

## The Development of 3D Professional Pageflip-based Pregnancy Care E-Module

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### Abstract

Midwifery education has an important role in producing competent and professional midwives. Competent and professional midwife staff starts from a quality learning process. This study aimed to develop a valid and reliable 3D Pageflip Professional pregnancy care e-module. The type of research was Research and Development (R&D) research. The data collection techniques use primary data from the validation of experts (media expert and content expert). The results of this study indicated that media expert review got an average score of 3.77 (good criterion), content expert got an average score of 4.15 (good criterion) and the pregnancy care lecturer evaluation got an average score of 4.14 (good criterion). In addition, it stated that 3D Pageflip Professional pregnancy care e-module was good and deserved to be tested in the learning process. 3D Pageflip Professional pregnancy care e-module developed as an alternative to assist midwifery students in overcoming learning difficulties. Implications this article are giving the curriculum knowledge focused on learning innovations. The application of e-pregnancy care modules was easy to learn and practically accessible anywhere. To be development and innovative teaching content of education midwife and source study midwifery student so as to increase motivation and learning outcome.

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## INTRODUCTION

Education Midwifery education has an important role in producing competent and professional midwives. Competent and professional midwives starts from a quality learning process. The current global development, demands the development in terms of human resources quality and the education in Indonesia has undergone many transformations, ranging from methods, media, curriculum, and many others. Midwifery learning continuously needs to be developed, in fact in general the midwifery curriculum in Indonesia has not been implemented optimally, it can be seen from the lack of reasoning ability and critical thinking of students in every midwifery learning process, (Dewi & Wawan, 2010).

Learning in midwifery includes 40% theory and 60% practice, the process of midwifery learning if done with innovative media can improve students' knowledge understanding compared to past learning methods, because learning is indicated by three indicators which are thoughts, feelings and movements that other logical consequences of learning culture position are the influence of the environment, training, habits, are in good condition and the culture of learning in good conditions, (Hamalik, 2011: 39). Generally, the teaching modules that can be used are in the form of printed and non-printed media. Printed media can be developed into digital media in the form of modules that are transformed into electronic modules. The existence of technological developments in the education world which includes the electronic module media or e-module, is an alternative in the learning process.

E-module are a combination of printed and computer media, so e-module can present information in a structured, interesting manner and have a high level of interactivity and the learning process no longer depends on the instructor as the only source of information, (Gunadharma, 2011). Software that can be applied in developing e-modules is *3D Pageflip Professional*.

*Professional. 3D Pageflip Professional* is a software that can be used to create teaching materials with 3D effects. The 3D Pageflip Professional application can make the appearance of electronic module more attractive with the addition of animation, images, audio-visuals, various formats such as Exe, Zip, Html and others.

According to Racmah, Rosha & Vani (2018) stated that the electronic module design developed for class X students had met good criteria and was suitable for use as a medium for learning physics on work and energy topic in schools. Meanwhile, according to Aflaha et al., (2015) stated that learning with problem solving-based modules got a positive response in learning and as a benchmark that students feel happy with the product being developed.

The development of 3D Pageflip Professional-based electronic module products in engineering drawing courses was declared to be suitable for use, the quality of electronic module products was good and the results of the assessment of media experts and material experts were reviewed in terms of appearance, learning aspects as well as material aspects, (Nopriyanti, 2018) . Modules can be declared "viable" by content and language experts, while media experts said "very viable". On the other hand, teacher and student responses to the use of learning modules were categorized as "very good" and effective modules for the learning process, (Fikri & Zubaidah, 2018). In addition, according to Seruni et al. (2019), the electronic module (e-module) was validated by content, language and media experts and a small-scale field trial of students and lecturers was conducted. The results showed that e-modules got good interpretations from content, language and media experts with a percentage of 83.35% to 85.00%. Field trials also showed that the module had good interpretation. Therefore it was concluded that the electronic module (e-module) developed as teaching material had a good category and received positive responses from students and lecturers.

The changing of digital technology functions for learning should be done so that

students' learning outcomes in difficult lectures can be increased and the grade of the courses can get maximum marks. In addition, to change the activities in playing social media during the learning process, it is necessary to use innovations that utilize mobile phones or smartphones to be used as learning by using ICT products such as professional 3D pageflip. The activities should also in accordance with the new era, especially in the 21st century education.

The purpose of this study was to develop a valid and reliable 3D Pageflip Professional pregnancy care e-module at Ngudi Waluyo University Semarang. While the benefits of this research can be used as a learning source that is practical, effective and facilitates the mastery of the courses for midwifery students.

## METHOD

The method used in this study was research and development (R&D), (Sugiyono,2016). Research and Development (R&D) is a research method used to produce certain products, and test the effectiveness of the product, (Sugiyono, 2016: 297). The research procedure will be carried out using the ADDIE model. The ADDIE model includes analysis, design, development, implementation and evaluation, (Tegeh & Kirna, 2010).

The non-test research instruments included interviews, documentation, observation and questionnaires for content expert, media expert, lecturers and student's. The data collection technique in this study used the data collected included primary data. The interview was conducted by researchers on pregnancy care lecturers and fourth semester D-III students at Ngudi Waluyo University Semarang. The viability assessment of the e-module media used a Likert scale. Likert scale is a scale used to measure attitudes, opinions, and perceptions of a person or group of people about social phenomena, (Sugiyono, 2015: 135).

The expert test validation questionnaires filled out by the content expert validator, media expert, students, and lecturers responses questionnaire were used to find out the opinions

of both students and lecturers on the use of 3D Pageflip-based professional e-module media, (TS & Permana, 2016)

## RESULTS AND DISCUSSION

### 1. Developing the 3D Pageflip Professional-based Pregnancy Care E-module

#### a. Analysis

##### The Analysis of E-Module Care Pregnancy Development Needs

##### 1) The Analysis of Lecturers' Needs

The learning process in the classroom still used the printed module or presentation that displayed documents or PowerPoints on the projector. In pregnancy care course, learning resources are needed with learning media that can present the contents in the form of audio and visual to motivate students, because the students way of learning varies.

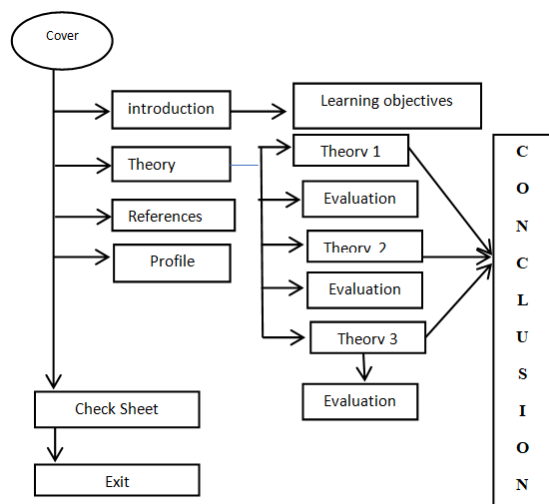
##### 2) The Analysis of Students' Needs

The analysis of students' needs result showed that 85% of students needed new and practical media. Practical in which in one file that contains all the topics and practices. The use of printed modules makes the students unable to know examples of practices in pregnancy care, which makes pregnancy care course difficult. On media offerings that can be opened through a mobile phone or laptop , all students agreed with it because it can maximize the function of a laptop or cell phone to learn. This has led researchers to develop a 3D Pageflip Professional-based pregnancy care e-module, because it can display audio, video, and text in its media.

#### b. Design

##### 3D Pageflip Professional Pregnancy Care E-Module Design

The making of this media was based on the design of media creation in storyboards and flowcharts .



**Figure 1.** Flowchart 3D Professional Pageflip-based Pregnancy Care E-Module

Media Design Making . At this stage the learning media are made, starting from typing the material, practice questions, evaluating and proceeding by including images, giving anations, videos, sounds and navigation . In accordance with the design, this pregnancy care e-module contains covers, instructions for use, preface, table of contents, indicators, objectives, material, evaluation and profile. In addition there are 3 option buttons in the main menu namely the house picture button that functions to return to the table of contents, the cross button that serves to close the E-module, the right arrow that functions as a substitute for the next thing and the left arrow to return to the previous page item question.

**c. Development**

The design of learning media that would be developed was divided into several sections, namely intro, instructions, references, indicators, objectives, content, evaluation and profile. After the process of making this E-Module had completed, the media would then be reviewed by experts who will assess the suitability of the content and validity of the media. The experts who would assest the learning media were content expert and media expert.

**(1) Content Expert Validator**

The content revision was adjusted to the input, suggestions, and criticisms provided and the concept of learning media developing. In accordance with the content

expert lecturer for aspects of learning, appearance, content, and aspects of interaction questionnaire revealed that the learning media material that must be revised includes : To add practice procedures (checklist) to the content

Content expert suggested that practical procedures should be added including the checklist of danger signs of trimester I and II pregnancies, checklist of danger signs of trimester III pregnancy and checklist of nutrition health education for pregnant women.

**(2) Media Expert Validator**

Media revision was adjusted to the input, suggestions, and criticisms provided and the concept of developing instructional media. In accordance with the questionnaire the media expert revealed that this learning media that had to be revised included :

(a) Main Menu

In the main menu or part of the cover, media experts suggested adding the origin agencies in the form of text or logo in order to be more attractive to the users if they know the agency who makes the media.

(b) Button Constistency

There were still many pages that did not have a button yet, including the *home* button, *next page*, *back page* and *close* .

(c) Video

Media experts suggested that the video previously located below the handling steps table should be replaced on the next page and made with larger resolution, because the room under the table was too small, so that users do not need to create a *full screen* to play the video .

The Final Product (capture) of 3D Pageflip Professional pregnancy care e-module is as follows:



**Figure 2.** Main menu appearance



Figure 3. Detailed Appearance Of The Table Of Contents



Figure 7. Profile Appearance



Figure 4. Pregnancy care content appearance



Figure 5. Checklists of danger signs in Trimester I and II



Figure 6. Video appearance

Outcome of e-modul this figure 1 Main menu appearance is pregnancy care e-modul “Deteksi kegawatdaruratan maternal “ to DIII midwife student’s, detailed appearance of the table of Contents of figure 2 consists of learning objective, theory and evaluation. Figure 3 this Pregnancy care content appearance of various case explanation, other that figure 4 Checklists of danger signs in Trimester I and II to knowledge procedure practice, than figure 5 Video appearance so giving provide student stimulation. This final pregnancy care e-modul figure 6 is profile appearance contains author.

**d. Implementation Product Trial**

When conducting the trial, the students were directed to study independently the Maternal Emergency Detection subject using the Pregnancy Care E-Module. The researcher distributed media evaluation sheets and response questionnaires to students and lecturers to fill out. After all data had been collected, the researcher then revised the final learning media based on the media evaluation sheets that had been filled out by lecturers and students.

**e. Media Evaluation**

**1. Media Evaluation by Media Expert**

Media evaluation by media experts was carried out after the media development process had been completed. The result data of media evaluation questionnaires by media expert are presented in table 1

**Table 1.** The Evaluation Result by Media Expert

Aspect	Average score	Criteria
Simplicity	4.2	Good
Cohesiveness	3.2	Enough
Learning Interaction	3.4	Enough
Balance	3.2	Enough
Form	4.1	Good
Color	4.5	Very good
Language	3.8	Good
Average	3.77	Good

Based on the evaluation of media experts presented in Table 1 . Get an average score of 3.77 with Good criteria. Furthermore, in the comments and suggestions section, the media expert wrote down the revision as their suggestions, then the media experts stated that the E-module was appropriate to be tested out with a revision.

**2. Content Evaluation by Content Expert**

Media evaluation by content expert was done after the media development process has been complete. The result data of media evaluation questionnaires by media expert are presented in the following Table 2 :

**Table 2.** The Evaluation Result by Content Expert

Aspect	Average score	Criteria
Quality of Content	4.4	Very good
Quality of learning	4.2	Good
Quality of Interaction	4	Good
Display Quality	4	Good
Average	4.15	Good

Based on the results of the evaluation of the expert presented in Table 2 . The media got an average score of 4.15 with the criteria of Good. Furthermore, in the comments and suggestions section, the media experts wrote down the revision as their recommendations, then the content expert stated that the e- module was appropriate to be tested out with a revision.

**3. Evaluation by Pregnancy Care Lecturer**

This evaluation aimed to obtain input that would be used to improve the developed media

so that the final stage of media revision could be done. The result data of media evaluation questionnaires by lecturer are presented in Table 3:

**Table 3.** The Evaluation Result of Pregnancy Care Lecturer

Aspect	Average score	Criteria
Quality of Content and Purpose	4.3	Very good
Technical Quality	4.2	Good
Quality of learning	4	Good
Average	4.17	Good

From Table 3, the media got an average score of 4.14 and was categorized in good criteria. Not only was the eligibility criteria was very good, but also the lecturer stated that the E-Module was eligible to be tested out.

**4. Students' Evaluation and Response**

After conducting learning using the pregnancy care e-module, students then filled out a questionnaire that contains the learning process using the e-module. The experiment class with the pregnancy care e-module, there were 16 students filled out the questionnaire of this E-module to see their evaluation and responses. The evaluations included: quality of content and purpose, quality of techniques and quality of learning. Following are the result of the questionnaire as listed in Table 4 .

**Table 4.** Evaluation Result by Students

Aspect	Average score	Criteria
Quality of Content and Purpose	3.9	Good
Technical Quality	4.2	Good
Quality of learning	4.4	Very good
Average	4.17	Good

Based on Table 4 , the average evaluation obtained by students was 4.17 with good criteria.

**DISCUSSION**

This learning media development followed the ADDIE (Analysis, Design, Development, Implementation, and Evaluation)

development model. Step by step has been carried out according to development needs. All stages of this media development were very important and one of the stages was the development stage, which was the making of media and evaluation by media experts and material experts. According to Kristiawan & Wardiah. (2019), stated that the module developed was declared valid with a score of 4.50 module validation assessment material and included in the very classification well. The module was declared practical with the result of the questionnaire the trainee obtained a score of 4.52 and categorized into a very good classification so that it was viable to use, the module developed was categorized as effective, this is indicated by the results of student-made crafts that are better than before and can be of economic value.

The development of e-book teaching media begins with planning, initial product design, assessment of material and media experts. Teacher assessments and student assessments of trade company adjustment e-books based on the 2013 Curriculum produce 87, 42% and was categorized as good which means that media was viable to be used as a medium in the learning process, (Krisnaesanti et al., 2018). In addition e-modules for computer-based learning subjects, in the content aspect was in the "very good" category, for the media aspect are in the "Very Good" category. Furthermore, the results of practicality tests of products that have been carried out are in the category of "very practical". These results indicated that this e-Module could be practically used as a learning source and alternative media in Computer Based Learning lectures, (Novrianti, 2018).

This research has developed a media with the concept of independent exploration or as independent teaching media so that students can learn independently while using this media. This is in accordance with the development of the fourth semester students that had reached the formal operational stage. Thus, students are able to think based on hypotheses from abstract things found to reach new understanding. Based

on the field observations conducted by providing the needs analysis questionnaire for lecturers and students, it was found that the most difficult course in semester IV of the D-III Midwifery study program was the pregnancy care course.

That is because the content covers physiological and pathological cases (emergencies) and the lack of learning media to stimulate students to understand pregnancy care courses, because it was only using textbooks. Modules that do not contain simulations or videos that can make students more motivated to learn by using innovative technology.

The need for learning media innovation was also strengthened by the Head of Midwifery Diploma Program and one of the lecturers who stated that innovation in learning was needed because learning media that had been used so far has not been electronic-based or e-learning-based and they had not seen any differences since years. It can be assumed that learning media innovation can eliminate monotony and add more innovative learning resources for learning activities, as well as make students more active so that the grades for courses could be better. From the results of the lecturers and students analysis that has been done, the researcher identified that the need for new innovations was to create an electronic-based learning media, which is 3D Pageflip Professional pregnancy care e-module that will replace the printed module.

The learning process that used e-modules was more interactive than the use of ordinary document files. Nurulita (2017). In addition, according to Dewa (2016) stated in the e-module students have prepared a complete material, practical tutorials, related problems and assignments so that learning activities using e-modules were more structured.

Step by step has been carried out according to development needs. All stages of this media development were very important and one of the stages was the *development* stage, which was the making of media and evaluation by media experts and material experts. The purpose of the evaluation by experts was to obtain input, criticism, and suggestions for

improvement for the perfection of the media developed. Suggestions and criticisms from these experts became references for the revision of the learning media. In addition to experts input, the evaluation questionnaire would also determine the validity of the media. After the media was declared valid and worthy of testing, the media was tested on teachers and students to find out the response and quality of the learning media.

The evaluation of media expert was focused on the appearance or presentation seen from the point of view of the learning media. Questionnaires were filled out by media experts. From the data that has been obtained, it can be seen that the media that had been developed got a score of 3.77 by referring to the conversion guidelines on a scale of 5, then the media was declared "good". In terms of the quality of the appearance / presentation of the media, the media was worth testing. In addition to media expert, content expert evaluation questionnaire data was also obtained to determine the quality of the media in terms of contents. From the data that has been obtained, it can be seen that the media that had been developed got an average score of 4.15 by referring to the conversion guidelines on a scale of 5, then the media was declared "good". Modules can be declared "viable" by content and language experts, while media experts said "very viable". On the other hand, teacher and student responses to the use of learning modules were categorized as "very good" and effective modules for the learning process, (Fikri & Zubaidah, 2018). In addition, according to Seruni et al. (2019), the electronic module (e-module) was validated by content, language and media experts and a small-scale field trial of students and lecturers was conducted. So that in terms of the truth / accuracy of the concept of material in the media, the media was viable to use.

Similar to the research conducted by Raihan et al. (2018) stated that the development of teaching media in the form of e-books based on 3D Pageflip Professional had been declared feasible by a team of experts (content and media experts), practitioners or teachers with excellent and practical categories. In addition, the

development of teaching content and learning media was beneficial for lecturers and researcher for service provision expertise as a form of innovation in educational products.

The quality of the media from the viewpoint of educators who know the characteristics and abilities of students who had obtained that the media achieved an average score of 4.17 by referring to the conversion guidelines on the scale, then the media was declared "good". While the students' responses to the E-modules were obtained from the student response questionnaire given after the media trial was conducted. From the student questionnaire data it appears that students responded positively to learning media.

Based on the statements and results of the study it can be concluded that the development of e-module pregnancy care based on Pageflip Professional 3D was appropriate for use in the learning process and e-modules as teaching contents can be developed again for other subjects as innovation in the learning process. In addition, lecturers can add insight into the types of learning media and teaching contents so that they can support learning activities.

## CONCLUSION

The module developed as maternity care teaching content included maternal emergency learning content made into a 3D Pageflip Professional based E-module with an attractive template or layout. 3D Pageflip Professional pregnancy care e-modules are declared viable and effective by experts (media expert and material expert). In addition, e-module as teaching content can be accessed using smartphones or laptops, so that it would be more innovative in accordance with the development of sciences to improve the quality of learning.

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