HUMANIS
(Humanities,Management and Science Proceedings)

Vol. 4 • No. 1 • Desember 2023

Pege (*Hal.*) : 1483– 1491

ISSN (*online*) : 2746 - 4482
ISSN (*print*) : 2746 - 2250

JL.Surya Kencana No.1 Pamulang, Tangerang Selatan – Banten
Telp. (021) 7412566, Fax (021) 7412491
Email : humanisproccedings@gmail.com

Special Issue:
ICoMS2023
The 4th International Conference on Management and Science

Website. :
http://www.openjournal.unpam.ac.id/index.php/SNH

Application of Blended Learning Strategy and Technology Utilization to the Quality of Students at Air Marshal Suryadarma University in the Era of Digitalization

Reza Alkautsar[1)] ; Dian Damayanti[2)]

Student and Lecturer of The Aerospace *Air Chief Marshal Suryadarma University, Jakarta*
231173049@students.unsurya.ac.id[1)]) and diandamayanti17@gmail.com[2)]

Abstract: Education in Indonesia has undergone significant transformation with the advent of the era of digitalization. Using the latest learning technologies and strategies, such as blended learning, is key to improving the quality of education. This research aims to explore the application of blended learning strategies and the use of technology to the quality of students at the Air Marshal Suryadarma University (Unsurya). The research method uses a qualitative approach, with the study of literature as the main design. Data is obtained by recording, studying libraries, reading literature, and analyzing related documents. The results show that the implementation of blended learning contributes positively to student involvement in learning, enables access to online learning resources, and improves interaction between students and lecturers. In addition, the use of technology also provides flexibility in accessing learning materials and improving student technology skills. This research provides in-depth insight into the benefits of blended learning strategies and the use of technology in improving the quality of education in Unsurya. The implications of this research are the need to develop educational technology infrastructure as well as strengthen training for faculty and students in using technology effectively.

Keywords: Blended Learning, Technology Utilization, Student Quality, Education Digitalization.

INTRODUCTION

The rapid development of science and technology in the era of digitalization in education has fundamentally changed the paradigm of learning in colleges. Science and technology have grown rapidly in various fields, and one of the significant impacts of this development can be observed in the world of education, where the learning process can now be done more easily thanks to the advances of science and technology. The use of technology in education has opened the door to innovation in teaching methods, the development of learning

content, and improved accessibility in education. The way that teachers teach and how students learn has changed as a result of the use of software, online learning environments, and digital resources (Mulyani & Haliza, 2021).

Technology is the practical application of scientific knowledge and holds significant significance in human existence. Technology emerges from human intellectual endeavors, employing scientific methodologies to attain optimal objectives. Technology can be conceptualized not only as a mere instrument but also as a human mechanism for fulfilling diverse requirements. The objective is to establish both efficacious and efficient circumstances while also aligning harmoniously with patterns of human behavior. The advancement of human civilization can be quantified by the development of science and technology (IPTEK) (Camelia, 2020). The emergence of IPTEK has led to the creation of technology, which serves to enhance various aspects of human life, including education and instruction. In fact, in Indonesia, minimal facilities are a rather difficult challenge in this transitional period. According to (Sibuea et al. 2020), there are teachers who have difficulty implementing online learning due to poor technology mastery. Although major cities such as Jakarta, Semarang, Yogyakarta, and other large cities may have been ready both in terms of facilities and teaching competence, it does not mean that the suburbs have also been ready.

In addition, it is necessary to evaluate learning with a new system to assess the success of future learning implementations. This evaluation should involve a review of various aspects, including curriculum, teacher performance, and student responses (Wandini & Lubis, 2021). Hence, the implementation of blended learning approaches and the integration of technology are imperative in response to the intricate and ever-evolving nature of education in the digital age. The integration of technological advancements with traditional educational approaches is anticipated to foster a holistic learning encounter, thereby inspiring and equipping students to develop into adept professionals capable of swiftly adapting to the dynamic nature of the contemporary market.

LITERATURE REVIEW

Blended learning is the most widely used mode of instruction by educational institutions due to its effectiveness in providing flexible, timely, and continuous learning (Rasheed et al., 2020). According to the Sloan Consortium, blended learning covers from 30 to 79% of online content delivery. With the pandemic, all systems transitioned to bold and fully digital methods, departing from the previous conventional system, necessitating the learning of technology and initiating transformation. This aligns with Indonesia's efforts to embrace the fourth industrial revolution, where every aspect of life is inseparable from technological influence (Siteki, 2020). The onset of the fourth industrial revolution has significantly impacted various fields, including the education sector. Developments in education, especially in the dynamic field of technology, must be continuously monitored due to the rapid social changes, both positive and negative.

As previously mentioned, the pandemic has affected the education sector. In March 2020, it was recorded that 800 million children worldwide engaged in online learning (Arika, 2020). The purpose of implementing bold learning was to avoid direct physical contact to prevent students from contracting COVID-19. The Minister of Education hopes that students can gain a slightly different experience than before (Fajar, 2020). Among the advantages of this method are the

avoidance of traditional classroom requirements (Shukla, Dosaya, Nirban, & Vavilala, 2020) and the need for widespread internet access (Hastini, Fahmi, & Lukito, 2020).

Minister Nadiem Makarim stated that the pressure from digitalization trends will continue, and there will be collaboration between analog and digital even after the pandemic. He further expressed that despite this, the role of teachers will not be replaced; instead, their potential will be strengthened through educational digitalization (Ghivarianto, 2020). However, despite the diverse implementations of blended learning, there is often anxiety among students and instructors regarding the integration of technology into learning and teaching. For example, blended learning requires students to equip themselves with self-regulation skills and technological competence to manage their learning at their own pace with less facilitation from instructors. Meanwhile, instructors are also required to be competent in utilizing and merging online resources and various pedagogies effectively into course design, thereby increasing student engagement and performance (Rasheed et al., 2020). Fundamentally, changes in the education sector need to be implemented as each era undergoes transformations, aligned with the acceleration of technology and information (Diknas, 2020).

Table 1 The comparative analysis of existing literature data

Year	Author and Title	Method	Results	Advice
2020	Adelina Mariani "Implementation of Blended Learning in the Improvement of Learning Quality"	Qualitative data analysis involves analyzing the results of interviews, field records, and observations at Bina Insani University in Bekasi. The data consists of interviews, observation sheets, and field records. The analysis process is conducted interactively and continuously until it reaches a saturation level.	Bina Insani University implemented blended learning through e-campus for the Accounting Studies Program, but early observations showed a lack of student engagement and faculty control. The stage of action is done with fixed schedules, face-to-face meetings, and online tasks. The evaluation shows good student and faculty activity, but the understanding and use of e-campus needs to be improved.	Design an action plan to encourage the adoption of online learning through e-campus. The data analysis showed excellent student and lecturer activity after implementation, improving the convenience and effectiveness of learning.

2020	Samsul Susilawati, Ahmad Fatah Yasin, Moh. Hambali "Blended Learning Model to Improve the Quality of Students of State Islamic University Maulana Malik Ibrahim Malang"	A qualitative approach with a focus on "how". Their steps involved the collection of baseline learning data and analysis for the development of learning models at Maulana Malik Ibrahim Malang UIN.	Blended learning at UIN Maulana Malik Ibrahim Malang involves two main models: website-based learning (WBL) and the Edmodo application. WBL uses the Internet for the delivery of material, with the lecturer guiding students in finding relevant material. Nevertheless, both models are effective in supporting the learning process at Maulana Malik Ibrahim Malang UIN.	The use of technology in education improves the quality of learning, especially through media innovations such as e-learning. In choosing technology, pay attention to the benefits that match the learning needs, materials, and purposes to enhance student learning interests.
2022	Cut Nelga Isma, Rina Rahmi, Hanifuddin Jamin "Urgent Digitalization of School Learning."	This research adopts a qualitative method with content analysis, focusing on the digitalization of education. Data sources involve a variety of subjects, and documentation techniques for analysis using policy research.	Digital literacy, an essential skill for students, enables connectivity, collaboration, innovation, and access to information in the digital age. In the context of education, digitalization transforms learning perspectives and processes, improves the quality of learning, and helps students develop 21st-century critical, communicative, creative, and collaborative thinking skills.	To enhance the quality of learning and encourage the development of student's skills, it is essential for educators to integrate technology into their methods of teaching. The advent of improvements in technology has facilitated the integration of digital education as a means for strengthening the government's initiatives in promoting independent learning programs.

2022	Shopyan Jepri Kurniawan, Muhammad Nur Wangid, Agus Supriyanto "Students' Satisfaction In College: Implementation Of The Blended Learning Method"	This study employs a quantitative survey to analyze Students' Satisfaction (SS) in Indonesia using the Blended Learning Method (BL-M) during and post the COVID-19 pandemic. The research, published in the European Journal of Education Studies, utilizes a random sampling technique with 135 students from various universities.	Out of a total of 115 participants, 73 students expressed contentment, and 38 students reported a high level of satisfaction, indicating that the research on students' satisfaction with the BL-M received a favorable response. Figure 1 illustrates the levels of individual satisfaction. The adaptability of the BL-M (Blended Learning Model) during the COVID-19 pandemic is of utmost importance, as it effectively integrates both online and offline components to enhance the overall quality of courses. Post-COVID-19.	The adoption of BL-M (Blended Learning Model) is of utmost importance in the post-pandemic era. In order to determine the impact of learning loss, it is imperative to promptly measure satisfaction.

METHODS

This study applied a library-based research methodology to analyze the implementation of blended learning strategies and the integration of technology in enhancing the academic performance of students at the Air Marshal Suryadarma University during the era of educational digitalization. The implementation of library study methods facilitates the acquisition of comprehensive knowledge and understanding for researchers by accessing a wide range of pertinent information sources connected to the research topic. Gathering data techniques involves the examination of diverse sources, including books, scientific journals, articles, notes, and relevant reports. The research analyzed a comprehensive library collection consisting of various academic sources and recent publications relevant to blended learning strategies, the integration of technology in higher education, and the assessment of student performance in the context of educational digitalization.

RESULT AND DISCUSSION

The Influence of Technology on the Quality of Education

To maintain the quality and standard of education, it is necessary to make efforts to enhance it through the development of Information Technology-based learning media. The implementation of Information and Communication Technology (ICT) in education represents a significant breakthrough in enhancing the quality of learning.

The latest developments in the world of learning and information technology. One is the concept of knowledge management, which includes the collection, storage, and sharing of valuable information, expertise, and insights among communities of people and organizations with similar interests and needs. In addition, there is the concept of "performance support," which provides employees with access to information and tools to support their performance when needed. The development of information and communication technology also enables easier access to information, such as internet-based or online learning models.

The study of science has become a prominent trend that has garnered significant attention from various sectors, including the field of educational technology. Reiser (2014) presents key principles for designing and implementing effective science learning, which include:

a. Focus on mastering a deep understanding of concepts.
b. Create a student-centered learning environment.
c. Use technology to create learning environments, provide new tools for students, and enhance their understanding.
d. Design for learning transfer.
e. Study learning in real-world settings, not in the lab.
f. Evaluate learning outcomes from different perspectives.
g. Do research into the design process.

Technology readiness in the era of education digitalization has become a crucial aspect in optimizing the benefits of this change. First, the technological infrastructure needs to be updated and upgraded to meet the demands of rapid technological development. Educational institutions must have adequate access to hardware, software, and stable internet connections in order to carry out digital learning effectively. Furthermore, training and competence development for educators are very important. Teachers need to understand and master educational technology so that they can design and implement innovative learning. The training also covers aspects of digital security and ethics in the use of technology, given the importance of involving students in a secure and responsible online environment. The integration of technology into the curriculum, the availability of high-quality digital content, and the accessibility of online learning resources have the potential to enhance the educational experiences of students. In addition, it is essential to develop policies that include regulations related to the privacy of student data, protecting digital security, and establishing benchmarks for the quality of digital learning products and services.

The primary concern of the students themselves, ensuring that they have adequate digital competencies to effectively engage in online learning and manage technology as an instrument for educational purposes. Adoption of technology can also be an opportunity to involve students in the learning process, boost their creativity, and prepare them for the challenges of an increasingly digitalized world.

Considering all of these aspects, the goal of technological readiness in education can be accomplished, resulting in optimal benefits for all participants within the educational ecosystem. In the domain of learning design, educational technologists are required to effectively utilize and enhance the existing resources, such as internet access and online devices, so as to foster a more comprehensive learning environment that overcomes the limits of traditional classroom settings. In addition, individuals should possess the capacity to evaluate the requirements of learners, select and establish relevant approaches to learning, and effectively manage innovative educational information systems.

The Influence of The Digital Era on Education

Digitization has changed the face of education, having a significant impact on the way we learn and improve. Wider access to information and learning resources has become one of the major benefits. Through the Internet, students can easily access a variety of learning materials, scientific journals, and global educational resources. Data from UNESCO suggests that by 2021, more than 4.5 billion people worldwide have access to the Internet, creating unlimited learning potential. Distance learning and e-learning are becoming increasingly dominant, especially during the COVID-19 pandemic. Data from the World Bank indicates that by 2020, more than 190 countries will have to switch to distance learning in response to the epidemic. It not only gives students the ability to study unlimitedly by physical location but also increases the flexibility and affordability of education. But it affects students living in areas with restricted internet access.

It is also important for the development of digital skills. Using technology in learning, students not only acquire academic knowledge but also develop skills that are highly sought-after in the modern job market. According to a report from the European Commission, about 90% of future jobs will require digital skills. The personalization of learning becomes possible through digitalization. Learning methods and materials can be adapted to the individual needs of students, improving their learning effectiveness. The results of the study from Educause Review showed that 78% of instructors believed that technology enabled them to more effectively meet the learning needs of each student.

Finally, the digital learning management system provides an opportunity to measure and analyze student performance efficiently. These data can help educational institutions identify areas where students can improve their performance and provide useful feedback for curriculum improvements. Overall, digitization has a positive impact on student learning and quality. However, challenges such as unequal access to technology also need to be addressed. Therefore, educational institutions need to continue to develop strategies so that digitization can create an inclusive learning environment for all students. In the current state of digitalization of the teaching system, the education paradigm has undergone significant changes. Distance learning and blended models have become the norm, especially in response to the COVID-19 pandemic. Online learning platforms such as Learning Management Systems (LMS) play an important role in providing space for material distribution, student interaction, and performance evaluation. The personalization of learning is increasingly being focused on, supported by data analysis that enables institutions to understand individual learning patterns. Student engagement is enhanced through technology, including the use of webinars, online forums, and gamification-based tools.

Besides, the integration of simulation technology and augmented reality provides a profound practical dimension. Although digitization continues to grow, there are efforts to maintain a balance between online and face-to-face learning, recognizing the importance of direct social interaction in learning experiences. Data security and privacy factors are also at the forefront, ensuring that student information is protected. Thus, the conditions of digitalization in the teaching system create new opportunities and require careful planning to maximize their benefits for educational development.

CONCLUSIONS

The integration of blended learning and technology in the educational setting of Air Marshal Suryadarma University has been observed to yield favorable outcomes in terms of enhancing student performance and overall educational quality. The provision of sufficient technological resources plays a pivotal role in facilitating students' active participation in both online and offline educational activities. The keys to achieving success lie in the implementation of a curriculum that is responsive to contemporary advancements fosters the acquisition of technological educational skills, and equips students with competencies pertinent to the digitalization era. This education of exceptional quality will result in the development of highly skilled human capital, both domestically and internationally, thereby bolstering the nation's competitive advantage on a global scale. The integration of blended learning and technology facilitates the establishment of an educational setting that is adaptable to modern concerns.

Recommendations. Based on the previous results, several suggestions for enhancing the educational standards at Air Marshal Suryadarma University incorporate added allocation of resources towards educational technological infrastructure, regular assessment, and refinement of the curriculum, provision of training to educators in the effective use of educational technologies, establishment of partnerships with industry and government to address labor market demands, and development of educational programs that equip students with the necessary skills to confront professional obstacles. By implementing those suggestions, it is anticipated that Air Marshal Suryadarma University will further enhance the standard of education, equip students with the necessary skills to achieve success in the profession of human resources, and effectively address the challenges posed by the digitalization era in education.

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