

Development of Teaching Book Based on KKNi

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Abstract: *The purpose of this research is to develop textbook based on KKNi to change the behavior of mathematics learning of students who follow the course of Mathematics Learning Evaluation at Mathematics Department, Faculty of Mathematics and Natural Sciences, Medan State University. The subject of this research is a mathematics student in Mathematics Evaluation Course in Mathematics Department. The object of this research is KKNi-based teaching book. Research method used in this research is development or Research and Development. The results obtained from this study is the creation of KKNi-based teaching books that can change student learning behavior of math. Obtained the average value in the initial questionnaire 25.6% its index, while the final questionnaire obtained the value of the index 80.9%. After N-Gain testing was obtained an average of 0.81. After adjusting for the index category table then the average value is at the "high" level, meaning that there is a change in student learning behavior is very significant.*

Keywords: Teaching Book, Mathematics Learning, KKNi

1. Introduction

Law No.14 of 2015 describes the duties of teachers and lecturers. Article 1 explains: Lecturers are professional educators and scientists with the primary task of transforming, developing and disseminating science, technology, and the arts through education, research, and community service.

Furthermore, in Article 60 of Law no.14 of 2015 explains that in carrying out professional duties, lecturers have an obligation to:

- a) Conducting education, research, and community service;
- b) Plan, implement the learning process, and assess and evaluate learning outcomes;
- c) Enhance and develop academic and competency qualifications sustainably in line with the development of science, technology, and the arts;
- d) Be objective and non-discriminatory based on the consideration of gender, religion, ethnicity, race, certain physical condition, or socio-economic background of learners in learning;
- e) Uphold the laws, laws and codes of ethics, religious values and ethics; and
- f) Maintain and cultivate the unity and unity of the nation.

Education will continue to evolve according to the needs of the times. Education must be able to follow these developments in order to meet the needs of the students. Medan State University (UNIMED) has enacted the Indonesian National Curriculum Framework (KKNi). Why? Because with KKNi UNIMED aspires to produce students who are more achievers, creative, and berkartaktamemiliki noble character. Where, it is merupakan capital for students to survive in society.

According to Presidential Regulation no. 08 tahun 2012, KKNi is a manifestation of the quality and identity of the Indonesian Nation related to the national education and training system owned by Indonesia. Thus, it can be concluded that KKNi is a study program that requires the education system in Higher Education to clarify the profile of its graduates, so that it can be adjusted with the feasibility in the viewpoint of community needs analysis. Therefore, as a lecturer I must participate in the success of the program of this curriculum.

One effort to support the successful application of KKNi is to develop textbooks. Textbooks are books that students use to study in the classroom. The book is the main reference used by students. therefore, textbooks must be continuously developed / updated to fit student's learning needs. in this study, developed textbooks in accordance with KKNi. Where the textbook developed in accordance with the components of learning tools based on KKNi. The adjusted learning components are the Semester Program Plan (RPS), Course Schedule (SAP), Worksheet (LK), assessment instrument.

However, in the Mathematics Education Study Program there is no textbook developed based on KKNi including textbooks in the Mathematics Learning Evaluation course. Therefore, through this paper will reveal how the results of student learning on Mathematics Learning Evaluation course that uses textbooks based on KKNi.

2. Results

The learning development model used is a 3-D development model proposed by Thiagarajan and Semmel that have been modified. The following is a KKNi-based textbook development scheme:

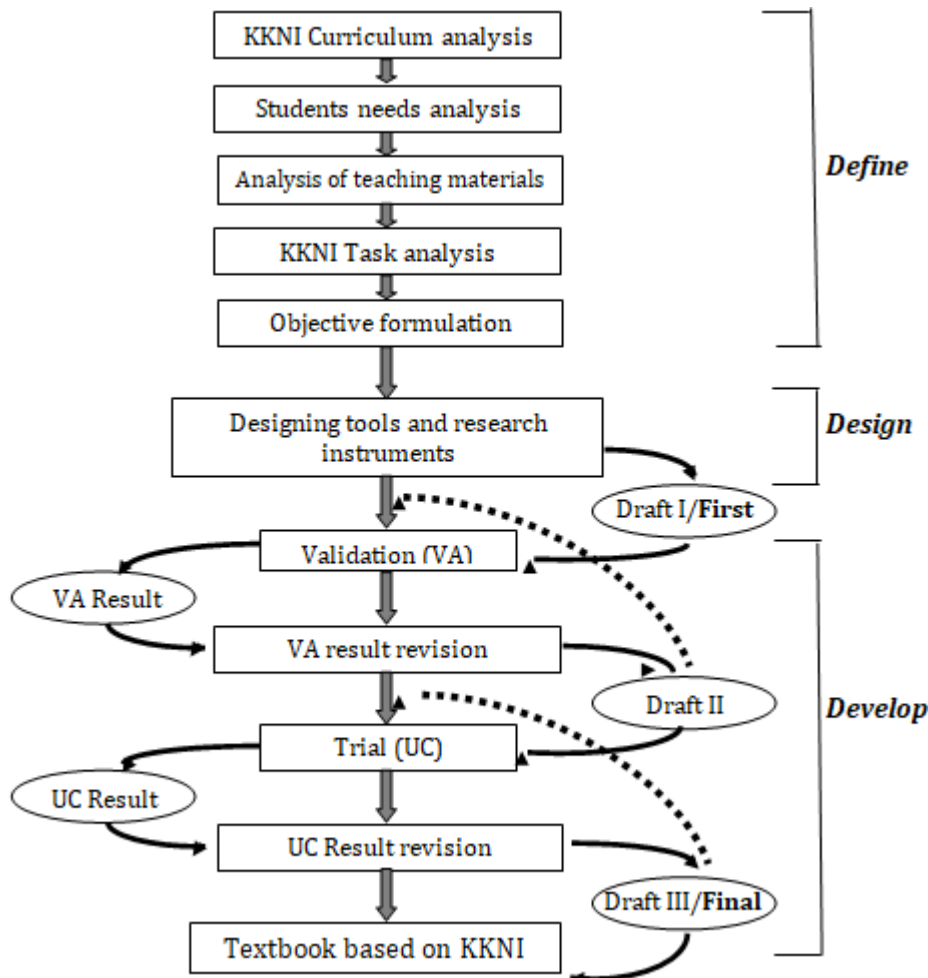


Figure 3.1: Schema of Explorer Development Resource (modified from model 4 - D).

Information:

- : Order of Implementation of Activities
- : Cycle for improvement
- : If still need to cycle
- : Activity
- : Results of Activities

The first stage done in this research is the Define stage. At this stage the researcher conducts curriculum analysis and student analysis. Review what needs to be developed by adjusting to the needs of students. Next analyze the topic on the course, where researchers find out what should be done is developing textbooks in accordance with learning tools based on KJNI Mathematics Evaluation Learning Mathematics. The second stage is Design, where at this stage researchers designed KJNI-based teaching books based on the results of the analysis in the early stages. In addition to textbooks, researchers also adjust all components of learning devices in accordance with KJNI. The result of this second stage is the creation of draft I, the textbook and learning tools based on KJNI. Then proceed at the Develop stage. In this third stage, Draft I is validated to the expert, namely to two lecturers of Mathematics Education. Further validation results are revised in accordance with suggestions and improvements provided by the validator. The validator provides advice on the legibility of the textbook so that the sentence is simplified and provides input on the material contained in the textbook as

well as its compatibility with the KJNI. So the results of textbooks and learning apparatus based on KJNI that has been revised is called Draft II.

After obtained by Draft II, then conducted a test on the students of Mathematics Department who followed the course of Evaluation of Mathematics Learning at the Faculty of Natural Sciences of State University of Medan. The test is done to see the change of student's learning behavior in Mathematics Learning Evaluation course. Before the trials were conducted, students were given a questionnaire of learning behavior. The result is an index of 25.6%, meaning that the level of student learning behavior is still low.

The research stages continued with the provision of lectures based on KJNI. Where the students at the beginning of the lecture given the contract lectures, syllabus and SAP as well as textbooks based on KJNI. The tasks given are also based on KJNI that there are 6 tasks that must be completed by students in a semester or 16 meetings. The six tasks are

routine task, critical book report, critical journal report, idea engineering, mini research, project. By giving these six tasks will be able to shape the character of each student that will be reflected in behavioral changes in learning.

At the fifteenth meeting, students were given back questionnaires to change learning behaviors as at the beginning of the meeting. The result of the average value of the index from the final questionnaire is 80.9%. Far different from the initial questionnaire that is 25.6%. From these results seen differences in student learning behavior change between before and after given 6 KKNI duties. From the above two questionnaires, the N-Gain test was performed. The aim is to see how far the student behavior change after giving 6 KKNI duties.

Table 1: N-Gain Index Criteria

	Index Category
$g > 0,7$	High
$0,3 < g < 0,7$	Middle
$g < 0,3$	Low

The average result from the initial questionnaire with the final questionnaire is 0.81, adjusted to the index category table above, then the average value is at the "high" level. This means that the change in student learning behavior is very significant.

Changes that occur in student learning behavior are more students have preparation to receive class lessons, visible from the precision of entering the class, doing all the tasks given, and active in learning in the classroom. Students look more excited in following the lesson, ask if there is not yet understood, because the students know more about the benefits of the material given by the lecturer. More students who use campus facilities that are useful for improving their ability in learning such as students become more frequent visits to the library and use more internet facilities to search for learning materials. This causes students to better understand the subject matter and more thoroughly in solving every problem / matter. As well as the results of 6 KKNI duties given (Routine task, critical book report, critical journal report, idea engineering, mini research, project) can also be done well by students. based on the questionnaire can also be known with the 6 tasks of KKNI, students become more read and learn at home.

After the implementation of the trial, obtained errors such as improvements in routine tasks in the book, improvements Student Worksheet that we have attached in each discussion, errors in typing and the addition of reference materials in textbooks. Then revised back to the textbook. After that, obtained the output from this research that is KKNI-based teaching book. Based on the above discussion also obtained the conclusion that through this textbook KKNI-based can change the behavior of students in learning Mathematics Evaluation of Mathematics Learning.

Many successful development studies fit their goals. As research conducted by Frisnoiry with the title of Learning Device Development Through Realistic Mathematical Approach. From his research, through the development of learning tools can improve communication skills and

students' mathematical understanding ability. In addition, the development research undertaken by Widodo concludes that significant differences in the values of the application of Teachers and control class. The results of the developer at UPTD SMPN 1 Ngunut that this teaching book can improve the grades of VII-E UPTD SMPN 1 Ngunut Tulung Agung year 2014/2015.

3. Conclusion

The conclusion of this research is through KKNI-based textbook that has been developed can change student's learning behaviour of mathematics. From the research results obtained the average value in the initial questionnaire 25.6% index, while the final questionnaire obtained the value of the index 80.9%. After N-Gain testing was obtained an average of 0.81. After adjusting for the index category table then the average value is at the "high" level, meaning that there is a change in student learning behaviour is very significant.

Hopefully in the future, the idea of this research will still continue on. The next research plan will be to apply KKNI-based teaching books that have been developed to apply to several universities in North Sumatra.

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