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The Effectiveness of Blended Learning in Improving Midwifery Students' Skills

Fathiyati[1], Didi sutisna[2], Ewin Suciana[3], Siti Madinah Ladjamuddin[4]

Department of Midwifery, Salsabila College of Health Sciences, Serang – Indonesia[1]
Department of Nursing, Sismadi Health College, Indonesia[2]
Department of Information Technology, University of Yarsi Pratama, Tangerang– Indonesia[3]
Department of Information Technology, University of Saintek Muhammadiyah, Jakarta– Indonesia[4]
e-mail: fathiyati@gmail.com[1], didisutisna252@gmail.com[2], sucianaewin@gmail.com[3], madinah07city@gmail.com[4]

Abstract

The development of digital technology has driven changes in the learning system in midwifery education, one of which is through the implementation of blended learning. This learning model combines face-to-face and online learning to improve the effectiveness of students' learning processes. This study aims to explore the effectiveness of blended learning in improving the skills of midwifery students. The study used a qualitative approach with a descriptive phenomenological design. The study participants were 15 midwifery students selected using a purposive sampling technique. Data collection was conducted through in-depth interviews, observation, and documentation. Data analysis used thematic analysis through the processes of data reduction, coding, theme identification, and interpretation of meaning. The results showed that blended learning had a positive impact on the learning process of midwifery students. Students experienced flexibility in accessing learning materials, improved understanding of theory and clinical skills, and increased motivation and independence in learning. The use of learning videos, virtual simulations, and online discussions helped students better prepare for laboratory and clinical practice. In addition, blended learning also increased learning interactivity and student participation in academic discussions. However, the implementation of blended learning still faces several obstacles, such as limited internet connection, online learning fatigue, and limitations in direct clinical practice. This study concludes that blended learning is an effective and adaptive learning method for improving midwifery students' skills in the digital era when supported by optimal technological infrastructure and learning design.

Keywords: Blended Learning, Midwifery Education, Student Skills, Digital Learning, Qualitative Learning

Introduction

The development of digital technology has brought about significant changes in the higher education system, including health and midwifery education. The transformation of learning from conventional methods to

technology-based learning is one way educational institutions can adapt to the needs of the digital era. One rapidly developing learning approach is blended learning, a combination of face-to-face and online learning. This model is considered capable of integrating the advantages of conventional learning with the flexibility of digital technology, making the learning process more effective, interactive, and student-centered.

In midwifery education, learning is not only oriented towards mastering theory, but also the development of clinical skills, therapeutic communication, and decision-making in midwifery care practice. Therefore, the learning methods used must be able to support the achievement of comprehensive competencies. Blended learning is a relevant strategy because it provides students with the opportunity to gain flexible learning experiences while maintaining direct interaction in clinical and laboratory practice. Research shows that blended learning can improve student engagement, learning outcomes, and critical thinking skills in health education.

Changes in the learning system have accelerated since the COVID-19 pandemic forced educational institutions to implement online learning extensively. This situation has pushed lecturers and students to adapt by using Learning Management Systems (LMS), video conferencing, and various digital learning media. In the context of midwifery education, this change presents unique challenges because clinical practice learning still requires direct interaction with patients and the practice environment. However, blended learning is considered a potential solution because it can combine online theoretical learning with limited laboratory and clinical practice. Research by Khalil et al. (2020) shows that digital learning in health education increases the flexibility and sustainability of the learning process during the pandemic.

Pedagogically, blended learning is based on the concept of student-centered learning, which positions students as active participants in the learning process. Students not only receive material from lecturers but also engage in discussions, explore digital materials, engage in virtual simulations, and engage in independent learning. This approach allows students greater control over their own learning process. Research by Shorey et al. (2019) found that blended learning in health education effectively increases students' learning motivation, active participation, and collaborative skills.

In addition to improving cognitive aspects, blended learning also plays a role in developing clinical skills in midwifery students. The use of demonstration videos, virtual simulations, and interactive learning media helps students understand clinical procedures before engaging in hands-on practice. Research by Chen et al. (2020) shows that virtual simulations can improve clinical decision-making skills and confidence in healthcare students. Thus, blended learning can bridge the gap between theoretical learning and clinical practice in midwifery education.

In practice, the implementation of blended learning also offers the advantage of flexibility in learning time and access. Students can access learning materials anytime and anywhere according to their needs. This is crucial in midwifery education, which has a high academic and practical workload. Research by Regmi and Jones (2020) explains that digital learning systems increase learning accessibility and

support independent learning in healthcare students.

Despite its various advantages, the implementation of blended learning in midwifery education still faces several challenges. One major obstacle is the technological readiness and digital literacy of both lecturers and students. Not all students have stable internet access or adequate digital devices to optimally participate in online learning. Furthermore, lecturers are also required to design interactive and engaging digital learning to keep students engaged in the learning process. Research by Oducado et al. (2021) shows that readiness to use technology is a critical factor in the success of online learning in health education.

Another frequently encountered challenge is the limited availability of social interaction and direct clinical practice. Midwifery education is a skills-based education that requires real-world practical experience in providing care to mothers and infants. Therefore, blended learning needs to be designed in a balanced manner so that online learning does not diminish the quality of students' clinical experiences. In this regard, the use of skills laboratories and clinical simulations remains an important component of midwifery education.

In addition to technical and pedagogical factors, the effectiveness of blended learning is also influenced by student motivation. Students who are motivated and able to learn independently tend to adapt more easily to digital learning. Conversely, students who lack time management skills often struggle to consistently engage in online learning. Therefore, lecturer support, a learning environment, and an interactive learning design are crucial factors in the success of blended learning.

In the context of midwifery education in Indonesia, the implementation of blended learning still requires in-depth evaluation regarding its effectiveness in improving student skills. Some educational institutions have implemented LMSs and digital learning media, but the quality of their implementation varies. Research into students' experiences with blended learning is important to understand how they interpret the learning process, the challenges they face, and its impact on the development of clinical and academic skills.

Qualitative research is an appropriate approach to explore students' experiences, perceptions, and interpretations of the implementation of blended learning in midwifery education. Through this approach, researchers can gain a deeper understanding of the effectiveness of blended learning in improving midwifery students' skills in the digital era. Therefore, the research results are expected to form the basis for developing more innovative, adaptive learning strategies that meet the needs of modern midwifery education.

Methods

This study used a qualitative approach with a descriptive phenomenological design to in-depth explore the experiences, perceptions, and meanings felt by midwifery students regarding the implementation of blended learning to improve academic and clinical skills in the digital era. The phenomenological approach was chosen because the study focuses on students' subjective experiences during a combination of online and face-to-face learning. This method allows researchers to understand how students interpret the learning process, the challenges they face, and its impact on the development of midwifery skills. The qualitative approach is considered effective in

exploring the learning experiences of healthcare students in a digital and interactive learning environment.

1. Research Design

The study used a descriptive phenomenological design with the aim of exploring the real-life experiences of midwifery students participating in blended learning. The research focuses on:

- Student experiences during blended learning
- Student perceptions of the effectiveness of blended learning
- The impact of blended learning on academic and clinical skills
- Barriers and challenges to implementing blended learning

The phenomenological approach was used because it can provide a deep understanding of student learning experiences in the context of modern midwifery education.

2. Research Participants

Research participants were midwifery students who had actively participated in blended learning for at least one semester. Inclusion criteria included being active midwifery students, fully participating in blended learning, willing to participate as research informants, and being able to verbally express their experiences. Exclusion criteria included students who were not actively participating in the learning process and those who did not complete the interview process.

The participant selection technique used purposive sampling, selecting informants deemed to have relevant experience and information related to blended learning implementation. The number of participants in this study was 12–15 students, or until data saturation was reached, which is the condition when no new themes emerged during the interview process.

3. Data Collection Techniques

Data collection was conducted using the following techniques:

a. In-Depth Interviews. Semi-structured interviews were conducted face-to-face or online using video conferencing applications. Interviews lasted 30–60 minutes, and all interviews were recorded with the participants' consent.
b. Observation. The researcher observed blended learning activities, including student interactions during online discussions, participation in the LMS, and laboratory practical activities. Observations were conducted non-participatory using a structured observation sheet.
c. Documentation. Documentation included student reflection notes, LMS activities, learning modules, and student assignments, which were used to support the interview and observation results.

4. Research Instruments

The main instrument in qualitative research is the researcher themselves (human instrument). To support the data collection process, the following were used: semi-structured interview guides, observation sheets, voice recorders, and field notes. The interview guides were developed based on the concepts of blended learning, active learning, and the development of health student skills.

5. Data Analysis Techniques

Data analysis was conducted using thematic analysis, based on the steps outlined by Braun and Clarke: 1) Transcribing interview data, 2) Reading and understanding the entire data, 3) Coding, 4) Identifying themes and subthemes, 5) Interpreting the meaning of the data, and 6) Developing a narrative of the research findings. Analysis was conducted simultaneously during the data collection process,

allowing the researcher to identify important themes gradually.

6. Data Validity

To maintain the validity and credibility of the research, the following strategies were employed:

a. Triangulation was conducted through: source triangulation, method triangulation, and time triangulation.
b. Member Checking. Interview results and data interpretation were reconfirmed with participants to ensure consistency of meaning.
c. Audit Trail. The researcher systematically documented the entire research process for possible further analysis.
d. Peer Debriefing. Discussions with fellow researchers were conducted to reduce subjectivity in data interpretation.

Results

This study aimed to explore the effectiveness of blended learning in improving the skills of midwifery students through a descriptive phenomenological approach. Data were obtained through in-depth interviews, observations, and documentation of 15 midwifery students who had participated in blended learning for one semester. Thematic analysis yielded several main themes that describe the students' experiences with the implementation of blended learning in the midwifery learning process.

1. Characteristics of Research Participants

A total of 15 participants participated in this study. All participants were active midwifery students who had participated in blended learning in theory and practice courses.

Table 1. Participant Characteristics

Participant Code	Age	Semester	Experience Using LMS	Domicile
P1	20 years	IV	2 years	Urban
P2	21 years	IV	1 year	Rural
P3	20 years	VI	2 years	Urban
P4	22 years	VI	3 years	Urban
P5	21 years	IV	1 year	Rural
P6	20 years	IV	2 years	Urban
P7	22 years	VI	3 years	Rural
P8	21 years	IV	2 years	Urban
P9	20 years	VI	1 year	Rural
P10	21 years	IV	2 years	Urban
P11	22 years	VI	3 years	Rural
P12	20 years	IV	1 year	Urban
P13	21 years	VI	2 years	Rural
P14	22 years	VI	3 years	Urban
P15	20 years	IV	1 year	Rural

The majority of participants had 1–3 years of experience using a Learning Management System (LMS). This indicates that students were sufficiently familiar with the use of digital learning technology to provide in-depth experiences related to the implementation of blended learning in midwifery education.

2. Main Themes of Research Findings

Based on thematic analysis, five main themes emerged:

a. Learning flexibility increases learning enjoyment
b. Blended learning improves academic and clinical skills
c. Digital learning increases independence and motivation to learn
d. Learning interactions become more varied and interactive
e. Technical constraints and adaptation challenges in implementing blended learning

Theme 1. Learning Flexibility Increases Learning Enjoyment

Most participants stated that blended learning provides flexibility in accessing learning materials. Students can study the material at any time and review videos or learning modules as needed.

Table 2. Student Perceptions of Learning Flexibility

Participant Statements	Meaning
"I can review the material at any time." (P3)	Flexibility of learning time
"If I don't understand, I can watch the learning video again." (P8)	Strengthening understanding of the material
"Learning is more relaxed but I still stay focused." (P11)	Learning comfort

Students felt that blended learning provided the freedom to organize their study time, making the learning process more comfortable and not limited by the classroom. This system helped students understand the material gradually at their own pace.

Observations also showed that students were more active in accessing the LMS in the evenings or before laboratory practicals, indicating ongoing, independent learning.

Theme 2. Blended Learning Improves Academic and Clinical Skills

Students stated that the use of video demonstrations, digital simulations, and online discussions helped improve their understanding of clinical procedures before direct practice.

Table 3. Student Perceptions of Skill Improvement

Participant Statements	Category
"The practical videos helped me understand the steps." (P5)	Clinical skills
"The online discussions helped me understand the theory better." (P7)	Academic understanding
"I became more confident during the lab practice." (P10)	Clinical confidence

Blended learning helps students connect theory with clinical practice. Students feel better prepared for laboratory practice because they have previously gained an overview of the procedures through digital media. Observations show that students in blended learning understand practical procedures more quickly than those using conventional learning methods.

Theme 3. Increasing Learning Independence and Motivation

Most participants stated that blended learning encourages them to be more independent in their learning.

Table 4. Student Perceptions of Learning Motivation and Independence

articipant Statements	Meaning
"I've become more disciplined in managing my study schedule." (P2)	Time management
"Studying online has encouraged me to seek additional references." (P9)	Independent learning
"I'm more active in asking questions during online discussions." (P13)	Learning motivation

Students feel increased responsibility for their own learning process. Blended learning creates a more independent learning pattern oriented toward information exploration. Observations show that students appear more active in seeking out journals, educational videos, and additional learning resources during the learning process.

Theme 4. More Varied and Interactive Learning Interactions

Students believe blended learning creates a more engaging learning environment than conventional lecture methods.

Table 5. Student Perceptions of Learning Interactivity

Participant Statements	Category
"Online discussions allow all students to express their opinions." (P1)	Active Participation
"Learning is more engaging because of the videos and quizzes." (P6)	Interactive Media
"Lecturers find it easier to provide feedback." (P14)	Lecturer-Student Interaction

Students found blended learning more engaging because it used various interactive media. Online discussions allowed students who were typically passive in class to become more confident in expressing their opinions. Observations showed that the use of interactive quizzes and discussion

forums increased student engagement in the learning process.

Theme 5. Technical Barriers and Technology Adaptation

Although blended learning is considered effective, students still face several technical challenges.

Table 6. Barriers to Blended Learning Implementation

Obstacles	Participant Statements
Internet disruptions	"The network is often unstable during online lectures." (P4)
Online learning fatigue	"Being in front of the screen for too long makes you tired quickly." (P12)
Difficulties with online practice	"Some skills are difficult to grasp without hands-on practice." (P15)

The main obstacles experienced by students were the quality of the internet connection and the limitations of online clinical practice. Students also experienced digital fatigue due to the long duration of online learning. However, students stated that these obstacles could be mitigated if online learning was balanced with face-to-face laboratory practice.

3. Learning Observation Results

Observations showed that blended learning improved: student participation in discussions, accuracy of assignment submissions, LMS access activities, and student interaction with lecturers. Students appeared more active in asking questions during online discussions compared to traditional face-to-face learning. Furthermore, the use of digital media such as demonstration videos made it easier for students to understand midwifery practice procedures.

4. Integration of Research Findings

Table 7. Integration of Thematic Findings

Themes	Impact on Students
Learning flexibility	Improves learning comfort
Skills enhancement	Strengthens clinical practice readiness
Learning independence	Increases motivation and discipline
Learning interactivity	Increases student participation
Technical constraints	Inhibits the effectiveness of online learning

The integration of research findings indicates that blended learning has a positive impact on the midwifery learning process, particularly in improving students' academic skills, motivation, and practice readiness. However, the effectiveness of its implementation remains influenced by technological readiness and the balance between online learning and hands-on practice.

Overall, the research findings indicate that blended learning is an effective learning approach in midwifery education. Students view blended learning as a "hybrid learning space" that not only expands access to learning but also helps them develop into more independent, active, and adaptable learners using digital technology.

Discussion

The research findings indicate that the implementation of blended learning in midwifery education has a positive impact on improving students' academic and clinical skills. The research findings show that students experience learning flexibility, improved understanding of the material, developed learning independence, increased learning interaction, and encountered technical challenges during the learning process. In the context of modern midwifery education, blended learning can be understood as a "digital bridge" that connects theoretical learning with clinical practice experiences in a more adaptive and interactive manner.

1. The Flexibility of Blended Learning Increases Learning Convenience and Effectiveness

This study found that flexibility is one of the main advantages of blended learning. Students feel more comfortable because they can access learning materials at any time and review them as needed. This finding indicates that

blended learning provides greater learning freedom than conventional learning, which is bound by space and time.

The results of this study align with those of Regmi and Jones (2020), who stated that e-learning and blended learning increase learning accessibility and support independent learning in healthcare students. Furthermore, research by Goh and Sandars (2020) explains that digital technology in healthcare education enables students to have a more flexible and personalized learning experience.

In midwifery education, learning flexibility is crucial because students must balance theoretical learning, laboratory practice, and clinical practice. With blended learning, students can access demonstration videos and learning modules before the practicum, making practice time more effective. Research by Pei and Wu (2019) also shows that online learning provides better learning outcomes than traditional instruction in health education. This demonstrates that learning flexibility contributes to improved student understanding.

2. Blended Learning Improves Academic and Clinical Skills

The results of the study showed that students felt better prepared for laboratory practice after participating in blended learning. The use of demonstration videos, virtual simulations, and online discussions helped students understand clinical procedures more systematically.

This finding aligns with research by Chen et al. (2020), which found that virtual simulations effectively improve clinical skills and decision-making abilities in healthcare students. The use of visual media enabled students to understand the steps of midwifery procedures before engaging in direct practice.

Research by Shorey et al. (2019) also demonstrated that blended learning in healthcare education can improve critical thinking skills, clinical skills, and student engagement in learning. In this study, students stated that instructional videos helped increase their confidence during laboratory practice. This suggests that blended learning not only improves theoretical understanding but also supports students' psychological readiness for clinical practice.

Furthermore, research by Kim et al. (2021) found that digital-based learning significantly influenced the competency achievement of healthcare students. Thus, blended learning can be an effective learning strategy to improve midwifery competency holistically.

3. Improving Student Independence and Learning Motivation

This study shows that blended learning encourages students to become more independent in their learning. Students feel more active in seeking additional references, managing their study schedules, and engaging in learning discussions.

This finding aligns with the concept of student-centered learning, which positions students as active subjects in the learning process. Research by Oducado et al. (2021) shows that digital learning improves healthcare students' readiness for independent learning.

Furthermore, research by Khalil et al. (2020) explains that online learning during the COVID-19 pandemic improves students' ability to manage their learning independently. Students no longer simply receive information from lecturers, but actively explore additional learning resources through digital platforms.

In this study, students were seen more actively seeking out journals, educational videos, and other learning resources during the learning process. This situation indicates that blended learning helps foster a culture of independent learning, which is important in health professions education.

4. Learning Interactivity Helps Increase Student Participation

The results of this study indicate that blended learning creates more interactive learning than conventional methods. Students feel more comfortable expressing their opinions through online discussion forums and interactive quizzes. This finding is supported by research by Phillips et al. (2021), which states that blended learning improves student communication and participation in health education. Digital learning media provides a wider space for participation for students who tend to be passive in face-to-face learning.

Research by Turnbull et al. (2021) also explained that online learning can improve interaction between lecturers and students if supported by interactive learning designs. In this study, the use of an LMS, online quizzes, and discussion forums helped increase student engagement in the learning process. Learning interactivity also helps create a more engaging and less monotonous learning environment. Students felt the learning was more lively because it used a combination of videos, discussions, simulations, and practical learning.

5. Barriers to Blended Learning Implementation

Although blended learning was deemed effective, this study identified several major obstacles, namely: internet network disruptions, limited digital devices, online learning fatigue (digital fatigue), limited direct clinical practice. These findings align with research by Subedi et al. (2020), which showed that the main obstacles to online learning were internet access and students' technological readiness.

In addition to technical factors, students also experience fatigue due to prolonged online learning. Research by Dhawan (2020) states that continuous online learning can lead to decreased concentration and motivation in students. In midwifery education, practical skills still require real-life clinical experience, which cannot be completely replaced by digital learning. Therefore, blended learning needs to be designed proportionally so that online learning and face-to-face practice can complement each other.

6. Research Implications for Midwifery Education

The results of this study provide several important implications for the development of midwifery education:

a. Strengthening the Blended Learning System. Educational institutions need to develop blended learning as a permanent learning model in midwifery education.
b. Developing Digital Competence. Lecturers and students need to receive digital literacy training to be able to utilize learning technology optimally.
c. Strengthening Technological Infrastructure. The provision of a stable LMS, internet access, and interactive learning media are critical factors in the success of blended learning.
d. Integration of Simulation and Clinical Practice. Digital learning needs to be integrated with laboratory and clinical practice to maintain the quality of midwifery students' competencies.

Overall, blended learning has proven effective in improving midwifery students' skills, both in academic and clinical aspects. This learning system

provides flexibility, increases learning motivation, strengthens learning interactivity, and helps students become more independent in the learning process.

However, the effectiveness of blended learning is still influenced by technological readiness, the quality of the learning design, and the balance between online learning and direct practice. In midwifery education, blended learning is not simply a shift from classrooms to digital screens, but rather a transformation of the learning ecosystem that enables students to develop into adaptive, critical health workers who are ready to face the challenges of modern healthcare.

Conclusion

This study shows that blended learning is effective in improving midwifery students' skills, both in academic and clinical aspects. Students feel that the combination of online and face-to-face learning provides learning flexibility, improves understanding of the material, strengthens learning motivation, and encourages independence in the learning process. The use of digital media such as learning videos, LMS, online discussions, and virtual simulations helps students better prepare for laboratory and clinical practice. Furthermore, blended learning also creates a more interactive and student-centered learning environment.

However, the implementation of blended learning still faces several challenges, such as limited internet connection, online learning fatigue, and limited in-person clinical practice. Therefore, midwifery educational institutions need to improve the quality of their technological infrastructure, provide digital literacy training for lecturers and students, and develop more innovative and interactive learning designs.

It is recommended that blended learning be implemented sustainably with a student-centered learning approach, proportionally combining laboratory and clinical practice. Future research is expected to explore the effectiveness of blended learning on students' clinical competencies on a broader scale and use a mixed methods research approach to obtain more comprehensive results.

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