Journal of Education Technology
Volume 6, Number 4, 2022 pp. 607-616
P-ISSN: 2549-4856 E-ISSN : 2549-8290
Open Access: https://ejournal.undiksha.ac.id/index.php/JET

The iPosyandu Application for Midwives as Learning Media in Continuity Midwifery Care Training Curriculum

Ari Indra Susanti[1*], Mohammad Ali[2], Asep Herry Hernawan[3], Fedri Ruluwedrata Rinawan[4]

[1] Faculty of Science Education, Universitas Pendidikan Indonesia, Bandung, Indonesia
[2] Department of Public Health Sciences, Universitas Padjadjaran, Bandung, Indonesia
[3] The Research Center for Health System and Innovation of Health Workforce Education, Universitas Padjadjaran, Bandung, Indonesia

ARTICLE INFO

Article history:
Received April 04, 2022
Revised April 11, 2022
Accepted Augsut 12, 2022
Available online November 25, 2022

Kata Kunci:
Aplikasi iPosyandu, Asuhan Kebidanan Berkelanjutan, Kurikulum Pelatihan.

Keywords:
iPosyandu Application, Continuity Midwifery Care, Training Curriculum

DOI:
https://doi.org/10.23887/jet.v6i4.46064

ABSTRAK

Saat ini bidan desa mengalami peningkatan beban kerja karena semakin banyak program pelayanan kesehatan, sehingga tidak dapat memberikan asuhan kebidanan berkelanjutan secara optimal. Penelitian ini bertujuan untuk menganalisis hubungan antara media pelatihan berbasis aplikasi iPosyandu dengan materi pelatihan asuhan kebidanan berkelanjutan dan evaluasi pembelajaran. Jenis penelitian ini adalah penelitian analitik dengan desain penelitian cross sectional. Subyek penelitian sebanyak 110 orang. Pengambilan data dilakukan memberikan kuesioner secara online (google form) diberikan kepada bidan desa. Data univariat diolah dan di analisis untuk mengetahui nilai mean dan standar deviasi pada semua variabel penelitian. Analisis data bivariate dengan uji Pearson karena jenis data numerik. Hasil penelitian tidak terdapat korelasi antara komponen kurikulum pelatihan (mencakup bahan pelatihan, media pembelajaran, dan evaluasi pembelajaran) dan kompetensi asuhan kebidanan berkelanjutan. Akan tetapi, terdapat korelasi yang signifikan antara bahan pelatihan dan media pembelajaran. Selain itu, didapatkan korelasi yang signifikan antara evaluasi pembelajaran dan media pembelajaran. Disimpulkan bahwa antara komponen kurikulum pelatihan saling berkaitan, sehingga aplikasi iPosyandu dapat digunakan sebagai media pelatihan untuk semua kompetensi dalam pelatihan. Implikasi penelitian ini, bidan dapat menggunakan aplikasi iPosyandu sebagai media pembelajaran yang memberikan kemudahan untuk mengakses bahan pelatihan, sehingga menghemat biaya pelatihan bagi bidan sebagai peserta pelatihan dan penyelenggara pelatihan.

ABSTRACT

Currently, village midwives are experiencing an increased workload because there are more and more health service programs, so they cannot provide optimal sustainable midwifery care. This study analyzes the relationship between iPosyandu application-based training media and training materials for continuing midwifery care and learning evaluation. This type of research is analytical research with a cross-sectional research design. The research subjects were 110 people. Data was collected by providing the village midwife with an online questionnaire (google form). Univariate data were processed and analyzed to determine all research variables' mean and standard deviation values. Bivariate data analysis with Pearson test due to the type of numeric data. The study found no correlation between the components of the training curriculum (including training materials, learning media, and learning evaluation) and continuing midwifery care competencies. However, there is a significant correlation between training materials and learning media. In addition, a significant correlation was found between learning evaluation and learning media. It was concluded that the components of the training curriculum were interrelated so that the iPosyandu application could be used as a training medium for all competencies in training. This research implies that midwives can use the iPosyandu application as a learning medium that makes it easy to access training materials, thereby saving training costs for midwives as training participants and organizers.

1. INTRODUCTION

Maternal mortality is one of the health problems in Indonesia with the Maternal Mortality Rate (MMR) of 305 per 100,000 live births, so that Indonesia did not succeed in achieving the Sustainable Development Goals (SDGs) target of 102 per 100,000 live births in 2015. Maternal mortality is associated with Maternal and Child Health (MCH) service system (Adnani et al., 2022; Girum & Wasie, 2017). MCH services have decreased in quality, due to the lack of experience in clinical skills of midwives during midwifery education. However,

** Corresponding Author: Ari Indra Susanti: ari.indra@upil.edu*

midwives must have competence in dealing with maternal health issues (pregnancy, delivery and infant, postpartum) to reduce maternal and infant mortality. The World Health Organization (WHO) recommends all developing countries to provide midwifery services with continuous midwifery care provided by midwives working at the primary care level (Aune, I. et al., 2021; Hiola, T. T., & Badjuka, 2020). For this reason, midwives are required to think critically in establishing the right midwifery diagnosis for appropriate decision making and quality midwifery care. This need is based on the progress and discovery of science and technology, so an innovation is needed to develop a curriculum based on existing situations and conditions. The education and training curriculum is a learning plan that includes learning objectives, learning materials, learning strategies including learning media, and evaluation of learning systematically and reflectively in accordance with the vision and mission of an educational institution (Ali & Susilana, 2021; Insani, A. A., Nurdiyan, A., Yulizawati, Y., Bustami, L. E., Iryani, D., & Fitrayeni, 2017; Julaeha et al., 2021; Özer, 2020).

Learning strategies in training using problem-based learning can improve critical thinking skills, especially the ability to interpret, analyze, evaluate, and conclude problems based on what is faced by midwives who continue to hone their problem-solving skills. In building the competence of midwives, there is a need for teaching during training to form higher knowledge. Learning strategies using technology focus on trainees and structure so as to form relationships to increase participant-centred independence, engagement, and achievement. This strategy is used online and strengthens the learning experience in the classroom when meeting face-to-face with peat participants (Ceylan, V. K., & Elitok Kesici, 2017; Liang et al., 2021; Zamroni et al., 2020). To support the learning process, innovative and interesting learning media are needed so that they are in accordance with the needs of the times. One of the Information and Communication Technology (ICT) tools is an application designed as a skills-based mobile learning to achieve learning objectives and learning outcomes that support appropriate pedagogy (Ekren, G., & Ozdamar-keskin, 2017; Hairida, 2019). Applications are used to search and search for information online as a stimulus to create a positive learning atmosphere. Training participants can elaborate affective and psychomotor aspects in solving Maternal and Child Health (MCH) problems found in the field. This ability is certainly very much needed by midwives, especially to hone the ability to think, respond, and act in making decisions, so as to realize attitudes and behaviors that respect and uphold human values. To achieve sustainable midwifery care competencies, case and problem-based learning is needed to shape the attitudes and skills of midwives in decision making in providing health services (Hilty et al., 2020; Pecore, 2012).

When midwives attend training, they must have three basic skills, namely: (1) thinking and problem solving skills; (2) information and communication skills; and (3) interpersonal skills and self-direction using the application. Learning through the application aims to evaluate cognitive processes and assessment of learning outcomes as well as learning/teaching activities in achieving effective learning based on learning objectives. In addition, learning through applications can raise students' motivation and interest because there are varied and interesting media that provide opportunities for trainees to do many things in learning (learning by doing) (Ekren, G., & Ozdamar-keskin, 2017; Purwadhi, 2019). Currently, application-based training materials are needed in line with technological developments. Therefore, it is necessary to have a technology skills training program for health workers in dealing with health problems. The material in the application has a positive impact on students to interact with peers in collaboration and communication, thereby influencing their tendency to think high-level in problem solving, critical thinking, and creativity (Hwang et al., 2018; Slovensky et al., 2017). One of the digital health applications used for learning is the iPosyandu application. This app was first developed in 2018, and continues to grow. iPosyandu is a mobile and web-based application designed to make it easier to see activities at Posyandu and compile reports (Zulianto et al., 2021). Village midwives receive reports on posyandu activities from cadres. However, based on inaccurate report data, midwives want to gain access to monitor MCH data input by cadres. Thus, the iPosyandu application was developed for its users, not only for cadres, parents but also for midwives through research with a hybrid action research approach. In addition, the iPosyandu application for midwives is not only for recording and reporting Posyandu activities, but is developed as a learning medium to improve midwives' competence through training (Rinawan et al., 2021; Zulianto et al., 2021). This research has benefits for midwives as training participants who use the iPosyandu application as a learning medium and also as mobile health in providing continuity midwifery care. This study aims to show the relationship between the iPosyandu application-based training media with training materials on continuity midwifery care and learning evaluation. Thus, from the results of this study, it is hoped that the iPosyandu application can be used as a learning medium by educational institutions, health offices, and institutions that provide training for health workers, especially midwives.

2. METHOD

This type of research is an analytic study with a cross sectional research design (Ali, 2019). The cross sectional research design is shown in Figure 1, that the population/sample in this study were village midwives

who filled out questionnaire given by the researcher through the PKM coordinator midwife. Independent variable in this study is the component of the iPosyandu application-based training curriculum and dependent variable is the competence of continuity midwifery care.

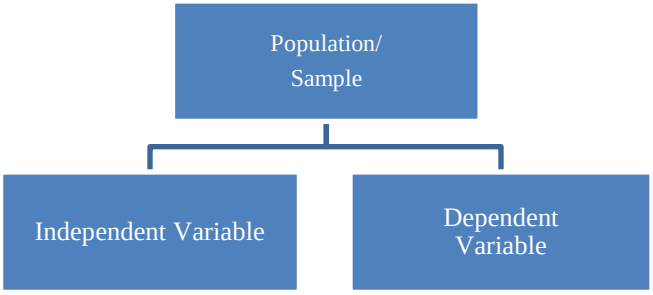

Figure 1. Cross Sectional Research Design

The subjects in this study were village midwives as many as 110 people. The sampling technique was carried out by non-probability sampling (convenience sampling), where the research subjects who filled out the questionnaire were given, then the subject became the sample in this study. The procedure for this research is carried out in advance for the research permit process to the Kesbang Pol and the Health Service and PKM, where the village midwife is on duty. Then, coordinate with the coordinating midwife in each PKM to collect research data in the form of a questionnaire. After that, the questionnaire in the form of a google form link was sent to the coordinating midwife at each PKM online via whatsapp. Furthermore, the coordinating midwife provided a questionnaire link to the village midwife via the village midwife's whatsapp group. This questionnaire consists of closed and open questions. This questionnaire consists of 2 questionnaires, namely a questionnaire about the components of the training curriculum and a questionnaire about the competence of continuity midwifery care. The questionnaires for the training curriculum components consist of: (1) types and methods of accessing application-based training materials; (2) the convenience and benefits of application-based training media; (3) types and methods of evaluating learning in training. This questionnaire was tested for validity before being used for data collection. The questionnaire component of the training curriculum consists of 21 questions given to 25 village midwives, all questions are valid (0.32-1.00) and reliable (r=0.965). While the grid of competency questionnaires for continuity midwifery care, namely: (1) maternity care; (2) maternity care; (3) newborn care (BBL); (4) postpartum care. The continuity midwifery care competency questionnaire consists of 81 questions given to 25 village midwives, but there are 67 valid (0.40-1.00) and reliable questions (r=0.980), while 13 questions are invalid (<0.20). The method of data analysis in this research, using descriptive statistical tests on univariate data, which aims to determine the mean and standard deviation of all research variables. After that, an analytical statistical test was carried out on bivariate data using the Pearson test because the type of data was numerical. Analysis of the research data using SPSS version 25 software.

3. RESULT AND DISCUSSION

Result

Table 1. The Relationship between Aspects of the Training Curriculum and the Competency of Continuity Midwifery Care

Aspects of the Training Curriculum	Continuity Midwifery Care Competencies	
	r	p-value*
Training Materials	0.101	0.146
Learning Media	0.042	0.332
Learning Evaluation	0.109	0.128

Note: Pearson test**

Table 1 presents that there was no correlation between the aspects of the training curriculum (training materials, learning media, and learning evaluation) and the competence of continuity midwifery care (p-value > 0.005).

Table 2. The Relationship between Aspects of the Training Curriculum and Learning Media

Aspects of the Training Curriculum	Learning Media	
	r	p-value*
Training Materials	0.667**	0.000
Learning Evaluation	0.554**	0.000

Note: Pearson test**

Table 2 presents that there was a significant and strong correlation between the training materials and learning media (p-value = 0.000 and r-value = 0.60-0.80). In addition, there was a significant but moderate correlation between the learning evaluation and learning media (p-value < 0.005 and r-value = 0.40−0.60).

Table 3. The Results of the Midwives' need for iPosyandu Application in Training

Contents of the Training Menu	Training Material	Learning Media	Suggestion
More info to support training	About health	Animated videos, practical videos, training videos, learning videos	The menu is not complicated; the menu is easy to understand and learn; all the menus support (the learning activities)
About health	Emergency treatment for mother and baby	The technical training video; good videos and explanation An interesting video that can explain the training material or practice	More concise, complete, not many but clear and easy to understand,
Name, age, address, email, and phone number	About pregnancy, labor, postpartum, and the correct way of communication, question and answer	Partograph app	There is a collection of obstetricians and pediatricians, nutrition analysts, special therapists for children who are malnourished or have abnormalities.
Question and answer	Effective communication techniques, leadership techniques, comprehensive midwifery care, emergency management of mothers and babies	Handling Practices and Modules, training modules, in pdf format	Face to face/Zoom
E-learning, Applications about health, Home, help desk	Examples of practical learning	Zoom, Google drive, Google Form, material via WhatsApp, YouTube	An application that facilitates reports and provides online data
The menu that is displayed will be better if the features in it include a description or explanation of the function of these features	Summary of the theory of pathological and physiological obstetrics, the examples of practical learning, Up-to-date knowledge, and training	Questions and answers/counseling	

Based on the answers to the open questions presented in Table 3. A flowchart was designed for the iPosyandu Midwife Application as show in Figure 2.

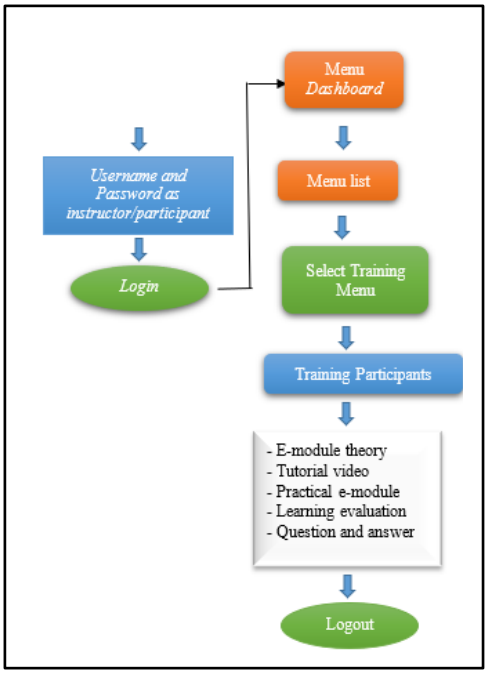

Figure 2. iPosyandu Midwife Application Flowchart Design

Discussion

One of the strategies of the Government of Indonesia to reduce the Maternal Mortality Rate (MMR) is by placing village midwives to provide continuity midwifery care. However, midwives face obstacles in providing MCH services, including facilities and infrastructure, demography, geographic location, and competence. Thus, it is necessary to conduct midwifery training regularly and periodically to refresh and update midwifery knowledge according to the competency needs of village midwives in the community. This aims to maintain the knowledge that has been possessed and also to improve the competence of village midwives (Adnani et al., 2022; Bardosono et al., 2018; Indrayani et al., 2017). However, the results of this study stated that there was no relationship between learning media and learning evaluation with the competence of continuity midwifery care. These results are different from the results of research conducted by Sri Devi Syamsuddin and Ira Jayanti that android-based learning media can help students and clinical practice supervisors in carrying out the learning process by getting positive and very good responses from students or clinical practice supervisors. It was during the learning process, there is a relationship between knowledge topics so that the knowledge base needs to be strengthened and improved, broadly and deeply, to form a higher level of knowledge (Liang et al., 2021; Surtinah & Sunarto., 2021). Mobile learning has the potential to improve the ability of students and educators in effective teaching and learning processes (Kartini & Putra, 2020; Nurhajati, 2019; Oluwadara, 2020). Application-based learning media in the form of mobile learning is used as a learning resource (Amirullah & Hardinata, 2017; Sholihin et al., 2020). Successful integration of technology into health care curricula benefits health care students by developing their clinical and professional skills, and enhancing their learning experience (Grimwood & Snell, 2020). Based on the findings presented this reserach, that training materials and learning evaluations are correlated with the iPosyandu application as a learning medium, as shown in Figure 3.

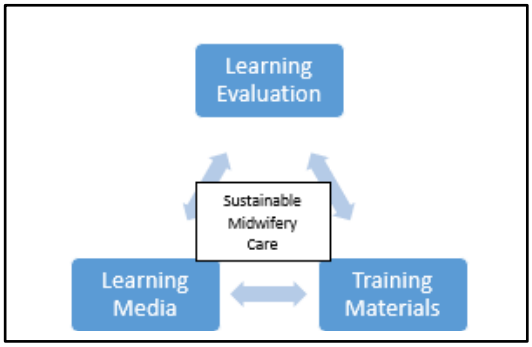

Figure 3. The Relationship between Learning Media, Training Materials, and Learning Evaluation

The design of the training curriculum has 4 interrelated components, namely learning strategies, training materials, learning media, and learning evaluation. Based on the results of a literature review conducted by Tom Grimwood & Laura Snell that the types of technology used in health education include the integration of technology into the midwifery care curriculum; skills and knowledge of the health educator or training instructor or facilitator; and the benefits of using technology for students or trainees. Educational program design is demonstrated from the identification of available technology through delivery and implementation aspects to achieve benefits for students, including accessible & flexible learning, enhanced learning experiences, clinical and professional skills development (Grimwood & Snell, 2020; Sutiman et al., 2022). The use of technology in learning can improve students' understanding of the material being studied. In addition, e-learning can help achieve learning effectiveness based on constructivism learning theory where students gain knowledge from learning resources provided by educators. E-learning is a medium of interaction, assignment, and online consultation from educators. Therefore, online applications are easy to use as long as educators take the time to explore them (Alamiyah, S. et al., 2021; Sun'iyah, 2020).

The development of learning media based on Information Communication Technology (ICT) is very good in the era of technology and the millennial era because it can motivate students to learn. Learning media is a set of tools that can assist and complement educators or training instructors in the learning process with students or trainees to achieve learning objectives. Learning materials can be through pictures, videos, text, and other media. Learning media as a tool used by educators in the process of learning activities that can help students to prepare and receive material independently in learning anywhere and anytime (Sutiah & Supriyono, 2020; Sutiasih & Saputri, 2019). Media in the learning process are aimed at increasing participants' learning motivation by utilizing technology. The value of learning media has a fairly positive impact on learning. Learning media are not only merely tools, but they must have values that can develop students' soft skills and hard skills. The learning media must have the following values: (1) make abstract concepts concrete; (2) do not carry dangerous objects; (3) clarify the object of the message; (4) integrate with the environment (contextual); (5) raise students' motivation, creativity, and innovation; (6) uniform observation and message focus; (7) control the direction and speed of student learning (Puspitarini & Hanif, 2019; Rusman, 2019). The development of teaching materials allows students to access learning without time limits. The activity, which was conducted through online classes, demonstrated an increase in the skills that had been acquired. Students are strengthened in both offline and online classes, which is continuous learning. Learning materials are presented to build students' knowledge based on the concepts learned. Teaching materials are applied with a learning theory approach to achieve better learning objectives. The learning theory used may vary according to the circumstances of the participants and the training environment. To identify the learning theory used, it is necessary to know the components included in the teaching materials. The basic teaching materials are face-to-face learning, web-based learning, online learning, computer-based learning, internet-based learning, and e-learning (Kristanto, A., Mustaji, M., & Mariono, 2017; Putri et al., 2021).

The online learning evaluation media uses Google Form as the most familiar online learning evaluation media. This software, which was originally intended for surveys and questionnaires, is considered the most accessible for learners. In this evaluation, items are arranged to measure the achievement of each specific goal that has been determined, at least one item is prepared for each specific goal. This is based on the breadth of the material and the learning period. In evaluating online learning, a comprehensive rubric is used based on different approaches as well as the integration of modules and training that references as many pedagogical tools, facilities, and e-learning approaches as possible. The learning evaluation is carried out with the aim of measuring the extent to which the training participants understand the material using the application (Debattista, 2018; Setiawan et al., 2019; Sukmadinata, 2019). Innovation in technology for accessing the materials can be applied to all types of education, such as formal, informal, or non-formal education. Creating and innovating in technology can play a fundamental role in educational technology. It can start with the manufacture of materials, sources, or media used in learning that refers to the design theory according to the developer's mindset to achieve an effective learning process. Therefore, educators must be creative and innovative in carrying out learning activities following the demands of technology in developing learning media (Jamil, A. F., & Pratiwi, 2022). Training materials for certain topics and sub-topics are needed to achieve each predetermined teaching goal. Each topic or sub-topic must have clear main ideas relevant to the stated objectives (Sukmadinata, 2019). The design of the iPosyandu application as a learning medium needed by midwives is based on Table 3. It contains training materials on continuity midwifery care, starting from pregnancy, childbirth and BBL, as well as postpartum in the form of e-modules and videos. The midwife's suggestion is in line with the results of research which says that the e-learning media used consists of various supporting devices such as modules, animations, simulations, multimedia, and online virtual laboratories that can improve students' critical thinking in the learning process (Yusuf et al., 2021).

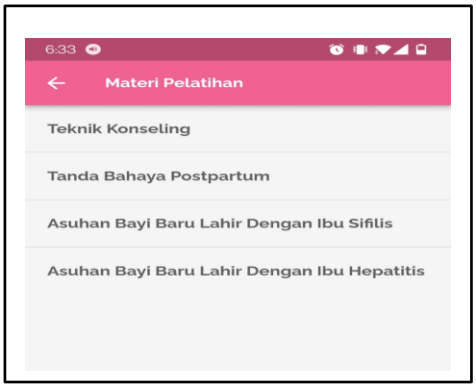

Figure 4. Training Materials in the form of E-Modules on the Iposyandu Application for Midwives

On the training menu in the iPosyandu application for midwives, there were e-module menus, online tests, assignments, simulations, a recap of grades, and assistance. This e-module contained materials, formative exercises, cases, and checklists for handling midwifery cases. The material in this e-module was about early detection during pregnancy, labor, newborns (BBL), and postpartum. In making e-learning training materials, it is necessary to pay attention to quality criteria: (1) formal (segmentation, text structure, grammatical and spelling errors, language, topics, literature sources, copyright compliance, version review); (2) didactic (training objectives, training assessments, target groups, media choices, training data, conformity to the training curriculum); (3) media (corporate design, content layout, graphics and fonts, multimedia, text and graphic design, external content sources); (4) function (navigation, functionality, perception, accessibility, provision of alternatives, learning assignments, and feedback) (Kazaine, 2017)

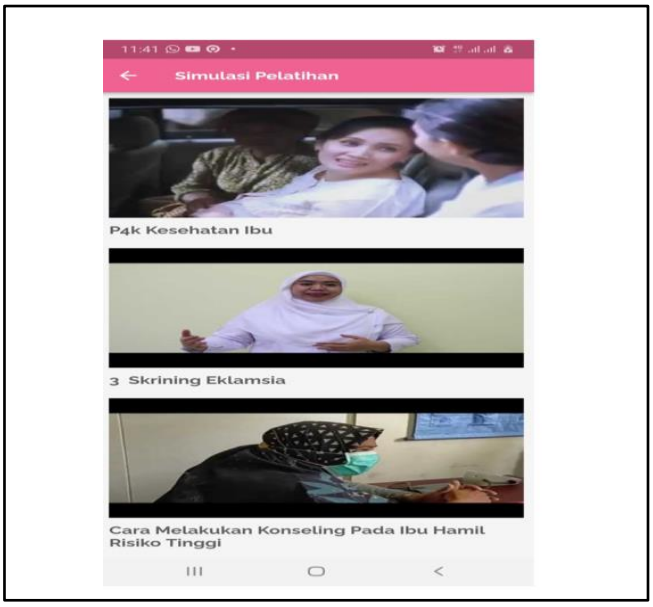

Figure 5. A Screenshot of Learning Videos on the Training Simulation Menu in the Iposyandu Application for Midwives

The implication of the learning video is to improve the students' way of thinking. Therefore, problem solving-based learning videos are feasible to be used in the learning process. Along with the rapid development of technology in education, there is also shifting from printed learning media to audio-visual media displayed via the internet. Innovation in learning can be done by utilizing learning media in the form of android-based applications as a problem-solving process in the teaching and learning activities; thus, students become motivated and improve their learning outcomes. This can trigger the students' participation in class and is easy to access anywhere. Therefore, educators and students must be ready to use android-based application media (Andriyani & Suniasih, 2021; Ardiansyah & Nana., 2020).

The advantage of this research is as a basis for developing a training curriculum design based on the iPosyandu application. The contribution of the results of this research is to disseminate information to the Health Office and the Health Training Unit (UPELKES) in carrying out training based on the iPosyandu application. The implication of this research is to make it easier for health workers, especially midwives, to improve their knowledge of midwifery updates through iPosyandu application-based training because midwives can read training materials repeatedly without being limited by time and place. The limitation of this research is that data collection is done online due to the covid pandemic. Questionnaires in the form of google form were given to the coordinating midwife in advance so that researchers could not communicate directly with respondents if there were questions that were not understood by the respondents. In further research, it is hoped that the iPosyandu application can be used by educational institutions, health offices, and institutions that provide training for health workers, especially for midwives.

4. CONCLUSION

Based on the findings in this study, it shows the relationship between the components of the training curriculum design, namely training media using the iPosyandu application which contains training materials in the form of e-modules and videos and can be used as an evaluation of learning in continuity midwifery care training. However, these three components are not related to the competence of continuity midwifery care. Thus, the iPosyandu application can be used as a learning media in training, in addition to the competence of continuity midwifery care.

5. ACKNOWLEDGMENTS

The author would like to thank the Directorate of Research and Community Service of Padjadjaran University which has provided research grant funds based on the agreement letter for implementing internal research grant activities at Padjadjaran University for the 2021 fiscal year with No: 1595/UN6.3.1/PT.00/2021.

6. REFERENCES

Adnani, Q. E. S., Gilkison, A., & McAra-Couper, J. (2022). Strengthening midwifery education through clinical experience: Findings from a qualitative study in Indonesia. *Journal Women and Birth*, *35*(1), 87–95. https://doi.org/10.1016/j.wombi.2021.03.002.

Alamiyah, S., S., Kusuma, A., Juwito, J., & Tranggono, D. (2021). Pergeseran Model Pendampingan Penggunaan Media Digital oleh Orangtua pada Anak di Masa Pandemi COVID-19. *JCommsci - Journal Of Media and Communication Science*, *4*(2), 97–110. https://doi.org/10.29303/jcommsci.v4i2.120.

Ali, M. (2019). *Research Methods in Sustainability Education*. UPI Press.

Ali, M., & Susilana, R. (2021). *Perancangan Kurikulum Mikro*. PT Raja Grafindo Persada.

Amirullah, G., & Hardinata, R. (2017). Pengembangan mobile learning bagi pembelajaran. *JKKP (Jurnal Kesejahteraan Keluarga Dan Pendidikan)*, *4*(2), 97–101. https://doi.org/10.21009/JKKP.042.07.

Andriyani, N. L., & Suniasih, N. W. (2021). Development of Learning Videos Based on Problem-Solving Characteristics of Animals and Their Habitats Contain in Ipa Subjects on 6th-Grade. *Journal of Education Technology*, *5*(1), 37. https://doi.org/10.23887/jet.v5i1.32314.

Ardiansyah, A. A., & Nana. (2020). Peran Mobile Learning Sebagai Inovasi Dalam Pembelajaran Di Sekolah. *Indonesian Journal of Education Research and Review*, *3*(1), 47–56. https://ejournal.undiksha.ac.id/index.php/IJERR/article/view/24245/pdf.

Aune, I., Tysland, T., & Amalie Vollheim, S. (2021). Norwegian midwives' experiences of relational continuity of midwifery care in the primary healthcare service: A qualitative descriptive study. *Nordic Journal of Nursing Research*, *41*(1), 5–13. https://doi.org/10.1177/2057158520973202.

Bardosono, S., Hildayani, R., Chandra, D. N., Basrowi, R. W., & Wibowo, Y. (2018). The knowledge retention after continuing health education among midwives in Indonesia. *Medical Journal of Indonesia*, *27*(2), 60–65. https://doi.org/10.13181/mji.v27i2.2413.

Ceylan, V. K., & Elitok Kesici, A. (2017). Effect of blended learning to academic achievement. *Journal of Human Sciences*, *14*(1), 308. https://doi.org/10.14687/jhs.v14i1.4141.

Debattista, M. (2018). A comprehensive rubric for instructional design in e-learning. *International Journal of Information and Learning Technology*, *35*(2), 93–104. https://doi.org/10.1108/IJILT-09-2017-0092.

Ekren, G., & Ozdamar-keskin, N. (2017). Using the Revised Bloom Taxonomy in Designing Learning with Mobile Apps. *GLOKALde*, *3*(3), 13–28. https://www.glokalde.com/pdf/issues/11/Article2.pdf.

Girum, T., & Wasie, A. (2017). Correlates of maternal mortality in developing countries: an ecological study in 82 countries. *Maternal Health, Neonatology and Perinatology*, *3*(1), 1–6.

https://doi.org/10.1186/s40748-017-0059-8.

Grimwood, T., & Snell, L. (2020). The use of technology in healthcare education: a literature review. *MedEdPublish*, *9*, 137. https://doi.org/10.15694/mep.2020.000137.1.

Hairida, H. (2019). The Development of Blended Learning Media for Flipped Classroom Model on Direct Learning in Process Evaluation Courses and Chemistry Learning Outcomes. *In International Conference on Educational Sciences and Teacher Profession (ICETeP 2018)*. https://doi.org/10.2991/icetep-18.2019.52..

Hilty, D., Chan, S., Torous, J., Luo, J., & Boland, R. (2020). A framework for competencies for the use of mobile technologies in psychiatry and medicine: Scoping review. *JMIR MHealth and UHealth*, *8*(2), 2–10. https://doi.org/10.2196/12229.

Hiola, T. T., & Badjuka, B. Y. M. (2020). The Analysis of Village Midwife Performance in Reducing Maternal and Infant Mortality Rate. *Jurnal Administrasi Kesehatan Indonesia*, *8*(2), 141. https://doi.org/10.20473/jaki.v8i2.2020.141-150.

Hwang, G. J., Lai, C. L., Liang, J. C., Chu, H. C., & Tsai, C. C. (2018). A long-term experiment to investigate the relationships between high school students' perceptions of mobile learning and peer interaction and higher-order thinking tendencies. *Educational Technology Research and Development*, *66*(1), 75–93. https://doi.org/10.1007/s11423-017-9540-3..

Indrayani, H. R., Astuti, S., Dea, S., Madinah, D., & Rini. (2017). Please, understand why village midwife performance is not optimum! *Bangladesh Journal of Medical Science*, *16*(4), 505–514. https://doi.org/10.3329/bjms.v16i4.33603.

Insani, A. A., Nurdiyan, A., Yulizawati, Y., Bustami, L. E., Iryani, D., & Fitrayeni, F. (2017). "Berpikir Kritis" Dasar Bidan Dalam Manajemen Asuhan Kebidanan. *Journal of Midwifery*, *1*(2), 21. https://doi.org/10.25077/jom.1.2.21-30.2016.

Jamil, A. F., & Pratiwi, A. E. (2022). Students ' Interest and Critical Thinking : The Experimental Teaching Method in Using Online Learning Media YouTube. *Journal of Education Technology*, *6*(1), 12–18. https://doi.org/10.23887/jet.v6il.43055.

Julaeha, S., Hadiana, E., & Zaqiah, Q. Y. (2021). Manajemen Inovasi Kurikulum: Karakteristik dan Prosedur Pengembangan Beberapa Inovasi Kurikulum. *MUNTAZAM: Jurnal Manajemen Pendidikan Islam*, *2*(1), 1–26. https://journal.unsika.ac.id/index.php/muntazam/article/view/5338.

Kartini, K. S., & Putra, I. N. T. A. (2020). Pengaruh Penggunaan Media Pembelajaran Interaktif Berbasis Android Terhadap Hasil Belajar Siswa. *Jurnal Redoks : Jurnal Pendidikan Kimia Dan Ilmu Kimia*, *3*(2), 8–12. https://doi.org/10.33627/re.v3i2.417.

Kazaine, I. (2017). Evaluating the quality of e-learning material. Proceedings of the 11th. *International Scientific and Practical Conference*, *2*(0), 74–77. https://doi.org/10.17770/ETR2017VOL2.2557.

Kristanto, A., Mustaji, M., & Mariono, A. (2017). The development of instructional materials e-learning based on blended learning. , . https://doi.org/. *International Education Studies*, *10*(7), 10. https://doi.org/10.5539/ies.v10n7p10.

Liang, J., Liu, S., Zhang, P., Wang, D., & Yang, Y. (2021). The application of system thinking in curriculum design. *Proceedings of the 6th International Conference on Education Reform and Modern Management (ERMM 2021)*, *148–151*. https://doi.org/10.2991/assehr.k.210513.035.

Nurhajati, W. A. (2019). Mobile learning media development on kampung kb management training material for family planning field worker in East Java. *Proceedings of The ICECRS*, *2*(1), 139–146. https://doi.org/10.21070/picecrs.v2i1.2417.

Oluwadara, A. (2020). Designing a framework for training teachers on mobile learning in Sub-Sahara Africa. *Journal of Education and Practice*, *11*(32), 57–66. https://doi.org/10.7176/jep/11-32-07.

Özer, M. (2020). The contribution of the strengthened capacity of vocational education and training system in Turkey to the Fight against Covid-19. *Yuksekogretim Dergisi*, *10*(2), 134–140. https://doi.org/10.2399/yod.20.726951.

Pecore, J. L. (2012). Beyond Beliefs: Teachers Adapting Problem-based Learning to Preexisting Systems of Practice. *Interdisciplinary Journal of Problem-Based Learning*, *7*(2), 9–26. https://doi.org/10.7771/1541-5015.1359.

Purwadhi, P. (2019). Pengembangan kurikulum dalam pembelajaran abad XXI. *Mimbar Pendidikan*, *4*(2), 103–112. https://doi.org/10.17509/mimbardik.v4i2.22201.

Puspitarini, Y. D., & Hanif, M. (2019). Using Learning Media to Increase Learning Motivation in Elementary School. *Anatolian Journal of Education*, *4*(2), 53–60. https://eric.ed.gov/?id=EJ1244451.

Putri, R. A., Munzil., & Sumari. (2021). Developing multiple representation's teaching materials assisted by blended learning to improve student's science process skills. *AIP Conference Proceedings*, 2330. https://doi.org/10.1063/5.0043275.

Rinawan, F. R., Susanti, A. I., Amelia, I., Ardisasmita, M. N., Widarti, Dewi, R. K., Ferdian, D., Purnama, W.

G., & Purbasari, A. (2021). Understanding mobile application development and implementation for monitoring posyandu data in Indonesia: a 3-year hybrid action study to build "a bridge" from the community to the national scale. *BMC Public Health*, *21*(1), 1–17. https://doi.org/10.1186/s12889-021-11035-w.

Rusman. (2019). *Pembelajaran berbasis teknologi informasi dan komunikasi*. PT.Rajagrafindo Persada.

Setiawan, R., Mardapi, D., Pratama, A., & Ramadan, S. (2019). Efektivitas blended learning dalam inovasi pendidikan era industri 4.0 pada mata kuliah teori tes klasik. *Jurnal Inovasi Teknologi Pendidikan*, *6*(2), 148–158. https://doi.org/10.21831/jitp.v6i2.27259.

Sholihin, M., Sari, R. C., Yuniarti, N., & Ilyana, S. (2020). A new way of teaching business ethics: The evaluation of virtual reality-based learning media. *International Journal of Management Education*, *18*(3), 100428. https://doi.org/10.1016/j.ijme.2020.100428.

Slovensky, D. J., Malvey, D. M., & Neigel, A. R. (2017). A model for mHealth skills training for clinicians: meeting the future now. *MHealth*, *1*(3), 24–24. https://doi.org/10.21037/mhealth.2017.05.03.

Sukmadinata. (2019). *Pengembangan kurikulum teori dan praktik*. PT Remaja Rosdakarya.

Sun'iyah, S. L. (2020). Media pembelajaran daring berorientasi evaluasi pembelajaran pada mata pelajaran PAI ditingkat pendidikan dasar. *Jurnal Studi Keagamaan, Pendidikan Dan Humaniora*, *7*(1), 1–18. http://www.unp.ac.id/sites/default/files/2018-05/pengembangan pembelajaran daring.pdf..

Surtinah, N., & Sunarto. (2021). Effectiveness of midwifery training update on midwife knowledge improvement in midwifery services in Magetan. *Health Notions*, *5*(5), 174–179. http://heanoti.com/index.php/hn.

Sutiah, S., & Supriyono, S. (2020). Software testing on the learning of islamic education media based on information communication technology using blackbox testing. *JISTECH (International Journal of Information System & Technology)*, *3*(2), 254–260. https://doi.org/10.30645/ijistech.v3i2.57.

Sutiasih, A. D., & Saputri, R. P. (2019). Pengembangan mobile learning berbasis android sebagai media pembelajaran organisasi arsitektur komputer. *Jurnal Inovasi Teknologi Pendidikan*, *6*(2), 137–147. https://doi.org/10.21831/jitp.v6i2.27772.

Sutiman, S., Jaedun, A., & Siddiq, M. B. (2022). Inhibiting factors in automotive courses at the job training centre. *Journal of Education Technology*, *6*(1), 1–11. https://ejournal.undiksha.ac.id/index.php/JET/article/view/36563.

Yusuf, I., Widyaningsih, S. W., Prasetyo, Z. K., & Istiyono, E. (2021). The evaluation on the use of e-learning media to improve HOTS through authentic and holistic assessments. *Journal of Physics: Conference Series*, *1806*(1). https://doi.org/10.1088/1742-6596/1806/1/012014.

Zamroni, E., Muslihati, Lasan, B. B., & Hidayah, N. (2020). Blended learning based on problem based learning to improve critical thinking ability of prospective counselors. *Journal of Physics: Conference Series*, *1539*(1). https://doi.org/10.1088/1742-6596/1539/1/012039.

Zulianto, A., Purbasari, A., Suryani, N., Susanti, A. I., Rinawan, F. R., & Purnama, W. G. (2021). Pemanfaatan katalon studio untuk otomatisasi pengujian black-box pada aplikasi iPosyandu. *Jurnal Edukasi Dan Penelitian Informatika (JEPIN)*, *7*(3), 370. https://doi.org/10.26418/jp.v7i3.46954.