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Development of interactive obstetric emergency learning media for midwifery students at Adiwangsa University, Jambi, Indonesia

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Abstract

In line with the principles of Industry 4.0, the creation of innovative and interactive educational materials plays a pivotal role in advancing IT competencies. Consequently, the government initiated a curriculum outlined in PP No. 70 of 2013. This endeavor not only seeks to enhance the abilities of midwifery students in managing emergencies but also holds the potential for profound impacts on their competence and proficiency in executing clinical procedures, particularly in handling cases that support their work in the realm of midwifery and healthcare services. This research is aimed at assessing the proficiency of midwifery students in interactive obstetric emergency learning processes, providing valuable insights into their preparedness for responding to obstetric emergency cases in healthcare settings. The research design employed for this study is cross-sectional. The study population and sample encompassed 40 midwifery students at Adiwangsa University in Jambi. The findings pertaining to interactive learning resources for obstetric and uterine atony emergencies indicate that the majority of student and lecturer needs are adequately met. The results of prototype validation, as evaluated by students, lecturers, and media experts, demonstrate high validity values and excellent assessments from both lecturers and media experts, thereby confirming its suitability for educational use. Notably, several respondents expressed that the interactive YouTube MP4 video content was highly effective in enhancing the abilities and competencies of midwifery students. The results of the chi-square statistical test indicate a significant relationship between student needs and interactive learning resources (P-value = 0.000). However, for lecturers, there was no discernible relationship between their needs and the chosen learning resources (P-value = 0.091). In conclusion, the development of interactive educational resources for addressing emergency obstetric uterine atony, primarily based on YouTube MP4 videos, is evidently a valuable asset appreciated by midwifery students. Furthermore, it proves to be a suitable tool for lecturers aiming to enhance the abilities and competence of midwifery professionals in the realm of healthcare services, consistent with the scope of their practice. This educational resource is anticipated to be integrated into both theoretical and practical courses, facilitating the preparation of future professional midwives under the guidance of educators and supervisors.

Keywords: Emergency learning, media, midwifery, students

Introduction

The competence of a midwife is closely intertwined with their educational journey [1-3]. Education is an indispensable aspect of every individual's life, as it provides the essential knowledge and guidance imparted by experienced educators or subject matter experts. Education also stands as a yardstick for a nation's progress [4, 5]. Moreover, it serves as a means to shape an individual's character and align them with the ideals of their chosen field of study. It's an ongoing process aimed at enhancing the quality of human resources [6, 7] and preparing individuals for a future filled with opportunities that align with their aspirations [7].

However, a prevailing challenge has been observed in the educational landscape, where students primarily learn through lectures aided by PowerPoint presentations (PPT), and laboratory practices often fall short of delivering optimal understanding. Consequently, some students harbor doubts about implementing practical procedures, despite their theoretical knowledge gained from D4 midwifery education. In the context of Industry 4.0, which advocates for innovative education systems and the enhancement of IT skills [8, 9], a revamp of the midwifery education curriculum is in order.

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Within this curriculum, it is imperative that midwifery graduates meet the competency standards demanded by the field of midwifery. The introduction of interactive media, based on YouTube MP4 videos, offers promise in nurturing the capabilities of midwifery students in comprehending obstetric emergency concepts, both theoretically and practically [5, 8-10]. The aspiration is that the development of multimedia applications, designed to be user-friendly and easily accessible on mobile devices or laptops, will serve as interactive tools to facilitate students' grasp of emergency topics presented during their education. Typically, mobile phones are primarily used for gaming or social media interactions. However, investing in media with an educational focus can greatly contribute to skill development [3, 6] and empower students in their academic pursuits.

YouTube MP4 car-based interactive learning media is created through computer technology. Computers have gained popularity as educational tools due to their unique features. In essence, using computers to deliver educational content allows for active student engagement and facilitates quick and precise feedback [8, 11]. This YouTube MP4 car-based interactive learning media comprises various elements, including text, sound, animation, and interactive components. The fusion of these elements results in captivating educational content that can pique students' interest in learning. Specifically, this interactive learning media focuses on maternal emergency management, specifically addressing uterine atony cases in healthcare services [11-14].

The concluding section of this media also includes an evaluation component, designed to provide reinforcement and recognition for students. Moreover, this media offers several advantages over other traditional forms of media. The foremost advantage lies in its interactive nature. Computers enable the realization of a direct relationship between stimuli and responses, fostering inspiration and heightened interest. Through this media, students have the opportunity to cultivate their enthusiasm and interest in interactive learning.

This study aims to explore the correlation between respondents' needs and interactive learning media for managing obstetric emergencies, particularly uterine atony, utilizing YouTube MP4 video-based content.

Materials and Methods

Design

The development of this interactive media aligns with the research design model proposed by Rusdi [15], which follows the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) framework.

Research Subjects

The research focused on students pursuing a midwifery profession at Adiwangsa Jambi University, located in Jambi Province, Indonesia. The study involved a total of 40 randomly selected participants. This research was conducted between January and August 2023.

Research Variables

In this study, the independent variables encompassed students' requirements for interactive learning concerning obstetric emergencies and lecturers' prerequisites for interactive learning on the same topic. Meanwhile, the dependent variable was the interactive learning platform utilizing YouTube MP4 video media. All variables were assessed using a validated questionnaire that had been deemed suitable for research

purposes.

Research stages

1. **Analyze:** In this initial phase, we conduct a comprehensive analysis, including preliminary identification and surveying, as well as an extensive search for relevant library sources and research findings. Additionally, we delve into an examination of the initial study focusing on the needs of both students and lecturers concerning interactive learning media for obstetric emergencies, particularly uterine atony.
2. **Design:** The design phase revolves around identifying the essential components required to develop interactive media based on YouTube MP4. To kickstart this phase, researchers determine competencies based on the Recommended Program of Study (RPS) for emergency courses. This stage serves as the cornerstone for the subsequent creation of interactive media using YouTube MP4 videos.
3. **Development:** The development stage is where we generate a tangible product in the form of interactive media, harnessing the capabilities of YouTube MP4 video technology. Rigorous testing, including construct and media evaluations, is conducted by experts in the field.
4. **Implement:** The interactive media design intended for implementation undergoes validation and assessment by two obstetrics emergency course lecturers and a media expert. Moreover, if the validation and assessment results reflect a high standard, indicating the excellence of the media design, we diligently record suggestions and feedback from these experts and educators. Subsequently, revisions are made based on this valuable input, paving the way for continued progress in the research process.
5. **Evaluate:** Following the validation tests conducted by lecturers and experts, the subsequent step involves a comprehensive evaluation of the evolving product. If deemed necessary, researchers undertake further revisions until the product aligns seamlessly with the criteria for effective use and applicability.

Data Analysis

1. Analysis of Requirement Data

The technique employed to analyze the data requirements for prototypes of interactive obstetric emergency learning media, intended for midwifery students, involves a meticulous process of selecting, prioritizing, and responding to data collected from the field. Subsequently, the gathered data is transformed into foundational principles for creating media prototypes. These prototypes are then subject to evaluation by competent lecturers and experts within their respective fields.

2. Analysis of Lecturer and Expert Validation Test Data

This dataset stems from validation test questionnaires completed by lecturers teaching obstetrics emergency courses at Adiwangsa University in Jambi, along with contributions from media experts. The outcomes of this data analysis enable researchers to draw conclusions regarding any deficiencies in the prototype under development. This, in turn, facilitates improvements grounded in the valuable input and suggestions provided by these experts.

3. Analysis of Interactive Learning Material for Obstetric Emergencies, Uterine Atony

This phase entails the presentation of material and the administration of research questionnaires to midwifery students

at Adiwangsa University in Jambi. Subsequently, the collected data undergoes analysis employing the chi-square statistical test. The objective is to ascertain the correlation between students' requirements and the learning materials offered at Adiwangsa University.

Results

The requirements of midwifery students for interactive learning media concerning emergency uterine atony, which are based on YouTube videos, are detailed in Table 1.

Table 1: The students' requirements for interactive learning media on emergency uterine atony, based on YouTube videos.

| Responses of Students | n (%) |
|--|-----------|
| Understanding of the course | |
| Extremely challenging | 1 (2.5) |
| Challenging | 28 (70) |
| Ordinary | 11 (27.5) |
| The needs of interactive learning media | |
| Adequate | 26 (65) |
| Inadequate | 14 (35) |
| Presentation of interactive learning material | |
| Concise and clear | 26 (65) |
| Unclear | 14 (35) |
| Visual Communication (Display) interactive learning media | |
| Bright colors do not disrupt the display | 20 (50) |
| Dark colors do not disrupt the appearance | 16 (40) |
| Unclear | 4 (10) |
| Physical needs for interactive learning media | |
| Strongly agree | 16 (40) |
| Agree | 21 (53) |
| Disagree | 3 (7) |

Table 1 illustrates that prior to the adoption of interactive learning media, 70% of students found the midwifery emergency course to be primarily challenging. Upon the introduction of interactive learning media, 65% of students appraised it as predominantly adequate. The presentation of interactive learning materials was deemed concise and clear by 65% of students, with Visual Communication (Display) emerging as the predominant form of interactive learning media. Additionally, 50% of students opined that bright colors did not cause clutter on the display, while 53% emphasized the prominence of physical requirements in interactive learning media.

Table 2: Lecturers' needs for interactive learning media for uterine atony emergencies based on YouTube videos

| Responses of Lecturer | N (%) |
|--|--------|
| Understanding of the course | |
| Extremely challenging | 1 (10) |
| Challenging | 6 (60) |
| Ordinary | 3 (30) |
| The needs of interactive learning media | |
| Adequate | 5 (50) |
| Inadequate | 5 (50) |
| presentation of interactive learning material | |
| Concise and clear | 7 (70) |
| Unclear | 3 (30) |
| Visual Communication (Display) interactive learning media | |
| Bright colors do not disrupt the display | 5 (50) |
| Dark colors do not disrupt the appearance | 3 (30) |
| Unclear | 2 (20) |
| physical needs for interactive learning media | |
| Strongly agree | 7 (70) |
| Agree | 3 (30) |

Table 2 reveals that prior to the introduction of interactive learning media, 60% of lecturers perceived students' comprehension of the midwifery emergency course as predominantly challenging. In their assessment of interactive learning media, 50% of lecturers considered it to be both adequate and inadequate. The presentation of interactive learning materials was deemed concise and clear by 70% of lecturers, with Visual Communication (Display) emerging as the dominant form of interactive learning media. Additionally, 50% of lecturers expressed that bright colors did not clutter the display, while 70% strongly agreed regarding the physical requirements of the dominant interactive learning media.

Table 3: The distribution of respondents based on students' and lecturers' needs for interactive learning media on obstetric emergency uterine atony.

| The needs of interactive learning media | Students | Lecturer |
|---|----------|----------|
| Adequate | 24 (60) | 7 (70) |
| Inadequate | 16 (40) | 3 (30) |

Table 3 indicates that the requirement for interactive learning media concerning orthopedic emergencies related to uterine atony is primarily deemed sufficient, with a percentage exceeding 50%.

Table 4: The relationship between student needs and interactive learning media for obstetric emergencies, uterine atony, based on YouTube MP4 video media

| The needs of Media | Interactive learning of Uterine atony | | | | p |
|--------------------|---------------------------------------|------|---------------|------|-------|
| | Appropriate | | Inappropriate | | |
| Students | n | % | n | % | 0.000 |
| Adequate | 12 | 57.1 | 9 | 42.9 | |
| Inadequate | 9 | 47.4 | 10 | 52.6 | |
| Dosen | | | | | |
| Adequate | 4 | 100 | 0 | 0 | 0.091 |
| Inadequate | 3 | 50 | 3 | 50 | |

Table 3 provides insights into the assessment of interactive learning media needs by respondents. Among the 21 respondents with adequate needs, 57.1% affirmed that the interactive learning content concerning obstetrics and uterine atony aligned with students' requirements. Conversely, among the 19 respondents with inadequate needs, 47.4% believed that the interactive learning material related to Obstetric Uterine Atony emergencies was consistent with student needs.

Regarding the four lecturers, they unanimously assessed that the media needs were adequate, with 100% confirming that interactive learning about Obstetric Uterine Atony emergencies met students' requirements. Conversely, among the six lecturers who perceived the needs as inadequate, 50% still opined that the interactive learning content for obstetrics and uterine atony appropriately addressed students' needs.

Discussion

The analysis of the need for an interactive learning media model concerning obstetric uterine atony emergencies reveals that the majority of respondents, including both students and lecturers, require interactive learning materials that utilize YouTube MP4 video media. The significance of interactive learning is highly valued by educators and lecturers, serving as a crucial reference point for developing an interactive learning media model. This model aims to enhance the capabilities of prospective professional midwifery students in handling obstetric emergency cases, particularly those arising from uterine atony during

postpartum situations.

Upon scrutinizing the results of the validation and normality test analyses, it becomes evident that the student and lecturer needs questionnaire is valid. However, it is worth noting that during the development of interactive learning media, certain images were considered less appealing. Experts have provided valuable feedback, particularly on the quality of moving images and audio elements. Nevertheless, not all assessments and suggestions for improvement were incorporated as the foundation for revisions. Researchers considered their own concepts and deliberations in refining the learning media, ensuring that the final product retains its unique characteristics.

The analysis outcomes demonstrate that the majority of respondents, encompassing both students and lecturers, concur that the interactive learning media for obstetric emergency uterine atony, based on YouTube MP4 Videos, aligns with their needs. This trend can be attributed to the evolving technological landscape and the rapid advancements in science and technology. It is worth noting that the demand for computer-based learning often presents challenges, particularly since not all students possess computers, especially those pursuing specialized pathways who may not be technologically proficient. This learning media proves to be more engaging compared to the comprehensive yet detailed midwifery textbooks that meticulously outline the steps for practicing midwifery care. With an attractive and interactive media design, it succeeds in piquing interest in learning and serves as a source of motivation to revisit and engage with this learning resource [16-18]. The process of refining the prototype involved transforming it into a PPT format, complete with sound and animated visual elements. Subsequent revisions led to the creation of a research questionnaire. This versatile media can be utilized individually or in a classroom setting. However, a notable drawback is its dependency on computer access, posing challenges for students lacking these resources, hindering their ability to access the media at their convenience.

Additionally, this media does not provide comprehensive coverage of all the course material. Nevertheless, the results of the lecturer's assessment of the prototype were exceedingly positive, warranting further research. Furthermore, the media expert's evaluation yielded outstanding marks for the interactive emergency learning media prototype based on YouTube MP4 videos, intended to enhance the abilities and competence of midwifery students at Adiwangsa University, Jambi. Consequently, the resulting interactive learning media product proves highly suitable for use in the teaching and learning process by both lecturers and students.

Interactive learning media serves as an invaluable resource for students and lecturers, contributing significantly to the enhancement of midwifery skills and professional competence. Enhanced prototypes featuring captivating designs hold the potential to inspire students, lecturers, and even other healthcare professionals to engage actively with this interactive media for comprehensive learning [1, 4, 19].

Communicative learning media, much like interactive learning media, plays a pivotal role as a learning guide, particularly for specific cases. It underscores the significance of presenting core material in an engaging manner, as evidenced by the significant relationship observed [20, 21]. Students express the desire for interactive learning media on obstetric emergencies, such as uterine atony, to be tailored to their specific needs, encompassing both content and interactive learning materials. These materials should be practical and applicable in healthcare services. This media serves as a valuable resource for students, facilitating individual and group learning in an enjoyable

manner. Through this medium, students not only absorb course material but also enhance their proficiency in midwifery care by grasping the procedural aspects with the aid of illustrations and step-by-step guidance.

In this technological era, it would be a significant oversight to regard interactive learning media for students as something ordinary or simplistic, assuming that the mere utilization of the latest media or library books suffices. Conventional classroom instruction, featuring discussion-based teaching and other methodologies, complemented by hands-on practice in midwifery care labs using anatomical models, can indeed be effective. Yet, it is crucial to recognize that interactive learning offers distinct advantages. It has the potential to mitigate educational hurdles within the classroom, fostering active student participation and the development of their abilities. Moreover, crafting interactive learning materials through platforms like Canva or PowerPoint (PPT) in digital formats can enhance creativity and streamline the delivery of educational content for lecturers.

Effectively presenting interactive obstetric emergency learning materials has the capacity to ignite students' enthusiasm, motivating them to strive for a more profound and effective understanding of the curriculum.

Conclusion

There exists a notable correlation between the requirements of respondents (students) and the interactive learning media pertaining to obstetric uterine atony emergencies, as showcased through MP4 YouTube videos. In contrast, no significant correlation was observed between the requirements of respondents (lecturers) and the interactive learning media for obstetric emergencies related to uterine atonia, utilizing YouTube MP4 videos

Conflict of Interest

Not available

Financial Support

Not available

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