learning. Here, the study's overarching goal was to build a learning model for mixed synchronous learning that takes into account its technical, pedagogical, and logistical components (Sharipkhodzhaeva, 2024).

The results demonstrate statistically significant differences in the level of engagement between distance and in-person students in a blended synchronous format. In-person students demonstrate higher rates of attendance, activity, and question frequency, due to direct personal interaction with the instructor and reduced communication barriers. Distance learners, however, demonstrate slightly lower levels of engagement but maintain consistent participation in the learning process, confirming the effectiveness of blended synchronous learning when the learning environment is properly organized (James, 2010). Technological difficulties are a significant factor affecting the nature and intensity of educational interaction, especially among distance learning students. The main limiting factors include unstable internet connections, differences in students' technical equipment, and the specifics of the digital platforms used. These issues lead to temporary communication disruptions, reduced feedback, and limited spontaneous student participation in synchronous classes (Hill, 2012).

Overall, the study results show that blended synchronous learning ensures high levels of student engagement regardless of the student presence format, but the quality of the technical infrastructure plays a key role in ensuring equal conditions for participation and interaction.

Related works

Establishing equitable access to learning opportunities for both on-campus and distant students has been a significant concern since the advent of distance learning (Norberg, 2012). Students nowadays have a lot on their plates between classes, extracurriculars, and jobs (Sánchez-Ruiz, 2023). This is a problem that persists in conventional classroom settings since students have a hard time maintaining consistent class attendance. Even while most students understand the value of in-person meetings and conversations, they nevertheless find it challenging to adjust to the on-campus routine (Stewart, 2021).

In order to provide students more options, universities and teachers are having to figure out how to combine on-campus and online learning. One of the best methods to deal with these problems is using blended learning. Using this paradigm, students who are located in different locations can take part in the learning process in real-time and give it their all. Students can succeed academically with a well-executed blended learning program. Nevertheless, for this strategy to work, colleges and universities must build the required facilities, provide enough professional development for faculty, and help students improve their technological abilities. There are still several obstacles to blended learning, even if it has been widely used. To begin, obstacles may arise when instructors and students bring their own biases into the classroom. "In the absence of technology, the teacher must be in the same room with students to create a learning environment, but while these barriers have now been removed, cultural barriers remain", as Norberg points out (García-Castelán, 2023). Furthermore, faculty members face significant challenges due to a lack of possibilities for professional growth and training. Faculty innovation in this field may be impeded by the lack of institutional recognition of institutions' broad usage of blended learning methodologies (Bailey, 2018). The technological

competence and means of communication of distant learners play a significant role in blended learning. As with online learners, traditional classroom learners will require some acclimatization time and supplementary materials. According to some face-to-face students, there is a perception among some faculty members that distant learners receive greater attention, their inquiries are given more priority, and technical issues are addressed more quickly. Furthermore, when learning remotely, some students may experience anxiety and discomfort. Problems with controlling the positioning of cameras or speaking into a microphone are only two examples of how inefficient use of technological tools can add stress to face-to-face learning (Besser, 2022). Teachers may need to adjust their teaching methods, such as reading from slides or speaking more slowly, in order to accommodate students with varying learning styles. According to Stewart (Szeto, 2024), these characteristics could potentially negatively affect face-to-face students participating in blended synchronous learning.

There is a lack of cohesive and universally applicable empirical research on blended synchronous learning. The research has mostly used a descriptive approach, using a "show and tell" style (Cunningham, 2014). Also, they haven't incorporated a means of objectively assessing how well different approaches of instruction work. There is a lack of evidence to support the success of blended learning, despite the fact that numerous empirical research have thoroughly investigated pedagogical and instructional design concerns related to it. The ability for educators to determine what does and does not work should be a key component of suggestions grounded in empirical research (Hollweck, 2015). Using a thorough cross-case investigation of blended learning across various instructional designs, topic areas, and technology environments, this study aimed to solve these difficulties (Popov, 2014). The study's results offer concrete suggestions on how educators might enhance their pedagogical approaches and make the most of blended learning (Table 1).

Table 1- Key Literature on Blended Learning Methodologies

Author	Research direction	Main points
Popov (2009), Sánchez-Ruiz L.(2023), Waddups and Howell (2002)	Maintaining parity in educational opportunities for students enrolled both on and off campus	Equal learning opportunities for students learning in-person and those learning remotely are difficult to achieve.
James, Krause, and Jennings (2010)	Learning through student engagement	Today's students are forced to juggle their time between multiple tasks, which negatively impacts their attendance.
Sharipkhodzhaeva Zh (2024)	Difficulties with traditionally taught classes	Campus students regularly experience the problem of being unable to attend classes.
Hill (2022)	Bringing together land-based and digital modes	In order to provide students more options, universities have little choice but to merge the two learning styles.
Norberg (2022)	Difficulties with different cultures in online, hybrid classes	Cultural and customary obstacles to education continue even as technology evolves.



Author	Research direction	Main points
Szeto (2024)	Continuing education for educators	When it comes to mixed synchronous learning, there aren't many options for professional development for teachers.
Sánchez-Ruiz (2023)	Backing from the institution	Teachers are hesitant to use blended learning approaches because colleges have not fully embraced them.
Bailey M. et al. (2018)	Proficiency in technical areas for online learners	The technical abilities of students enrolled in distant learning programs greatly influence the quality of their education.
Szeto (2014b), Szeto & Cheng (2014)	Individualization of both in-person and remote learners	Getting used to a new setting takes time and effort for students in both categories.
Cunningham (2014), Popov (2009), Besser A et al. (2022), Szeto (2014a, 2015)	Teachers' focus on pupils participating in distance learning	Faculty members pay too much attention to online students, according to some in-person students.
Szeto (2024), Szeto & Cheng (2014)	Identity formation among distant learners	Students learning remotely may experience discomfort if they are overly observed during class.
Cunningham (2014),	Employing technological resources	Additional responsibilities for students (such as using microphones and cameras) may arise while meeting face-to-face.
Hollweck T. Robert K. Yin.(2014)	Modifications to instructional methods	Teachers' pedagogical approaches will change as they manage two learning modalities.

Contemporary technologies are increasingly being utilized by educational institutions in order to give pupils with more adaptable learning options. Through the utilization of rich media synchronous technologies like videoconferencing, webconferencing, and virtual worlds, the blended synchronous learning model seeks to assure the active participation of distance students in the learning process. This is accomplished through the utilization of these technologies (Hollweck, 2015). The use of this paradigm not only makes the learning process more accessible to students, but it also has a beneficial effect on the academic performance and engagement of the students. The mixed synchronous learning process involves professors and students interacting in a virtual environment together, despite the fact that they are physically located in various places at the same time.

Materials and methods

The purpose of this research was to investigate the experiences that educators working in higher education institutions in New Zealand and Australia have had with the implementation of rich-media synchronous technologies to teach their students. One thousand seven hundred and forty-eight educators participated in the study, and seven distinct examples were chosen based on their responses. In order to conduct an analysis of the utilization of educational technologies and pedagogical techniques, these cases were utilized (Besser, 2022).

A multiple case study approach allowed us to examine the implementation of learning technologies in various educational contexts, disciplines, and institutional settings. This research design allows us to identify common patterns and differences between the cases, and also contributes to a deeper understanding of the pedagogical and technological aspects of synchronous learning (Figure 1).

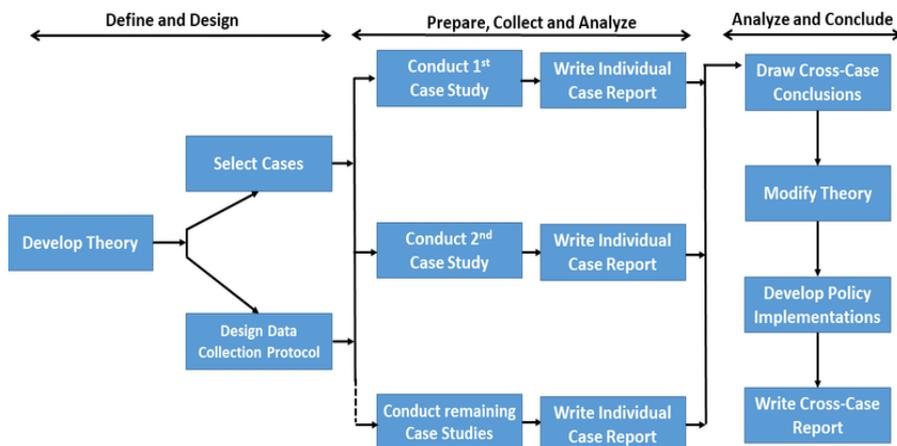


Figure 1 - Procedure for designing, conducting and analyzing a case study

The qualitative nature of the study was dictated by the need to examine not only the technical characteristics of the technologies used, but also pedagogical practices, interactions between students and teachers, and the perceptions of educational participants regarding the effectiveness of these technologies. The use of multiple case studies enhanced the analytical value of the study and ensured a more reliable interpretation of the results.

For the purpose of selecting cases, the primary criteria that were considered were the utilization of rich-media synchronous technologies for the purpose of resolving pedagogical issues and the fact that the learning project has been utilized at least twice earlier. In addition, the researchers made an effort to identify cases that encompassed a wide range of educational institutions, topic areas, and technological advancements. A typical case study technique, as stated by Besser (Besser, 2022), was utilized in the course of the scientific investigation. Data were gathered from a variety of sources, including:

Documented teacher reviews, pre-observation teacher interviews, video and screen recordings of blended synchronous learning lessons, researcher observations of lessons, post-observation student surveys, post-observation student focus group interviews, and post-observation teacher interviews are all examples of these types of data collection methods.

This university-based study analyzed examples of synchronous learning in higher education. It defines synchronous learning as a form of learning organization in which faculty and students interact in real time, regardless of the format—

students attending classes in the university's classrooms or students participating online.

The study included various forms of synchronous learning, including web conferencing, in-class video conferencing, and virtual learning environments used in various disciplines. For each case, the nature of the learning activity, as well as the number of students attending classes in the university's classrooms and students participating online, were analyzed.

Synchronous web conferencing was used in classes on financial research, medical sciences, statistics, and sex education, with 25 to 28 students attending classes in the university's classrooms and 18 to 21 students participating online. In-class videoconferencing was used to study health issues, enabling the simultaneous participation of 30 students attending on-site classes and 22 students participating online. Virtual learning environments were used in synchronous Chinese language and teacher training classes, involving 24 to 29 students attending on-site classes and 16 to 23 students participating online.

The findings demonstrate that synchronous learning facilitates direct pedagogical interaction between faculty and students, promotes active student engagement, and enables the integration of on-site and online classes into a unified learning environment.

During the course of the research, the following educational activities and technology were taken into consideration.

Table 2 - Examples of synchronous learning in face-to-face and online formats

№	ICT technology	The activity of reading	Students who teach in person	Students who are enrolled in distance learning
1	WEB conference	Financial research	25	18
2	Classroom video conference	Health information	30	22
3	WEB conference	The field of medical science	28	20
4	WEB conference	The statistics	26	19
5	Virtual world	The study of Chinese	24	16
6	WEB conference	Knowledge about sexology	27	21
7	Virtual world	Instruction of teachers	29	23

For the purpose of establishing robust themes, the data were subjected to multiple "passes" using analytical methods. The team conducted an analysis and performed a cross-check on the sources in order to evaluate whether or not the topics of interest to the study were relevant. In several instances, the validity of the study's findings was strengthened by repeated observation of the primary impacts. Additionally, many data sources were utilized to triangulate and corroborate the findings across all of the cases. For the purpose of making it easier to compare different cases, the conceptual themes that developed from each one are tabulated. The principal themes that emerged in at least two of the cases were representative of those that were seen.

Adobe Connect (<http://www.adobe.com/products/adobeconnect>) is a web conferencing technology that was utilized by both remote and face-to-face actuarial students in order to complete a review of previous exam answers in preparation for an upcoming investment exam. It was a dramatic departure from the prior years, when the instructor would give students a lecture on how to properly perform on examinations.

There were two classes that were randomly assigned to remote and face-to-face students. In these classrooms, students utilized text chat to debate and assign answers. Every previous exam response was given a grade. The use of the random grouping feature of the web conferencing system made the process of assigning groups simpler and, as one student put it, "leveled the playing field" for students who were located in different locations. Students who attended face-to-face classes, on the other hand, stated that it was simpler for them to communicate with their classmates and that they preferred utilizing audio rather than typing. The fact that they were not instructed in advance on how to pan and zoom, as well as the fact that their permissions in the break room were such that the adjustments made by one individual affected everyone else's perspective, caused several students to have difficulty using the interface at first. By disseminating the information across the groups, the instructor and the learning tool were able to swiftly address these concerns and make the necessary adjustments.

Due to the fact that the teaching assistant had access to a second computer, she was able to solicit questions from the students and notify the instructor if there were any problems with the audio. At the end of the course, the instructor provided feedback on the replies provided by each group and invited students to raise questions that would help clarify the material.

In their comments, students mentioned that the more active learning style and the varied perspectives were both beneficial to them.

Because of problems with technology, the flow of the class was disrupted. There were instances in which instructions were repeated in order to accommodate two distinct groups of students. This, in conjunction with the constraints of verbal communication, led some face-to-face students to believe that this method was more significant for students who were located in remote locations. Overall, the instructors felt that the lesson met their expectations. In addition, they emphasized the significance of starting the session ten minutes earlier than scheduled and preparing breakout rooms in advance so that students may test their audio performance. In addition, they believed that the utilization of tactics that involve asking questions in order to stimulate conversation and maximize the utilization of text chat (for example, having students enter "Q" in order to differentiate between comments and questions in text chat) supported more efficient delivery of lessons (Figure 2).

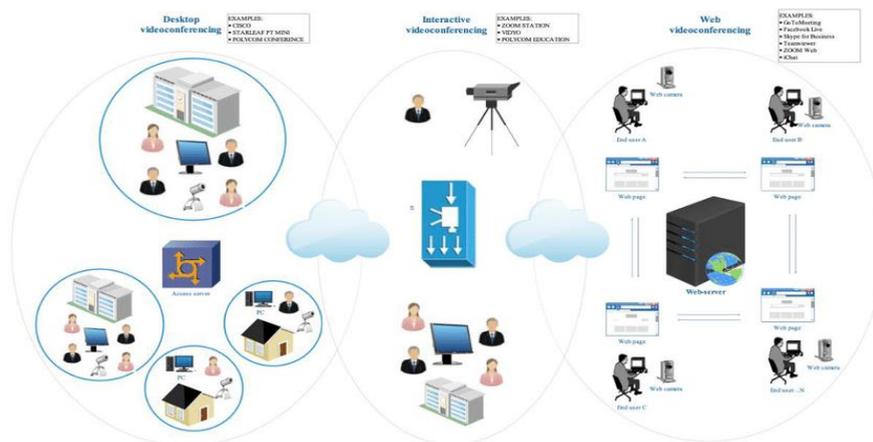


Figure 2 - A model for synchronous online student-teacher interaction

Before beginning the session, the instructor made sure that the distant participants could hear teachers’ audio by inviting them to the web conference and confirming that they could hear teacher. The initial portion of the session consisted of the students using survey tools to submit their responses to multiple-choice and short-answer questions. The instructor then took the time to kindly explain why each answer was either correct or incorrect. All students, whether they were on-campus or remote, were given the opportunity to ask clarifying questions either verbally (for on-campus students) or by text chat (for remote students). The second half of the session consisted of students working together in pairs to finish the objective of labeling the drawing. Despite the fact that the lack of an audio feed made it difficult for the remote students to coordinate their activities, communication between the students who were physically present on campus was very easy. This was due to the fact that many of the remote students did not have microphones or did not utilize them. Although there were some technological concerns, such as a computer outage and text chat not working in one of the section rooms, the instructor and the students were able to overcome these challenges.

Results

With the help of the findings of the study, we were able to evaluate the extent to which students had adapted to mixed synchronous learning, as well as their academic accomplishments and the extent to which they utilized technology. During the process of comparing the learning experiences of students who were studying in-person and those who were studying remotely, the following signs were discovered (Table 3):

Table 3 - Analysis of Student Engagement and Technical Obstacles

Indicator	Distance learning students (%)	Campus students (%)
Amount of people who showed up	85	92
Take part in the activity	78	81

Those customers who are facing technical difficulties	42	25
Amount of times that questions are asked	65	72
Comprehend the material covered in the lesson.	74	80
Individuals who provided comments at the conclusion of the lesson	68	73

According to the findings of the study, students who participated in remote learning had attendance rates that were marginally lower than those of students who attended classes on campus. According to these numbers, technological challenges and the ability to adapt to the learning process are significant considerations for students who are enrolled in distant learning programs. Furthermore, in comparison to learners who attend classes on campus, those who attend classes remotely reported facing technological difficulties at a rate of 42 percent. The significance of providing technical support in blended learning is brought into focus by this.

Figure 3 depicts computerized avatars of pupils utilized to replicate interaction inside an educational setting. Figures (a–d) depict individual avatars of participants, but panel (e) presents a collective scene in which avatars engage within a common virtual environment. This visualization illustrates the application of virtual and augmented reality technologies to enhance the sensation of presence and elevate student engagement in education. The utilization of digital avatars facilitates the simulation of real-time conversation and enhances material comprehension in distant and blended learning environments.



Figure 3- The first-person point-of-view student observes real-life classroom participants engaging with digital avatars

Teachers indicate that, despite significant interaction between distance and on-campus students, there are instances where on-campus participants hold an advantage. For instance, regarding the frequency of inquiries posed, students in the

classroom exhibited marginally greater engagement (72% compared to 65%). This element signifies the necessity to devise supplementary motivational strategies to guarantee the complete engagement of remote students in the educational process.

Recommendations were developed to enhance the efficacy of blended synchronous learning based on the study's findings.

- 1) Enhancing technical assistance for remote learners.
- 2) Extensive utilization of interactive techniques to guarantee equitable participation of all students in the educational process.
- 3) Offering educators specialized professional development programs.

The study results showed that attendance rates were slightly higher among students attending in-person classes compared to those participating online. Despite high overall student engagement, the online format was accompanied by isolated student absences due to technical and organizational factors.

Figure 4 illustrates the distribution of student activity (S01–S24) across twelve synchronous classes. Each row represents an individual student, and each column represents a specific learning session. Color intensity indicates activity level, measured by the number of interactions (e.g., chat messages, questions, or answers). Lighter shades indicate lower activity levels, while more saturated shades indicate high student engagement.

Data analysis reveals variations in participation levels: several students (e.g., S03, S06, S19, S22) demonstrated increased activity across several sessions, demonstrating heterogeneity in engagement in the blended synchronous learning environment.

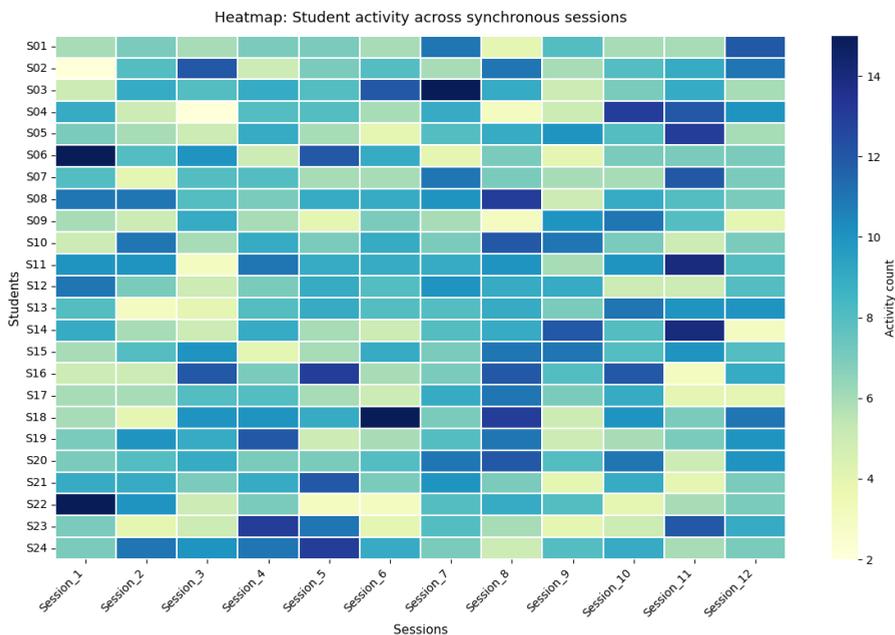


Figure 4 - Heat map of student activity during synchronous learning sessions

Visualization allows us to identify student engagement dynamics throughout all learning sessions. Despite overall stability in engagement, peaks in individual student activity are observed, which may be related to the specific technologies used, the lesson content, or the students' level of digital proficiency.

An analysis of participation rates showed that students attending in-person classes were more active in the learning process, including asking questions, participating in discussions, and providing verbal feedback. Meanwhile, students participating in online classes more often used text chat as their primary communication channel, which in some cases limited the spontaneity and depth of interaction.

The results also indicate that students participating in online classes experienced a higher frequency of technical difficulties compared to those attending in-person classes. The most common issues included audio interruptions, connection difficulties, and interface limitations. These difficulties periodically disrupted the flow of the lesson and required repeated instructions and clarifications from the instructor.

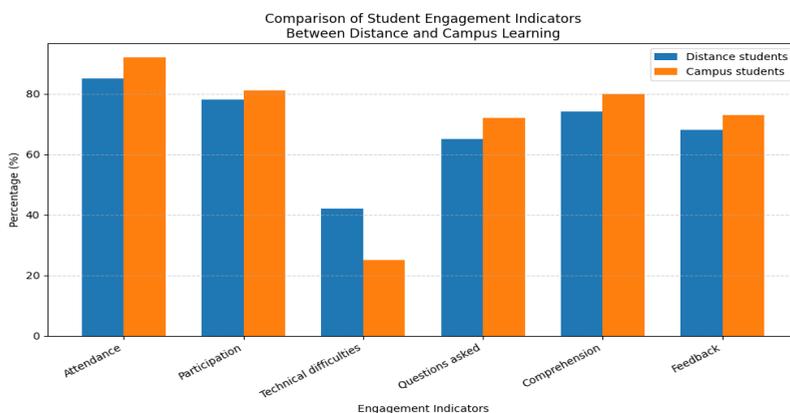


Figure 5 - comparative analysis of student engagement indicators in distance and on-campus learning

Figure 5 presents a comparative analysis of key student engagement indicators for distance and in-person students. The results demonstrate that in-person students exhibit higher rates of attendance, engagement, and comprehension. However, distance learners experienced significantly higher levels of technical difficulties, which impacts their learning experience. These findings highlight the importance of technical support and the organization of an interactive environment when implementing distance and blended learning.

The study's results indicate that the mixed synchronous learning paradigm positively influences students' academic performance. Nonetheless, successful implementation necessitates the enhancement of the technological foundation, the augmentation of student engagement through effective motivational strategies, and the provision of methodological and organizational support for educators.

Discussion

The use of the blended synchronous learning model had a positive impact on student engagement. The majority of both face-to-face and distance students reported that the approach was at least as effective as traditional classroom instruction, and sometimes even more useful. Both groups of students reported feeling part of a single learning community. Distance students particularly benefited from the high flexibility of the format, while on-campus students highlighted the benefits of ample opportunities to share ideas.

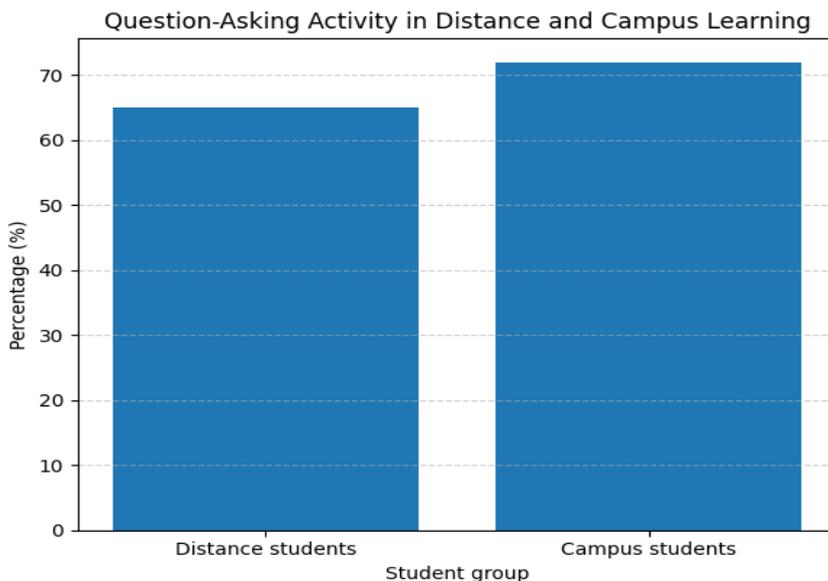


Figure 6 - Question – Asking Activity in Distance and campus Learning

The results of the seven case studies showed that about 75% of students expressed a desire for the blended synchronous learning method to be applied in other disciplines (Figure 6). However, some important challenges were identified in the process of implementing this method. One of the key challenges was the increase in cognitive load. Faculty were simultaneously teaching both face-to-face and distance students, managing technology tools and coordinating the interactions of both groups. While some students also reported increased information load in the blended format, some students emphasized that multimodal delivery methods kept their attention and increased interest in the classes. Strategies used to reduce cognitive load included limiting interaction channels (e.g., audio or text chat only), involving students in chat moderation, and streamlining the structure of classes.

Some on-campus students felt that their learning experience may be limited in the blended synchronous learning environment. They felt that the need to pay attention to the remote classroom sometimes reduced the frequency of direct interactions between the instructor and face-to-face students. In addition, some

students felt uncomfortable completing group assignments via online tools. To address these issues, it is important to ensure that the instructor pays equal attention to both groups, encourages active participation by all students, and avoids excessive repetition of materials.

In all cases, the reliability and performance of the technology played a key role. One of the main challenges was the imperfection of the audio system in the classroom. In such situations, instructors were forced to repeat students' statements, which sometimes resulted in distortion or loss of information. Other common technical issues included delays in interactive whiteboards, failures to create breakout rooms, students losing access to online spaces, problems switching slides, software crashes, and audio feedback loops.

Currently, blended synchronous learning methods are often implemented at the initiative of individual teachers, while institutional support from universities remains insufficient. This may pose certain challenges in ensuring the long-term sustainability and effectiveness of this approach. To address this issue, it is important to provide teachers with sufficient preparation time, support in adapting to new teaching strategies, and create conditions that facilitate student adaptation to this format. Some studies highlight the need to provide teachers with technical assistance, methodological support, professional development opportunities, specially equipped classrooms, and preparation time.

Integrating distance students into face-to-face learning through multimedia technologies brings fundamental changes to the traditional educational model. A number of questions arise: does a transformation of pedagogical approaches is required to successfully implement this model? Does this new format change the way teachers and students think? Do such changes influence teachers' rethinking of the learning process, their role and the role of students? New technologies are often considered as a tool for improving the quality of learning, but their effectiveness directly depends on the selected pedagogical methods and strategies.

Conclusion

In conclusion, the results of the study show that in order to ensure the effectiveness of blended synchronous learning, it is necessary to create an active learning environment, choose the right technologies and prepare all participants in the educational process in advance. In the future, the development of multimedia technologies may reach such a level that students and teachers, being in different places, will feel as if they are in the same classroom. However, at the current stage, teachers need to carefully plan the learning process and develop strategies for the effective use of technological tools to overcome existing difficulties. This study can serve as an important basis for the design, implementation and further study of blended synchronous learning environments.

References

Kurkimbayeva A.M., Elubayeva A.A (2023) Simultaneous Interpretation in Online Mode: Challenges and Demands of the Times. Bulletin of Ablai Khan University of International Relations and World Languages. Series: Philological Sciences. — Vol. 69. — No. 269. — P. 2-48. (In English)

Shariphkhodzhaeva Zh., Astemes G. Iskakova L. (2024) Preparation of future specialists for the formation of a culture of communication among younger schoolchildren. BULLETIN of Ablai Khan KazUIRandWL. Series "PEDAGOGICAL SCIENCES". — No4(75). — P. 575-601. (In English)

James R., Krause K. L., Jennings C. (2010) The first year experience in Australian universities: Findings from 1994 to 2009. Springer Berlin Heidelberg. — P. 231-253. (In English)

Hill H.C., Charalambous C.Y. (2012) Teacher knowledge, curriculum materials, and quality of instruction: Lessons learned and open issues. Journal of Curriculum Studies. — T. 44. — №. 4. — P. 559-576. (In English)

Norberg U.M. (2022) Vertebrate flight: mechanics, physiology, morphology, ecology and evolution. — Springer Science & Business Media. — T. 27. — P. 27-39. (In English)

Sánchez-Ruiz L.M. (2023) et al. ChatGPT challenges blended learning methodologies in engineering education: A case study in mathematics. Applied Sciences. — T. 13. — №. 10. — P. 6028-6039. (In English)

García-Castelán R.M.G. (2021) et al. Face-to-face vs. Online learning in Engineering Courses. 2021 IEEE Frontiers in Education Conference (FIE). — IEEE. — P.1-8. (In English)

Stewart M. (2021) Understanding learning: Theories and critique. University teaching in focus. — Routledge. — P. 3-28.

Bailey M. et al. (2018) On-campus, distance or online? Influences on student decision-making about study modes at university. Australasian Journal of Educational Technology. — T. 34. — №. P. 5-45. (In English)

Besser A., Flett G. L., Zeigler-Hill V. (2022) Adaptability to a sudden transition to online learning during the COVID-19 pandemic: Understanding the challenges for students. Scholarship of Teaching and Learning in Psychology. — T. 8. — №.2. — P. 75- 85. (In English)

Szeto E. (2024) Transforming a synchronous community of collaborative critical inquiry into co-performing construction of professional development in education. Professional Development in Education. — P. 1-17. (In English)

Cunningham S.A., Kramer M.R., Narayan K.M.V. (2014) Incidence of childhood obesity in the United States. New England Journal of Medicine. — T. 370. — №. 5. — P. 403-411. (In English)

Hollweck T. Robert K. Yin. (2015) Case Study Research Design and Methods. Canadian Journal of Program Evaluation. — T. 30. — №. 1. — P. 108-110. (In English)

Popov V. et al. (2014) Perceptions and experiences of, and outcomes for, university students in culturally diversified dyads in a computer-supported collaborative learning environment. Computers in Human Behavior. — T. 32. — P. 186-200. (In English)

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