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Development of *Monitoring Clinical Learning* (MCL) Application on the Competency Achievement of Midwifery Student Clinical Practice

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ABSTRACT

Midwifery clinical learning is a learning process to achieve the target of midwifery care action skills in real cases, but the fact is that there is supervision of academic and field supervisors on the achievement of midwifery care targets in the form of SOAP is still lacking so many students are unable to explain the mindset of ASKEB 7 steps varney and management of the SOAP documentation because the cases raised came from fictitious patients. The research objective was to determine the validity of academic advisors and students towards the Monitoring Clinical Learning (MCL) application developed to achieve the midwifery practice target. The research design used is research and development (Research & Development). The development model used in this research is the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). The research samples were material experts, IT / media experts, 15 Midwifery Study Program students and clinical practice academic supervisors. The results of the research were obtained from material experts, media experts, and mentors with the percentages respectively80%, 91.6% and 95% categories are very valid. The results of student implementation obtained a percentage of 91.3%very good category. So it can be concluded that the Android-based MCL application to achieve the target of student clinical practice and supervisory supervision with this practical process is very valid for use in midwifery clinical practice..

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1. Introduction

Midwifery clinical learning is one of the learning processes to achieve the target midwifery care action skills in real cases, but the fact is that there is supervision of academic and field supervisors on the achievement of midwifery care targets in the form of SOAP is still lacking so that many students and academic advisors of midwifery clinical practice are not able to explain the flow of thought from the ASKEB 7 steps varney and management of SOAP documentation because the cases raised came from fictional patients. This is motivated by a lack of motivation and interest in student learning and midwifery clinical practice academic advisors looking for real cases and being busy with practical advisors so that supervision of students learning practice in the field is lacking.

In the practical process, the academic supervisor only visits the land according to the schedule set by the educational institution and has limited time on the ground during the visit. The learning process of midwifery clinics on the ground has not been implemented with the coaching method or mentoring when students and midwifery clinical practice academic supervisors take action on midwifery skills in real cases. So that the accuracy of the competence of students and academic counselors for clinical practice of midwifery is only evaluated after practice or assessed on patients with certain cases when the supervisor visits. Monitoring is only limited to coordinating disciplinary issues of students and academic counselors for midwifery clinical practice.

Therefore, through the Mobile application every student and midwifery clinical practice academic supervisor will report their practical process directly by filling in the ASKEB template and uploading photos / videos that comply with the ethical rules of midwifery practice and IT rules prepared by the MCL application. The MCL application will be connected directly to the supervisor's WA number so that the evaluation and validity of practice cases carried out by students and academic supervisors of midwifery clinical practice can be immediately seen by the supervisor without being limited by time and place.

In addition, through this application students and midwifery clinical practice academic supervisors also have more time to look for cases of midwifery care and do not write more books during practice which also take a lot of time for students and academic advisors for midwifery clinical practice.

The purpose of this study was to determine the validity of academic advisors and students and academic counselors for clinical practice of midwifery to the Monitoring Clinical Learning (MCL) application to achieve the midwifery practice target.

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The operational definition of this research:

a. MCL application
Learning media is a tool for operating systems developed for Linux-based mobile devices to make it easier for 6th semester students to report their target assignments to their supervisors.

b. Midwifery care targets
The Midwifery Care Target is an achievement assigned to students from the 3-6 semester of pregnancy, childbirth, childbirth, neonates, infants, toddlers, family planning and women's health and must be submitted in semester 6 as a prerequisite for taking the Final Project Report exam.

2. Research Methods

Qualitative research design and validity test. The research design used is research and development (Research & Development). The development model used in this study is the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model..

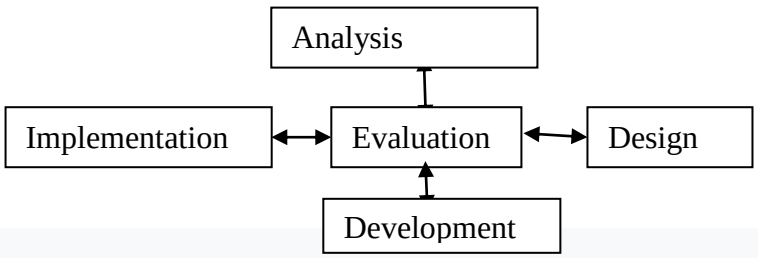

Fig 1 ADDIE Model Scheme (Source: Sugiyono, 2015) Modification.

The research sample was 15 students and academic supervisors of midwifery clinical practice Prodi D-III midwifery. Data collection techniques in this study used expert validation sheets and student response questionnaires and midwifery clinical practice academic advisors. This Android-based practice monitoring application development uses the Corel Draw application. The selection of this application is based on its easy use and can combine other media support applications.

The type of data collected in this study is qualitative data which is converted into quantitative. The data analysis used in this research is descriptive analysis with the following steps:

a. Converts the qualitative values obtained from the validator into quantitative form, provided that in accordance with

Table 1
Scoring Rules

Category	Score
SK (Very Less)	1
K (Less)	2
C (Enough)	3
B (Good)	4
SB (Very Good)	5

b. Calculating the average score of all assessment indicators for learning media using the formula:

$$\bar{X} = \frac{\Sigma X}{N}$$

Information:

$\bar{X}$ = average score of X indicator
ΣX = Total indicator score
N = Number of indicators

c. Changing the average score of indicators in the form of quantitative data into qualitative categories by comparing the average score with the indicator's ideal assessment criteria with a scale score conversion of 5.

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Table 2
Conversion of Quantitative Data into Qualitative Data with a Scale of 5

SCORE Result	Criteria	Calculation Scale
5	Very good	X> 3 + (1.8 x 0.67)
4	Good	3 + (0.6 x 0.67) <X ≤ 3 + (1.8 x0.67)
3	Enough	3 - (0.6 x 0.67) <X ≤ 3 + (0.6 x 0.67)
2	Less	3 - (1.8 x 0.67) <X ≤ 3 - (0.6 x 0.67)
1	Very less	X ≤ 3 - (1.8 x 0.67)

d. Determine the percentage of learning media with the following formula:

$$\text{Percentage of Idealism} = \frac{\text{Average Score}}{\text{Highest Score}} \times 100\%$$

e. Compare the percentage results of the expert team validation and student responses with the respective percentage criteria that can be seen in:

Table 3
Expert Team Validation Criteria

Percentage	Numbers	Information
76-100%	4	Very Valid
56-75%	3	Valid
40-55%	2	Invalid
0-39%	1	Very Invalid

source: Radyan, 2012

Table 4
Student Response Percentage Criteria

No.	Number	Category
1	0-10%	Very less
2	11-40%	Less
3	41-60%	Enough
4	61-90%	Good
5	91-100%	Very good

(Source: Arikunto, 2006)

3. Results and Discussion

3.1 Research results

a. Analysis (Analysis)

This stage is carried out a needs analysis to obtain information related to learning media in accordance with what is needed by students. So that students find it easier to do and report on research target assignments.The needs analysis was carried out by observing students in the 6th semester of the D3 Midwifery study program. Based on the results of a direct interview with one of the supervisors, students were less motivated in completing Askeb's target assignments and only reported their assignments when they entered semester 6 which made the supervisor not have time to validate the patients who were used as reports.

b. Design

The stage of making the media design that will be developed. In this second stage the researcher makes a design or product design from the results of the analysis in the previous stage. The product made is an Android-based learning application, in midwifery clinical practice. This design stage is carried out in the following steps:

1) Making Media Design (storyboarding)
   Storyboard is an overview of the overall practice monitoring application that will be loaded in the application. The storyboard serves as a map-like guide to facilitate the media creation process.
   The form of the MCL application developed for clinical practice is as follows:

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a) Before using this application, students must register by filling in data in the form of name, NIM, user and account password, and an active email.
b) After having a student account, you can log in, for the user and password this account is used once which is used until the final semester or the clinical practical assignment is completed according to the schedule of the institution.
c) The application form was adopted from the form of askeb documentation management in the form of SOAP starting from pregnancy, childbirth, babies, postpartum and family planning targets. Students can fill in the target

2) Flowchart making
Develop research data collection instruments, type material, create drawings, implement program code and design. Creating Accounts and Admin Views, registering lecturers and students so that they are connected.

3.2 Development (Product Development and Manufacturing)

This stage is the process of making a practice monitoring application. At this stage, the researcher continues to create media based on the storyboards and flowcharts that have been made. The media that has been made is then tested for the application. The testing phase is divided into 3 stages, namely:

a. The testing phase by the developer. At this stage, the application is tested to obtain display equality between android devices, then information will be obtained about android devices that have failed to run the application. This information is used to make application improvements.
b. The testing phase by the supervisor. At this stage, the researcher conducts consultations with the supervisor about the initial product of the practice monitoring application that has been developed. This aims to get input or suggestions from the supervisor so that the media developed is better. The practice monitoring application that has been consulted with the supervisor is then corrected according to the suggestions given.
c. The testing phase is carried out by the validator (lecturer, material expert, media expert lecturer, and midwifery clinical practice academic advisor). At this stage, the media that has been developed and revised according to the advice of the supervisor is then submitted

3.3 Application Validation Results

The Android-based clinical learning monitoring application that has been designed and developed is then validated by expert lecturers to obtain criticism and suggestions from the validator with the aim of knowing whether the android-based application developed is feasible or not for use in educational institutions. This validation stage is carried out by three validators, namely material experts, media experts, and academic advisors at the STIKES Kurnia Jaya Persada Palopo Campus. Based on the results of material validation, it can be seen the quality of the material from the Android-based practice monitoring application developed.

Table 5
Validation Results from Midwifery Material Experts

No	Statement	Assessment				
		1	2	3	4	5
1	Relevance of application with ASKEB				√	
2	The material is presented systematically according to the ASKEB documentation management				√	
3	The accuracy of sentence structure and language is easy to understand				√	
4	Applications according to what is formulated				√	
5	The android application is in accordance with the ability level of students and academic advisors for midwifery clinical practice				√	
6	The description of the application content is in accordance with ASKEB management				√	
7	The scope of the application material is related to the practical target assignments for students and academic counselors for midwifery clinical practice that is complete and as needed				√	
8	The ASKEB target description is clear and specific				√	
9	Uploading photos of student practices and academic counselors for midwifery clinical practice makes it easier to monitor the achievement of student targets and academic counselors for midwifery clinical practice				√	
10	The choice of ASKEB implementation is in accordance with midwifery problems				√	
Number of frequencies					10	

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No	Statement	Assessment 1	2	3	4	5
Total score					40	
The total score		40				
Average		4				
Percentage		80%				
Criteria		Very Valid				

The validation results obtained from the material expert's assessment show that the indicators assessed in this aspect are sufficient, good and very good. The total number of scores obtained is 40 and the average score is 4. After being converted to a scale of 5 in table 3.6 shows very valid criteria. Based on the results of the validation, the material expert concluded that the Android-based practice monitoring application was feasible to use with revisions according to suggestions. There are several notes / suggestions given by material experts, namely that the material is appropriate for the midwifery education unit level and can be adjusted for advanced levels.

Table 6

Validation Results from Media Experts (IT)

No.	Statement	Assessment 1	2	3	4	5
1	Text is legible well					√
2	Selection of background graphics				√	
3	Text size and font					√
4	Colors and graphics				√	
5	Supporting image				√	
6	Easy photo / video upload					√
7	The template fill is easy to edit					√
8	Material can be printed				√	
9	Clarity of instructions				√	
10	Placement and use of buttons					√
11	Ease of use of media					√
12	Application notifications connected with other media					√
Number of frequencies					5	7
Total score					20	35
The total score		55				
Average		4.58				
Percentage		91.6%				
Criteria		Very Valid				

The validation results obtained from the media expert's assessment in terms of appearance and programming aspects, show that the indicators assessed in this aspect are good and very good. The total score obtained was 55 and the average score was 4.58. After being converted to a scale of 5 in table 3.6, it shows that the criteria are very valid, but in certain parts it needs to be changed or revised according to the advice of media experts. Based on the results of the validation, media experts conclude that the Android-based practice monitoring application is feasible to use with revisions according to suggestions. There are several notes / suggestions given by media experts, namely adjusting the size and shape of the letters used in the text,

Table 7

Validation Results from Advisors

No.	Statement	Assessment 1	2	3	4	5
1	2	3				
1	The relevance of the material to ASKEB management					√
2	The material is presented systematically					√
3	The accuracy of sentence structure and language is easy to understand					√
4	The material is in accordance with what is formulated				√	
5	The material is in accordance with the ability level of students and academic advisors for midwifery clinical practice					√

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No.	Statement	Assessment				
		1	2	3	4	5
1	2	3				
6	Clarity of target arrangement for ANC, INC, PNC, Infants and Family Planning					√
7	The material coverage relates to the practice target					√
8	The material is clear and specific					√
9	The uploaded image corresponds to the case					√
10	Contents of the target report. Brief, clear and complete					√
11	Text is legible well					√
12	Selection of background graphics				√	
13	Text size and font				√	
14	Colors and graphics				√	
15	Supporting image				√	
16	Easy photo / video upload					√
17	The template fill is easy to edit					√
18	Material can be printed					√
19	Clarity of instructions					√
20	Placement and use of buttons					√
21	Ease of use of media					√
22	Application notifications connected with other media					√
Number of frequencies					5	17
Total score					20	85
The total score		105				
Average		4.77				
Percentage		95%				
Criteria		Very good				

The validation results obtained from the assessment of the midwifery clinical practice academic supervisor in terms of material aspects, display aspects and programming aspects, show that the indicators assessed in this aspect are good and very good. The total score obtained was 105 and the average score was 4.77. After being converted to a scale of 5 in table 3.6 it shows very good criteria, but in certain parts it needs to be changed or revised according to the advice of the supervisor. Based on the results of the validation, the academic supervisor concluded that the Android-based practice monitoring application was feasible to use with revisions as suggested. There are several notes / suggestions given by the midwifery clinical practice academic advisor, including:

a. The font size in the subtitles is too small and gives different colors to certain terms.
b. Wrong word / sentence editing and additional case management.
c. In general, the media is very good, easy to use

3.4 Implementation (Implementation)

Implementation is the stage that is carried out after the Android-based practice monitoring application is revised properly, namely implementing it to students using the Android-based practice monitoring application in making reports / clinical practice targets. The implementation was carried out at the STIKES Kurnia Jaya Persada Palopo Campus on Friday, August 28, 2020 and on Tuesday, August 31, 2020 through the google meeting application. This stage is carried out to find out how students respond to the Android-based practice monitoring application that has been developed by providing a questionnaire link via google form to students. The questionnaire given consists of 5 rating scales, namely 5 (very good), 4 (good), 3 (enough), 2 (poor), and 1 (very poor) and assessed from the material and programming aspects of the Android-based practice monitoring application. Student responses to the media were obtained by involving 15 students of D-III Midwifery study program who carry out comprehensive midwifery clinical practice. The classes were selected based on the advice of the midwifery clinical practice academic advisor. The data collection process is carried out by providing a link to the Android-based practice monitoring application to be downloaded and used to fill in the target report for midwifery cases and students provide their respective assessments according to the statement in the questionnaire. The classes were selected based on the advice of the midwifery clinical practice academic advisor. The data collection process is carried out by providing a link to the Android-based practice monitoring application to be downloaded and used to fill in the target report for midwifery cases and students provide

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their respective assessments according to the statement in the questionnaire. The classes were selected based on the advice of the midwifery clinical practice academic advisor. The data collection process is carried out by providing a link to the Android-based practice monitoring application to be downloaded and used to fill in the target report for midwifery cases and students provide their respective assessments according to the statement in the questionnaire.

3.5 Evaluation

Evaluation is the last stage of the ADDIE model development step. Evaluation can be done at any stage of development, and an overall evaluation that can be done at the end of the development activity. This stage evaluates student responses to applications that have been developed so that it can be concluded that the applications that have been developed are feasible or not for use.

Table 8

Analysis of Student Responses for D3 Midwifery Study Program

NO	STATEMENT	ASSESSMENT				
		1	2	3	4	5
1	2	3				
1	The design of the Android-based practice monitoring application used is interesting	0	0	0	5	10
2	The use of Android-based practice monitoring applications is very easy	0	0	0	5	10
3	Uploading videos and photos based on android supports you to further ensure that the target patient is a real Midwifery Care practice	0	0	0	6	9
4	save time in making practice reports	0	0	0	6	9
5	With the Android-based practice monitoring application, it can provide motivation to meet practice targets quickly	0	0	0	7	8
6	Care in this Android-based practice monitoring application helps remind midwifery care that is appropriate to solve different types of cases on the ground	0	0	0	13	2
7	The material presented in this Android-based practical monitoring application is easy for you to understand and fill out	0	0	0	5	10
8	This Android-based practice monitoring application provides a column to add to the implementation of care	0	0	0	9	6
9	The report structure in this application is in accordance with the SOAP documentation (ASKEB)	0	0	0	2	13
10	The shape, style and size of the letters used are simple and easy to read	0	0	1	5	9
Number of frequencies				**1**	**63**	**86**
Total score				**3**	**252**	**430**
The total score		**685**				
Average		**4.56**				
Percentage		**91.3%**				
Criteria		**Very good**				

The data obtained from the test results on students were then converted into a scale of 5. Based on the results of data analysis, with 10 indicators filled in by 15 students where the number who chose the "very good" category was 86, the "good" category was 63 who chose, and in the "enough" category, there is 1 who chooses, then the results of the criteria for trials on students and academic counselors of midwifery clinical practice with an average score of 4.56 and after being converted to a scale of 5 the results of the criteria are "very good", so that overall The Android-based clinical learning monitoring application does not need to be revised again.

3.2 Discussion

The Android-based clinical practice monitoring application (MCL) was developed in the form of an application in the .apk file format that can be operated using an android cellphone, where the programming language used is Java. The results obtained were seen from the quality of the learning media, which obtained an average score of 4.56, so that it had a very good quality category (SB) with an ideal percentage of 91.3%.

This research is in line with the type of partograph application that is made to monitor labor progress, according to Sri Wahyuni et al. (2018) where m**etode**This study uses a Rapid Application

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Development (RAD) system development approach. The results show that the Android-based partograph mobile application is very helpful for midwives in delivery assistance. Monitoring and documenting care becomes more effective and efficient.

Research was also conducted by Putri Yayu (2018) regardingThe effectiveness of computer-based partographs on clinical decision-making in the delivery process aims to assess and find out the difference in effectiveness from the aspects of ease, speed and relevance of data on computer-based partographs and conventional partographs in clinical decision making in labor. This study used a comparative study method. The sample was taken by purposive sample, amounting to 20 data of inpartum mothers using computer-based partographs and 20 data of inpartum mothers using conventional (manual) partographs. Data analysis used univariate and bivariate analysis with the Mann Whitney test. The results showed that the effectiveness of the computer system-based partograph on clinical decision making in the delivery process was for the convenience aspect with a median value of 24, the speed aspect with a median value of 21 and the data relevance aspect with a median value of 15, while the conventional (manual) partograph was for convenience aspects with a median value of 23, speed aspects with a median value of 20 and data relevance with a median value of 13. The results of statistical tests using the Mann Whitney test obtained p value <0.05 (<a = 0.05). This means that there are differences in the effectiveness of computer-based partographs and conventional partographs in clinical decision making. whereas in the conventional partograph (manual), namely for the convenience aspect with a median value of 23, the speed aspect with a median value of 20 and data relevance with a median value of 13. The results of statistical tests using the Mann Whitney test obtained a p value 0.05). This means that there are differences in the effectiveness of computer-based partographs and conventional partographs in clinical decision making. whereas in the conventional partograph (manual), namely for the convenience aspect with a median value of 23, the speed aspect with a median value of 20 and data relevance with a median value of 13. The results of statistical tests using the Mann Whitney test obtained a p value 0.05). This means that there are differences in the effectiveness of computer-based partographs and conventional partographs in clinical decision making.

The methods used in these studies were different. However, the results obtained remain the same and the results of this study can be said to be in accordance with the results obtained in several studies above. Based on these results it can be concluded that Android-based learning media can help students or clinical practice supervisors in carrying out the learning process as evidenced by the positive and excellent responses obtained from students or clinical practice supervisors.

4. Conclusion

The conclusion from the development of the Clinical Learning Monitoring application in helping students meet Askeb's targets:

The MCL application is valid for use on campus, according to the results of the assessment of three experts, namely material experts, media experts and mentors at STIKES Kurnia Jaya Persada Palopo with a percentage of 80%, 91.6% and 95% respectively.

The results of student responses to MCL applications from 15 respondents obtained 91.3% were very good.

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