OPEN ACCESS

Journal of Advances in Sports and Physical Education
Abbreviated Key Title: J Adv Sport Phys Edu
ISSN 2616-8642 (Print) | ISSN 2617-3905 (Online)
Scholars Middle East Publishers, Dubai, United Arab Emirates
Journal homepage: https://saudijournals.com

Review Article

Using Blended Learning with eduAI to Improve Vietnamese University Students' Learning Experiences

Thai Hoang Le[1, 2*], Hai Son Tran[3]

[1]Faculty of Information Technology, University of Science, Ho Chi Minh City, Vietnam
[2]Vietnam National University, Ho Chi Minh City, Vietnam
[3]Faculty of Information Technology, Ho Chi Minh University of Education, Ho Chi Minh City, Vietnam

DOI: 10.36348/jaspe.2024.v07i04.001 | **Received:** 03.03.2024 | **Accepted:** 08.04.2024 | **Published:** 10.04.2024

***Corresponding author:** Thai Hoang Le
Faculty of Information Technology, University of Science, Ho Chi Minh City, Vietnam

Abstract

This study investigates how to improve Vietnamese learners' learning experiences by utilizing the benefits of blended learning systems in conjunction with eduAI technology. This paper presents an innovative way to enhance students' learning capabilities and the quality of their education through the implementation of an actual case study. The creation of flexible and efficient e-Course development requires the unwavering backing of information technology. Here, artificial intelligence technology called eduAI has helped teachers by offering a particular eight-part model that will guide and support them as they create e-courses that adhere to the Blended Learning model.

Keywords: Blended Learning, eduAI, Vietnamese Learners, Learning Experience.

INTRODUCTION

Blended learning is an instructional approach that integrates traditional face-to-face instruction with virtual learning (Ali, A., 2023). The use of eduAI technology has the ability to enhance student achievement and personalize the learning process.

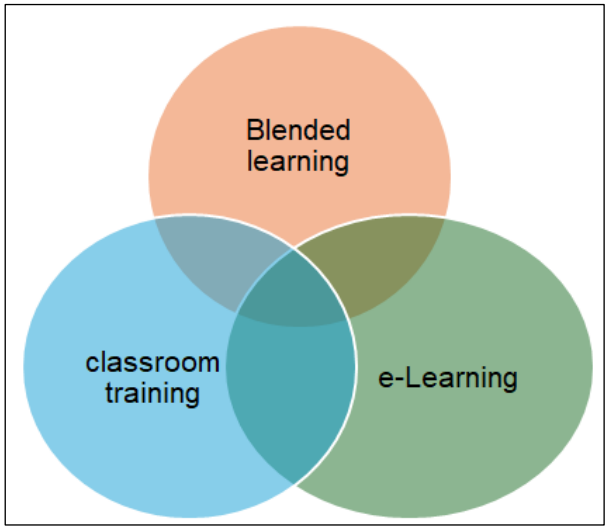

Fig-1: Blended Learning

Blended learning, is a teaching strategy that combines traditional offline and online learning with the goal of utilizing both formats' benefits to produce a more adaptable and successful learning environment (Thirumoorthy, G *et al.*, 2024). Face-to-face instruction with teachers, group projects, class discussions, and

online activities like watching films, engaging in forums, doing exercises on websites, and attending virtual meetings are all common components of this approach. Blended learning provides flexibility for learners, allowing them to adjust their time and approach to accessing learning content. It also enhances interaction between teachers and students through communication technologies, creating a rich and diverse learning environment. Additionally, blended learning promotes the development of digital skills and independent work capabilities for learners, enabling them to apply knowledge more flexibly and effectively in real-life situations.

In the 60-session "Advanced Database" course, which included traditional offline and online learning settings, a blended learning technique experiment was carried out. Fundamental knowledge was taught in this course through the use of online resources such learning materials, live online lectures, and instructional videos. Learners had the option to watch lectures that had already been recorded or take part in live online tutorials with instructors during the thirty online sessions. Through online forums, they may converse and share ideas with peers and teachers, encouraging interaction and online learning. The next thirty in-person sessions were devoted to using exercises, group discussions, and practical tasks to put the knowledge acquired into practice. During this period, instructors answered specific questions from students, helped them through challenging tasks, and improved their deep comprehension of databases.

Through the integration of both learning environments, students can acquire knowledge in a flexible and efficient manner, leading to the development of both self-learning abilities and practical skills in the field of advanced databases. Blended Learning is a flexible teaching method that combines traditional (in-person) and online methods, maximizing the benefits of both. This model provides a diverse learning experience, tailored to the needs and abilities of each learner.

Benefits of Blended learning

The use of blended learning creates new avenues for meeting student needs and improving instructional strategies (Shoukat, R *et al.*, 2024). The following are some of this strategy's main benefits:

(i) Performance Insights: Accurate assessment is crucial for monitoring students' progress, evaluating the effectiveness of the course, and addressing any gaps in knowledge. Integrated analytics tools provide detailed information on course completion rates, learning interactions, and daily progress. Teachers use this information to identify issues and take corrective actions through subsequent course sections and appropriate supplementary classes.

(ii) Cost-effective Education: On-campus education incurs significant costs in terms of money and resources, including operational expenses and student costs. Students attending classes in person have to bear the expenses of transportation, whereas online learners do not incur these costs. Blended learning minimizes costs for both the institution and the students by reducing the time spent on campus. Digitizing documents, reports, and feedback forms also helps reduce paper usage.

(iii) Mobile Accessibility: While distance learning, in general, improves accessibility, smartphones are particularly convenient compared to computers or laptops. Teachers can send text messages, schedule calls, share study materials, organize group discussions, and connect with students through mobile-friendly interfaces, all with fewer time and location constraints. A 24/7 online learning platform helps learners easily balance studying, work, and personal responsibilities.

(iv) Self-paced Learning: Each student is unique, and each has their own approach to learning. Blended learning provides various methods to engage students, especially those facing difficulties, by adjusting the course to specific needs and supporting personalized learning goals. Teachers can modify the curriculum and schedule, assign deadlines, monitor performance, and work closely with students to meet specific learning requirements. Learners also have more freedom in their learning process. Interactive e-learning libraries, including micro or concise lessons, can be accessed anytime. This flexibility allows learners to decide where and when they learn best.

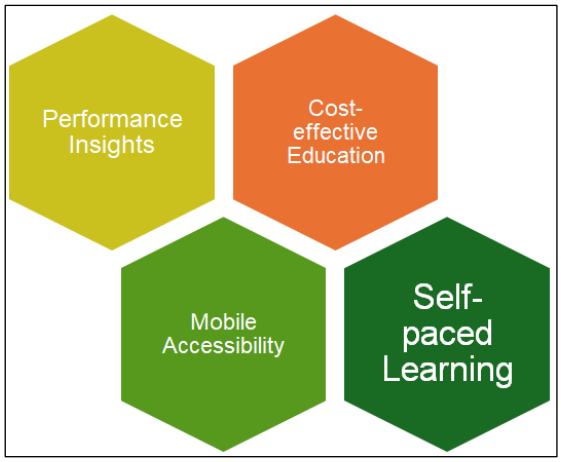

Fig-2: Blended learning benefits

Improving student initiative and interaction: Students can actively explore information at their own pace, whenever and wherever they choose, while studying (Han, J *et al*., 2024). By including online activities and modules, the Blended Learning model empowers students to take control of their education at any time and from any place. In particular, this model calls for online activities to be in keeping with current student patterns, wherein students frequently choose to access learning materials via mobile devices like tablets or smartphones. The flexibility of learning on mobile phones or other mobile devices brings many benefits. Firstly, learners can access and continue learning anytime, even while on the move or during idle moments. This creates favorable conditions for flexible learning and is compatible with the busy schedules of modern students. Secondly, learning on mobile phones or mobile devices helps create a more personalized and private learning environment. Students can focus on learning without being limited by time or location, thereby enhancing concentration and learning efficiency. Finally, integrating online exercises also provides opportunities for learners to practice and self-assess their knowledge automatically and effectively. These exercises often come with instant feedback systems, allowing students to quickly and reliably assess their understanding and progress. This translates to supporting personal development and enhancing learners' self-learning skills.

Personalized learning: Every student receives assistance and evaluations based on their unique requirements and skills. Improving the efficacy of learning: Blended learning makes it easier for students to absorb information, remember it longer, and use it more successfully in practical contexts. Savings: Blended learning lowers expenses for teachers and students alike (Verma, R. K *et al*., 2024).

Related work

The educational and academic communities have shown a great deal of interest in blended learning, as seen by the variety and depth of published research on the subject. The effectiveness of blended learning techniques, techniques for creating blended courses, the influence of technology on students' educational experiences, and the function of teachers in mixed learning settings are some of the subjects covered in some of the most recent research (Walkington, C *et al*., 2020).

These studies frequently examine how blended learning affects student perceptions of the learning process, course completion rates, and learning outcomes. They usually use both qualitative and quantitative research techniques to examine information gathered via observations, interviews, and surveys (Shamsuddin, N *et al*., 2020).

Additionally, research also focuses on developing models and assessment tools to effectively evaluate blended learning, while proposing course design methods and learning activities suitable for blended learning environments.

As of the current time, these studies continue to contribute to a deep understanding of how to integrate technology and traditional learning to optimize the learning experience for learners in both university education and teacher training contexts.

This study looks into how blended learning, which incorporates online components into traditional classroom instruction, affects learning outcomes and student progress. To find out if students in blended learning contexts perform better than those in traditional settings, the writers probably conduct their own experiment or examine existing research. They might also investigate how certain facets of the actual learning process are impacted by blended learning. Finding out if blended learning significantly improves educational results is the main goal (Manzuraxon, Z. *et al*., 2024).

Massive Open Online Courses (MOOCs) and their integration into blended learning environments are thoroughly examined by Williams, R. T. (2024) in his

work "An Overview of MOOCs and Blended Learning: Integrating MOOC Technologies into Traditional Classes." The study, which was published in the IETE Journal of Education, examines how MOOC technology might improve conventional classroom environments. Williams provides insights into how educators might use online platforms to supplement in-person instruction and enhance the learning experience for students by examining the relationship between MOOCs and blended learning. Williams adds to the continuing conversation on cutting-edge teaching strategies and the development of instructional techniques in the digital era with this summary.

In Li, W. (2024)'s paper "Factors Impacting Satisfaction with Blended Learning Among Private College Students in Mianyang, China," he explores the several aspects that affect students' satisfaction with blended learning in Mianyang, China's private colleges. The study, which was published in the AU-GSB e-JOURNAL, provides insight into the particular dynamics of blended learning settings at China's private higher education institutions. Li provides insightful information about the variables that influence student satisfaction in blended learning environments by looking at things like student involvement, instructional design, and technology infrastructure. The results of this study advance our knowledge of the challenges associated with implementing blended learning strategies successfully in China's higher education system.

In their article titled "Blended Learning, Flipped Classroom, and Peer Teaching as a Combination to Meet the Increasing Diversity in Higher Education," Boehm-Fischer, A., & Beyer, L. M. (2024) explore innovative approaches to address the growing diversity within higher education settings. Published in the International Journal of Information and Education Technology, the authors propose a synergistic combination of blended learning, flipped classroom methodologies, and peer teaching to cater to the diverse needs and learning styles of students. Through their research, Boehm-Fischer and Beyer advocate for a holistic approach that integrates technology-enhanced learning with active student engagement strategies, such as peer instruction. By leveraging these pedagogical techniques, educators can create inclusive learning environments that promote collaboration, critical thinking, and academic success among a diverse student body. This study contributes to the ongoing discourse on effective teaching practices and the adaptation of educational methods to meet the evolving needs of students in higher education.

In their article titled "A World of Possibilities: The Future of Technology in Higher Education, Insights from the COVID-19 Experience," McManus, R., Logan, A., Wilders, D., & Pennycook, C. (2024) offer valuable insights into the role of technology in reshaping higher education, drawing from the experiences during the COVID-19 pandemic. Published in Education Sciences, the authors examine the transformative impact of technology on teaching and learning practices, particularly in response to the challenges posed by the global health crisis. Through their research, McManus *et al*., explore the opportunities and challenges presented by the rapid adoption of digital tools and remote learning platforms in higher education institutions worldwide. By reflecting on the lessons learned from the COVID-19 experience, the authors provide valuable perspectives on the future direction of technology integration in higher education, paving the way for innovative approaches to teaching, learning, and student engagement in a post-pandemic world.

The blended learning technologies

The integration of educational technologies has been helpful in establishing a flexible and diversified learning environment under the blended learning approach. These tools not only enhance the educational process but also encourage student engagement and in-depth study. Online learning platforms like Moodle, Canvas, Blackboard, and Google Classroom are among the frequently utilized technologies. These platforms give teachers a place to share resources, set homework, lead discussions, and grade students online.

Additionally, students can access knowledge simply and flexibly by using online learning tools like multimedia materials, online lectures, and instructional videos. Students can also evaluate their own learning progress and do self-study with the use of apps and online learning platforms. By promoting holistic development throughout the learning process, the incorporation of these technologies not only improves instruction but also students' overall learning experience. From early childhood education to higher education, blended learning is becoming more and more popular. As technology progresses, blended learning will develop further and improve education even more.

We propose eduai.click, a platform introduced to pilot the implementation of the Blended Learning model for university students based on the regulations and training programs of universities in Vietnam. This system is designed to be simple and cost-effective, suitable for the approach and conditions of education in Vietnam. Additionally, deploying eduAI also brings several advantages such as flexibility in content management, customization according to specific school needs, and convenience in managing educational materials and feedback.

However, when applied to the Blended Learning model, eduAI also faces some challenges and limitations. These may include the need for training and technical support for teachers and students, as well as the ability to integrate and compatibility with existing systems and technologies in the educational environment. Therefore, conducting a SWOT analysis

(Strengths, Weaknesses, Opportunities, and Threats) will help assess the overall potential and optimization of eduAI in the Blended Learning model at universities in Vietnam.

THE eduAI MODEL FOR BLENDED LEARNING

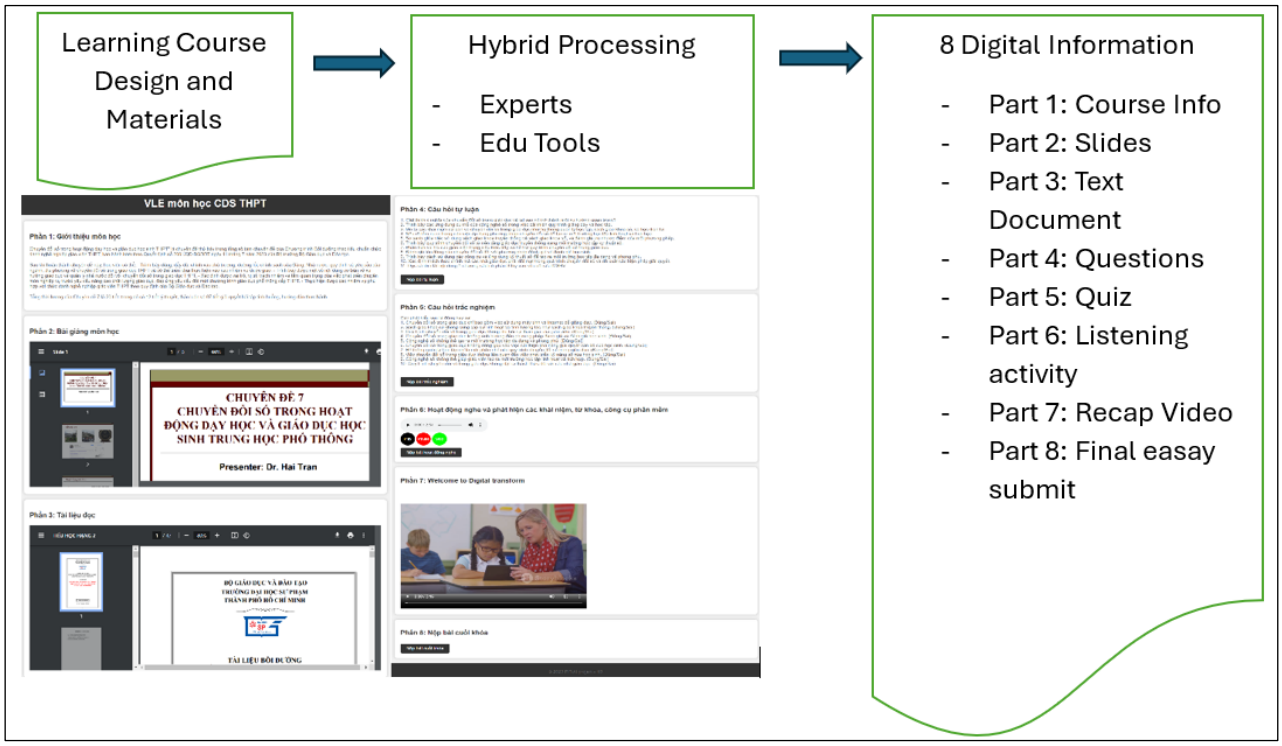

Fig-3: eduAI framework for Blended learning

Information technology must support the concept in order to meet the requirement for creating adaptable and successful e-courses. Artificial intelligence technology called eduAI has helped teachers with this process by offering a specific model consisting of eight components. This model guides and supports teachers in creating e-courses that adhere to the Blended Learning paradigm in a timely manner.

i. Part 1: Course Information. This section provides basic information about the course such as objectives, content, and schedule.
ii. Part 2: Slides. Teachers can create presentation slides to present the main content of the course.
iii. Part 3: Text Documents. Provides detailed text documents for students to read and reference.
iv. Part 4: Questions. Generates questions to assess understanding and stimulate deep thinking in students.
v. Part 5: Quizzes. Provides quizzes or exercises to assess students' knowledge.
vi. Part 6: Listening Activities. Teachers can provide listening activities to develop students' language skills.
vii. Part 7: Summary Videos. Creates summary videos to highlight key points and help students remember the content.
viii. Part 8: Final Assignment Submission. Finally, this section allows students to submit final essays or projects to demonstrate their understanding and skills.

With the help of this approach, educators may efficiently arrange and present a variety of educational materials in a flexible way, giving students the best possible learning experience in a blended learning setting.

Self-learning through the eduAI system with its 8 components brings numerous valuable benefits to learners:

(i) Flexibility: The eduAI system allows students to autonomously choose the time and place of learning that suits their individual schedules.
(ii) Time-saving: Having access to materials, lectures, and exercises on the eduAI platform helps students save time compared to searching for information from multiple sources.
(iii) Active Learning: The questions, quizzes, and listening activities in the system stimulate students' thinking and exploration, fostering active learning.
(iv) Enhanced Knowledge: Providing various learning resources and media helps students access and understand the content deeply.

(v) Skill Development: Assignments, quizzes, and final essays help students develop research, analysis, and writing skills.

(vi) Diversification of Learning Methods: Integrating listening, reading, writing, and testing activities helps students access the learning content in various ways, catering to each individual's learning style.

(vii) Boosting Confidence: Completing assignments and quizzes on eduAI helps students become more confident in applying the learned knowledge to real-life situations.

(viii) Assessment and Feedback: The eduAI system provides instant feedback and regular assessments to help students evaluate their learning progress and improve step by step.

By combining aspects of blended learning with the capabilities of artificial intelligence, the eduAI.click teaching model may be created to maximize the learning experience for Vietnamese students. With the help of this model's integrated online platform, students will be able to engage with classmates and lecturers effectively and access course materials at their convenience.

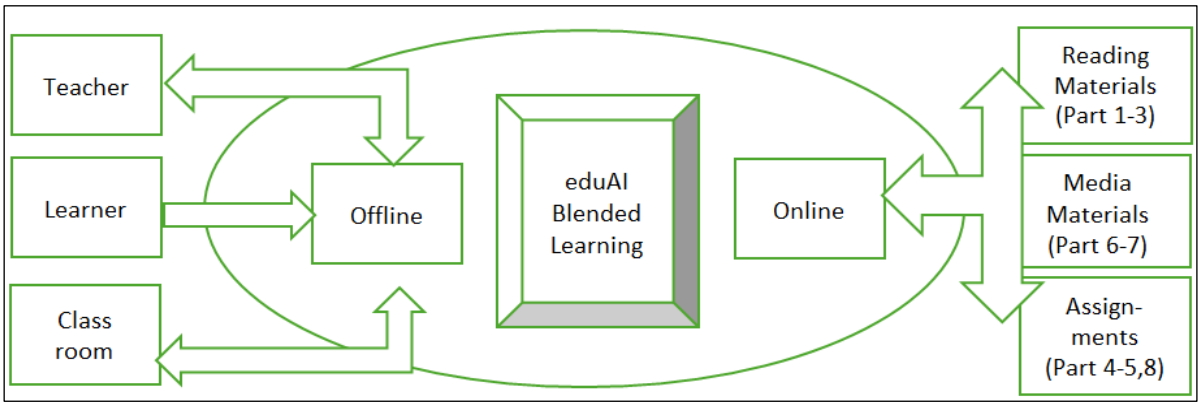

Fig-4: eduAI blended learning Model

The following components will be part of the model:

(i) Integrated LMS platform with eduAI.click: Utilizing a customized Learning Management System (LMS) to integrate eduAI.click technology. This platform will provide learners with an easy and convenient online learning process.

(ii) Enhanced teaching and learning processes: Educators can create diverse teaching content using AI technology, including automatically generated video lectures, interactive learning materials, and self-assessment exercises. This enhances the effectiveness of both teaching and learning processes.

(iii) Interaction and personalized support: AI technology is employed to provide real-time feedback and personalized support for learners. The system can automatically analyze learners' performance and suggest suitable materials or lectures, as well as offer personalized guidance and feedback based on individual learning needs.

(iv) Creating diverse learning opportunities: EduAI.click can be used to create various learning activities such as online discussions, auto-graded quizzes, and interactive learning media. This helps create a rich and diverse learning environment, fostering learner engagement and interaction.

(v) Development of digital skills and self-learning: This model also emphasizes the development of digital skills and self-learning abilities for learners. EduAI.click can provide online learning materials and resources to help learners naturally and continuously develop new skills and knowledge.

In summary, the model utilizing eduAI.click for teaching and learning in Vietnam not only provides a convenient means to access knowledge but also creates a flexible and interactive learning environment, promoting the comprehensive development of learners in the era of Industry 4.0. The eduAI portal supporting Blended Learning is an online platform that provides educators and students with everything they need to effectively implement Blended Learning. This portal includes:

(i) Personalized Learning: Assisting in tailoring learning experiences for each student based on their individual needs and abilities.

(ii) The Blended Learning support portal serves as a valuable tool for educators and students to implement Blended Learning effectively. This portal enhances the quality of education, fosters student interaction and initiative, and personalizes learning for each student.

EXPERIMENTAL RESULTS

An average score of 4.28/5.00 across 18 examined categories was obtained from the input provided by 200 students enrolled in the "Advanced Database Foundations" course using the eduAI framework in a blended learning format. This suggests that using blended learning with the eduAI platform is not only beneficial to the teaching and learning process, but also practicable. According to the evaluation results, every criterion received a score higher than 4.0, indicating the all-around usefulness of eduAI in the blended learning implementation process. This highlights the system's efficacy in delivering educational materials, promoting communication between teachers and learners, and supplying prompt feedback and evaluation to improve the learning experience. The positive satisfaction and feedback from students serve as clear evidence of the success of implementing blended learning and eduAI in the educational environment.

Table-1: The survey results from 200 learners

#	Criteria	Average Feedback Point (1-5)
1	Objectives, output standards, outline, and requirements of the course	4.24
2	Learning materials are fully provided directly or via the online learning system	4.26
3	Evaluation methods and criteria	4.26
4	Meets goals and teaching program	4.26
5	Update and meet practical needs	4.28
6	The level of understanding of the lecture for learners	4.22
7	Use teaching methods to promote learners' abilities	4.3
8	Develop critical thinking, creative thinking, and independent thinking of learners	4.24
9	Guide learners to self-study and research	4.3
10	Use media and applications in online teaching and communication	4.27
11	Testing and assessment methods are appropriate to the teaching-learning format and subject objectives	4.28
12	Carry out inspections and assessments objectively and in accordance with regulations	4.28
13	Be enthusiastic, responsible and listen to learners' opinions	4.3
14	Come to class on time, for the prescribed number of hours, and ensure the teaching and learning plan	4.25
15	Interaction between lecturers and learners (equality, fairness, objectivity, transparency in teaching)	4.3
16	Classroom organization and management	4.33
17	Support and answer questions during the learning process	4.32
18	Dress neatly and politely in class	4.42

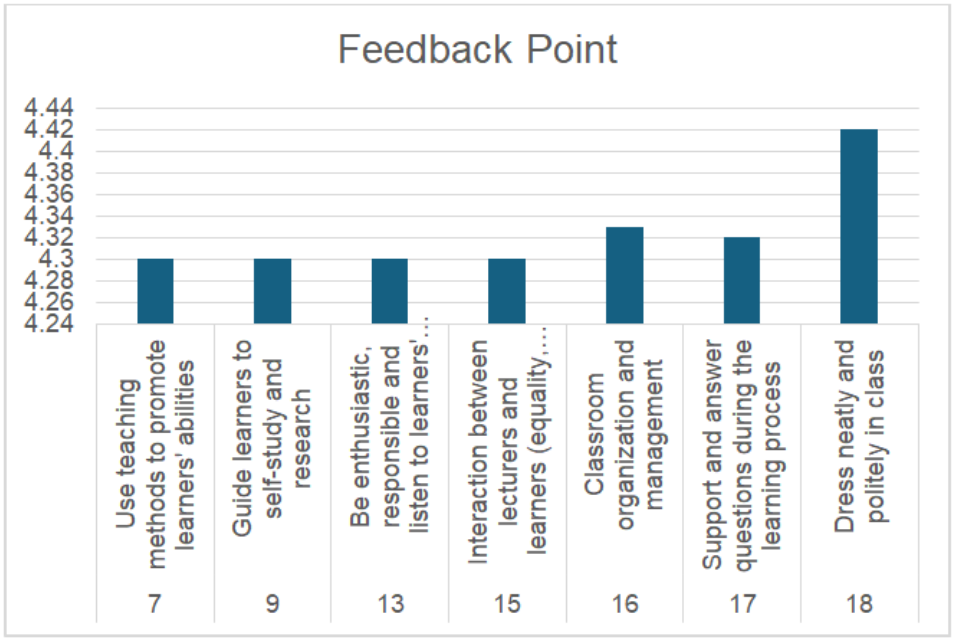

Fig-5: Statistics Chart of Selected Criteria Highly Rated by Learners Participating in Blended Learning with eduAI

According to student survey feedback, the following elements received high marks: using instructional strategies to improve students' abilities (4.3), assisting students with independent research and study (4.3), demonstrating enthusiasm, taking responsibility, and listening to students' opinions (4.3), facilitating teacher-student interaction (4.3), managing and organizing classes (4.33), and providing assistance and answering questions throughout the learning process (4.32). This reveals how well blended learning approaches, particularly with eduAI technology, may be used to improve students' educational experiences and personal growth at Vietnamese universities.

From these results, it can be observed that the eduAI framework brings two main benefits to learners:

(i) Enhanced Learning Experience: The integration of Blended Learning and eduAI has significantly improved the learning experience of learners, from personalizing content to providing immediate feedback.

(ii) Improved Learning Outcomes: Learners demonstrate significant progress in learning outcomes after participating in this model.

CONCLUSION

The study's findings highlight how crucial it is to combine blended learning with eduAI in order to maximize students' educational experiences. Because of eduAI's characteristics, learning content designed with cutting-edge artificial intelligence technology may be organized and designed using a specific model that consists of eight sections. These capabilities make it simple for educators to create and oversee flexible, effective online courses. Additionally, they support the development of student competencies, offer direction for independent study and research, and foster productive relationships between educators and learners. The report also suggests further lines of inquiry for future research to further explore the use of eduAI in the educational system. Further research into the possible uses of this technology could improve education standards and give students access to a wider range of engaging and stimulating learning opportunities.

REFERENCES

- Ali, A., Khan, R. M. I., & Alouraini, A. (2023). A comparative study on the impact of online and blended learning. *SAGE Open*, *13*(1), 21582440231154417.
- Boehm-Fischer, A., & Beyer, L. M. (2024). Blended Learning, Flipped Classroom, and Peer Teaching as a Combination to Meet the Increasing Diversity in Higher Education. *International Journal of Information and Education Technology*, *14*(2).
- Han, J., & Yang, Y. (2024). Exploration of Student-Centered Polymer Chemistry Laboratory Teaching Model. *Curriculum and Teaching Methodology*, *7*(1), 1-7.
- Li, W. (2024). Factors Impacting Satisfaction with Blended Learning Among Private College Students in Mianyang, China. *AU-GSB e-JOURNAL*, *17*(1), 115-128.
- Manzuraxon, Z., & Yokutkhon, R. (2024). The effectiveness of blended learning on academic achievement and learning process of students. *Journal of new century innovations*, *48*(1), 147-150.
- McManus, R., Logan, A., Wilders, D., & Pennycook, C. (2024). "A World of Possibilities": The Future of Technology in Higher Education, Insights from the COVID-19 Experience. *Education Sciences*, *14*(1), 63.
- Shamsuddin, N., & Kaur, J. (2020). Students' Learning Style and Its Effect on Blended Learning, Does It Matter?. *International Journal of Evaluation and Research in Education*, *9*(1), 195-202.
- Shoukat, R., Ismayil, I., Huang, Q., Oubibi, M., Younas, M., & Munir, R. (2024). A comparative analysis of blended learning and traditional instruction: Effects on academic motivation and learning outcomes. *Plos one*, *19*(3), e0298220.
- Thirumoorthy, G., & Sivakumar, A. (2024). Blended Teaching and Learning Strategies to Cope Education 4.0. In Transformative Digital Technology for Disruptive Teaching and Learning (pp. 82-93). Auerbach Publications.
- Verma, R. K., Gupta, S., & Illinich, S. Technology-enhanced personalized learning in higher education. In Advances in Technological Innovations in Higher Education (pp. 71-92). CRC Press.
- Walkington, C., & Bernacki, M. L. (2020). Appraising research on personalized learning: Definitions, theoretical alignment, advancements, and future directions. *Journal of research on technology in education*, *52*(3), 235-252.
- Williams, R. T. (2024). An Overview of MOOCs and Blended Learning: Integrating MOOC Technologies into Traditional Classes. *IETE Journal of Education*, 1-8.