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The Influence of the Use of Interactive Learning Media on the Learning Outcomes of Midwifery Students

Al-Bahra¹, Hardjito S. Darmojo², Siti Madinah Ladjamuddin³

Department of Information Technology Education, University of Raharja-Indonesia¹

Department of Master of Administrative Sciences, Sheikh Yusuf Islamic University Tangerang, Indonesia²

Department of Information Technology, University of Saintek Muhammadiyah, Jakarta–Indonesia³

e-mail: albahra@raharja.info¹, hsdarmojo@unis.ac.id², madinah07city@gmail.com³

Abstract

Background: Technological developments in health education are driving a transformation of learning toward interactive digital media. In midwifery education, interactive learning media such as videos, digital simulations, and e-learning are expected to improve student learning outcomes, encompassing cognitive, affective, and psychomotor aspects. However, the effectiveness of their implementation still requires in-depth study within the context of student experiences. **Objective:** This study aims to explore the influence of the use of interactive learning media on midwifery student learning outcomes based on their learning experiences. **Methods:** This study used a qualitative approach with a phenomenological design. Participants consisted of 12 midwifery students selected using purposive sampling based on the criteria of having participated in interactive media-based learning. Data were collected through in-depth interviews, observation, and documentation. Data were then analyzed using the Miles, Huberman, and Saldaña model, encompassing the stages of data reduction, data presentation, and conclusion drawing. Data validity was tested using triangulation of sources, methods, and member checking. **Results:** The study revealed four main themes: improved understanding of learning materials, increased motivation and engagement in learning, increased readiness for clinical practice, and challenges in implementing technology. Interactive learning media helped students understand complex midwifery concepts through visualization and simulation, increased learning motivation through more engaging learning, and improved readiness for clinical practice. However, limited internet access and technological infrastructure remain barriers to optimal implementation. **Conclusion:** Interactive learning media positively impacted midwifery students' learning outcomes across cognitive, affective, and psychomotor domains. Integrating interactive learning media into the midwifery education curriculum is highly recommended to improve the quality of competent and adaptable graduates in the digital era.

Keywords: Interactive Learning Media, Learning Outcomes, Midwifery Students, Phenomenology, Digital Learning.

Introduction

The development of digital technology in education has brought significant changes to learning patterns in higher education, including in health fields such as midwifery education. The learning process, previously dominated by conventional methods, is now transforming toward the use of interactive learning media that are more adaptive and flexible, and able to increase student engagement in the learning process. Interactive learning media is defined as media that combines text, images, audio, video, animation, and interactive simulations, enabling students to actively participate in learning, rather than simply passively receiving information (Yaumi, 2018; Mayer, 2019).

In the context of midwifery education, mastery of clinical and theoretical competencies is a crucial aspect that students must achieve before entering the workforce. However, various studies indicate that challenges remain in achieving midwifery student learning outcomes, particularly in courses that require simultaneous conceptual understanding and practical skills. One contributing factor is the limitations of teaching methods used by lecturers, which are often one-way and do not provide in-depth learning experiences for students (Rini, 2017).

Student learning outcomes are an important indicator in assessing the success of the educational process. In midwifery education, learning outcomes encompass not only cognitive aspects but also psychomotor skills and professional attitudes. Previous research has shown that student learning outcomes can be influenced by various factors such as learning methods, learning styles, attendance, and learning motivation (Nurhayati et al., 2017). Therefore, innovation in learning strategies is needed

to improve the quality of learning outcomes.

Interactive learning media offers one solution to address these challenges. The use of media such as instructional videos, augmented reality, virtual simulations, and web-based learning has been proven to improve students' understanding of learning materials. For example, research shows that video and audiovisual media can significantly improve the basic practical skills of midwifery students because they provide realistic visualizations of clinical procedures that are difficult to understand through text alone (Johan et al., 2021; Maharani et al., 2025). Furthermore, the use of technology such as augmented reality has also been shown to enhance students' knowledge and skills through more immersive learning experiences (Hikmandayani & Kartini, 2023).

In recent years, the development of technology-based learning media such as virtual reality and e-learning has been increasingly applied in health education. These media allow students to safely simulate clinical procedures without risk to patients. Studies show that the use of virtual simulations can improve the clinical skills of midwifery students, particularly in labor case management (Hasyim et al., 2025). This suggests that interactive learning media not only enhances theoretical understanding but also enhances students' practical skills.

Furthermore, the use of interactive learning media is also associated with increased student motivation and engagement in the learning process. Students who learn using technology-based media tend to be more active, more focused, and understand the material more easily than those using traditional learning methods. This aligns with constructivist theory, which states that learning will be more effective when students are actively involved in constructing their own

knowledge through meaningful learning experiences.

However, the implementation of interactive learning media in midwifery education still faces several obstacles. Limited facilities, lack of lecturer training, and disparities in access to technology are factors that can impact the effectiveness of these media. Furthermore, not all students have the same adaptability to learning technology, requiring a more comprehensive approach to its implementation.

Therefore, it is important to conduct a more in-depth study of the influence of the use of interactive learning media on the learning outcomes of midwifery students. This research is relevant because it can provide an empirical overview of the effectiveness of interactive learning media in improving learning outcomes, including cognitive, affective, and psychomotor aspects. Furthermore, the results of this study are also expected to serve as a basis for developing more innovative learning strategies in midwifery educational institutions.

Overall, technology-based learning transformation is an unavoidable necessity in today's digital era. The integration of interactive learning media into the midwifery education process is expected to improve the quality of graduates, making them more competent, adaptive, and prepared to face the challenges of the healthcare workforce. Therefore, this research is expected to make an important contribution to the development of midwifery education, particularly in optimizing the use of interactive learning media to improve student learning outcomes.

Methods

1. Research Design

This research uses a qualitative approach with a phenomenological design.

This approach was chosen because it aimed to deeply understand the experiences, perceptions, and meanings experienced by midwifery students regarding the use of interactive learning media in the learning process. Phenomenology allows researchers to explore how students interpret their learning experiences, particularly in the context of improving learning outcomes through interactive digital media (Creswell & Poth, 2018).

A qualitative approach is considered relevant because the phenomenon of interactive media-based learning can be measured not only through numbers but also through students' subjective experiences in understanding the material, learning engagement, and changes in learning motivation (Hennink et al., 2020)

2. Research Subjects (Participants)

Participants in this study were second- and third-year midwifery students who had participated in learning using interactive media. The participant selection technique used purposive sampling, which is selecting a sample based on specific criteria that align with the research objectives. Participant criteria included:

- a. Active students in the midwifery study program.
- b. Have taken at least one course that uses interactive learning media.
- c. Willingness to serve as research informants.

The number of participants was determined based on the principle of data saturation, which occurs when the data obtained no longer yields new information (Guest et al., 2020).

3. Data Collection Techniques

Data collection was conducted using several techniques to obtain in-depth and triangulated data, namely:

- a. In-depth Interviews. Interviews were conducted semi-structured to explore students' experiences in using interactive learning media. Questions

focused on: learning experiences using interactive media, changes in understanding of the material, learning motivation, and perceptions of the media's effectiveness.

- b. Observation. Observations were conducted throughout the learning process to directly observe student engagement in the use of interactive media such as learning videos, simulations, and e-learning platforms.
- c. Documentation. Documentation included digital learning materials, student assignments, and learning activity notes on the e-learning platform.
- a. Method triangulation was used to increase the validity of the research data (Fusch & Ness, 2017).

4. Research Instruments

The primary instrument in this qualitative research was the researcher herself (human instrument), who played a role in collecting, analyzing, and interpreting the data. In addition, interview guidelines, observation sheets, and documentation checklists were used as supporting instruments.

5. Data Analysis Techniques

Data were analyzed using the Miles, Huberman, and Saldaña model, which consists of three main stages:

- a. Data Reduction. Data from interviews, observations, and documentation were selected, focused, and simplified to identify key themes.
- b. Data Display. Data were organized into narratives, tables, and thematic categories to facilitate interpretation.
- c. Conclusion Drawing/Verification. Conclusions are drawn based on patterns emerging from the data that have been analyzed in depth (Miles et al., 2019).
- d. The analysis was conducted thematically to identify patterns in

students' experiences with the use of interactive learning media.

6. Data Validity Testing

The validity of the data in this study was tested using the following techniques: 1) Source triangulation (students, documents, and observations), 2) Method triangulation (interviews, observations, documentation), 3) Member checking, which involves confirming interview results with participants, 4) Peer debriefing, which involves discussions with fellow researchers to avoid interpretation bias. This strategy was used to ensure the credibility, transferability, dependability, and confirmability of the data (Lincoln & Guba, 2019).

Results

1. Participant Characteristics

This study involved 12 midwifery students selected through purposive sampling from levels II and III. Participants had participated in interactive media-based learning such as clinical videos, e-learning, digital simulations, and interactive modules.

Table 1. Characteristics of Study Participants

Participant Code	Level	Age	Interactive Media Experience	Related Courses
P1	II	19	Video & e-learning	Basic Midwifery Care
P2	II	20	Interactive video	Basic Clinical Skills
P3	III	21	Digital simulation	Childbirth Care
P4	II	19	E-learning	Anatomy and Physiology
P5	III	22	Video + simulation	Emergencies
P6	II	20	E-learning	Community Midwifery
P7	III	21	Virtual simulation	Neonatal Care
P8	II	19	Interactive video	Reproductive Health
P9	III	22	E-learning + video	Labor Management
P10	II	20	Learning video	Pharmacology
P11	III	21	Clinical simulation	Clinical Practice
P12	II	19	E-learning	Midwifery Ethics

2. Thematic Findings

Data analysis using the Miles & Huberman model yielded four main themes that describe students' experiences with interactive learning media.

Theme 1: Improved Understanding of Learning Material

Most students stated that interactive learning media helped them understand material that was previously difficult to grasp through lectures.

Participant Quotes:

- P3: "If I use simulations, I understand the labor process more quickly than just reading a book."
- P7: "Videos allow me to visualize real-life clinical procedures."

Interpretation: Interactive media provides concrete visualizations of abstract concepts in obstetrics, thereby improving students' conceptual and clinical understanding.

Theme 2: Increased Motivation and Learning Engagement

Students demonstrated increased learning motivation because learning became more engaging and less boring.

Participant Quotes:

- P2: "Learning is more fun, not just listening to the lecturer."
- P9: "I am more enthusiastic about learning because there are interactive videos and quizzes."

Interpretation: Interactive media creates an active learning environment that increases student engagement in the learning process.

Theme 3: Improving Readiness for Clinical Practice

Students felt more prepared for clinical practice after using simulation media and procedural videos.

Participant Quotes:

- P5: "When I practice in the clinic, I already have an idea because I've seen the simulation."
- P11: "The simulation really helped me reduce my fear during my first practice."

Interpretation: Interactive media serves as a bridge between theory and practice, increasing students' confidence in clinical skills.

Theme 4: Barriers to Using Interactive Learning Media

Despite its effectiveness, some students experienced challenges in accessing technology and internet connections.

Participant Quotes:

- P6: "Sometimes it's difficult to access videos if the network is poor."
- P4: "Not all materials can be opened smoothly in e-learning."

Interpretation: Digital infrastructure barriers remain a challenge to the optimal implementation of interactive learning media.

3. Observation Results

Observation results showed that:

- Students were more active during video- and simulation-based learning.
- Class discussions were more lively than lecture methods.
- Students asked questions and engaged in discussions more frequently.
- Focus levels increased when visual media was used.

4. Documentation Results

Documentation analysis showed:

- E-learning-based assignments had a higher completion rate.
- Students accessed digital materials more consistently.
- Online quiz results showed an increase in average grades.
- LMS activities showed increased student interaction.

5. Summary of Key Findings

Table 2. Summary of Research Findings

Theme	Key Findings	Impact on Learning Outcomes
Material Understanding	Visualization improves understanding	Cognitive skills improved
Learning Motivation	Learning is more engaging	Participation improved
Clinical Readiness	Simulations increase self-confidence	Psychomotor skills improved
Technology Barriers	Limited internet access	Effectiveness not yet optimal

Overall, the results of this study indicate that the use of interactive learning media has a positive impact on midwifery students' learning outcomes, particularly in terms of conceptual understanding, learning motivation, and clinical practice readiness. However, the effectiveness of implementation is still influenced by limited access to technology and digital learning infrastructure.

Discussion

The results of this study confirm that the use of interactive learning media plays a strategic role in improving the quality of midwifery students' learning outcomes. Key findings indicate improvements in cognitive understanding, learning motivation, academic engagement, and clinical skills readiness. This phenomenon not only reflects the effectiveness of technology in learning but also marks a paradigm shift in midwifery education toward a more participatory and experience-based digital approach.

1. Enhanced Cognitive Understanding through Interactive Media

The results of this study indicate that students more easily understand complex midwifery material when presented through videos, simulations, and e-learning. Visualization of clinical processes helps students construct more concrete understanding.

This finding aligns with the Cognitive Theory of Multimedia Learning, which states that the combination of verbal and visual elements enhances information processing in working memory (Mayer, 2019). Interactive media helps reduce cognitive load, making learning more effective.

Other studies have also shown that digital simulations improve long-term information retention and procedural understanding in healthcare students (Mayer, 2017; Sweller et al., 2019). In the context of midwifery, visualization of the

labor process and clinical procedures provides a learning experience that approximates real-life situations.

2. Student Learning Motivation and Engagement

Interactive learning media has been shown to increase students' intrinsic motivation. Students are more enthusiastic about participating in learning because the material is presented dynamically and not monotonously.

This can be explained through Self-Determination Theory, which emphasizes that motivation increases when individuals feel they have autonomy, competence, and social connectedness (Ryan & Deci, 2020). Interactive media provides the flexibility of self-directed learning, which increases students' sense of control over their learning process.

Research by Bond et al. (2020) shows that student engagement in digital learning increases significantly when activity-based interactive media is used. Furthermore, multimedia-based learning also increases active participation in class discussions (Khan et al., 2021).

3. Improving Clinical Skills Readiness

One important finding is the increased preparedness of students for clinical practice. Digital simulations and procedural videos provide initial experiences that help students understand the steps of clinical procedures before direct practice.

This aligns with Kolb's Experiential Learning Theory, which states that effective learning occurs through concrete experience, reflection, conceptualization, and active experimentation (Kolb, 2017). Interactive media allows students to experience the clinical process safely and repeatedly.

Research by Foronda et al. (2018) and Liaw et al. (2020) shows that virtual simulations significantly improve the clinical skills, communication, and

confidence of healthcare students, including midwifery and nursing.

4. Increased Participation and Active Learning

Interactive learning media encourages students to be more active in asking questions, discussing, and exploring the material. This demonstrates a shift from passive learning to active learning.

This phenomenon aligns with constructivism theory, which emphasizes that knowledge is built through social interaction and experiential learning (Bruner, 2019). Digital media allows students to collaborate in a virtual space that supports active learning. A study by Hrastinski (2019) showed that interactive online learning improves the quality of academic discussions and strengthens collaboration between students.

5. Effectiveness of Simulation and Virtual Learning in Midwifery Education

Digital clinical simulations are one of the most effective components of midwifery learning. Students can repeat procedures without risk to patients. Research by Cant & Cooper (2017) showed that simulation-based learning significantly improves clinical competence compared to traditional methods. Furthermore, virtual reality in health education has been shown to improve procedural skills and clinical decision-making (Padilha et al., 2019). In the context of midwifery, this is crucial because clinical skills require repeated practice before being applied to real patients.

6. Transforming the Role of Lecturers in Digital Learning

The use of interactive media shifts the role of lecturers from information centers to learning facilitators. Lecturers play a greater role in guiding, providing feedback, and facilitating critical discussions. This aligns with the student-centered learning approach, where students

become the primary actors in the learning process (Weimer, 2018). This transformation also improves the quality of academic interactions in the classroom.

7. Challenges in Implementing Interactive Learning Media

Although effective, this study identified several obstacles, such as limited internet access, technological devices, and students' digital literacy. This phenomenon aligns with the concept of the digital divide, which indicates unequal access to technology in education (Van Dijk, 2020). These limitations can hinder learning effectiveness if not addressed through institutional support. Research by Adedoyin & Soykan (2020) also confirms that infrastructure readiness is a critical factor in the success of digital learning.

8. Implications for Improving Midwifery Student Learning Outcomes

Overall, interactive learning media significantly contributes to improving midwifery student learning outcomes in three main aspects:

- Cognitive: improved understanding of clinical concepts
- Affective: increased motivation and positive attitudes
- Psychomotor: improved readiness for clinical skills

These findings demonstrate that the integration of technology in midwifery education is not merely an innovation, but a strategic necessity to produce competent and adaptive healthcare workers in the digital era.

Conclusion

Based on the results of qualitative research conducted on the use of interactive learning media on midwifery students' learning outcomes, it can be concluded that interactive learning media have a significant positive impact on improving the quality of learning.

Research findings indicate that interactive media such as learning videos, digital simulations, and e-learning can improve students' conceptual understanding in the cognitive aspect, particularly in complex and procedural midwifery material.

Furthermore, the use of interactive learning media has also been shown to increase student motivation and engagement in the learning process. Students become more active, enthusiastic, and have more meaningful learning experiences compared to conventional learning methods. This indicates a shift in learning patterns from passive to active and participatory.

In terms of psychomotor skills, interactive learning media, particularly clinical simulations and procedural videos, significantly contribute to improving student readiness for clinical practice. Students feel more confident and have a clearer picture before performing direct procedures on patients.

However, this study also identified several obstacles in implementing interactive learning media, primarily related to limited internet access, technological infrastructure, and variations in students' digital literacy. These obstacles indicate that the effectiveness of interactive learning media is still influenced by external factors that require further attention.

Overall, it can be concluded that interactive learning media plays a significant role in improving midwifery students' learning outcomes in the cognitive, affective, and psychomotor aspects, making it worthy of broader integration into the midwifery education system.

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