

Development of Teaching Material based on Curriculum 2013 on Cube and Cuboid Concepts

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Abstract. In facing the implementation of Curriculum 2013, teachers are required to make the teaching materials appropriated by those policy. Teachers in Pekanbaru have some difficulty in implementing it mainly on geometry topics, so they back to earlier curriculum as known as KTSP. This study is a form of research and development (R&D), which aims to produce mathematics teaching materials based on Curriculum 2013 on cube and cuboid concepts. Subjects in this study were eighth grade students in SMP 20 Pekanbaru, consists of 8 students (3 boys and 5 girls). Data collection instruments used were validation sheets and students and teachers questionnaire responses. Based on data analysis, that teaching materials are valid and practice. From this study it can be concluded that teaching materials help teachers to implement Curriculum 2013 easily.

Keywords: Research and Development, cube, cuboid, teaching materials, Curriculum 2013

INTRODUCTION

The processes of learning in the classroom are closely related to the competence of teachers, students, curriculum, facilities and infrastructure. The teacher is a crucial figure in the learning process in class, the teacher decisive models, strategies, and learning methods that will be used in the classroom. Usman (2011: 6) says "The teacher is a job that requires special expertise". Tasks include educating teachers, teach, and train. Educating means to continue and develop the values of life. To teach is to continue and develop science and technology. While training means developing skills in students.

The Government through the Ministry of Education and Culture did reform and innovation in the field of education, one of which is the renewal and innovation of curriculum, namely the birth of curriculum 2013 (Kunandar, 2014: 16.) "Curriculum 2013 was developed with the improvement mindset as follows: (1) the pattern of teacher-centered learning becomes learner-centered learning. Learners must have the choices of materials studied to have the same competence; (2) learning patterns in one direction (the teacher-learner interaction) into an interactive learning (interactive teacher-learners-society-natural environment, source/other media); (3) pattern isolated learning becomes learning network (for learners to gain knowledge from anyone and from anywhere that can be contacted and obtained via the Internet); (4) the pattern of passive learning into active learning; (5) learning patterns themselves into learning groups (team-based); (6) the learning patterns into a single appliance-based learning multimedia tools; (7) the pattern of problem based learning into the needs of customers (users) by strengthen special potential of every learner; (8) a single science learning patterns (mono discipline) into learning science plural (multidiscipline); and (9) the pattern of passive learning into critical learning (Kunandar, 2014: 23)".

Basically, learning is a process of communication between teachers and students. According to Suhermi and Sehatta (2006: 19) "teachers and students as a human element that would contain so many human elements (abilities, skills, philosophy of life, motivation, etc.) are different from each other", Where the teacher as a mediator in the learning process. In this case, the teacher should be able to choose learning strategies in accordance with the ideals of the curriculum in 2013, so that the learning process in the classroom can work well and create a good interaction between teachers and students.

Along with the times and technological progress, the teachers are required to be able to adapt to the development of civilization and technology. Teachers also have to keep abreast of their student, in this case the teacher should be able to develop learning in the classroom so that learners do not feel bored or not interested in the lessons given these teachers, especially in mathematics. In the study of mathematics, students are required to actively participate in the learning process. Mathematics teacher should have a strategy or plan that can arouse interest in student learning so that learning mathematics can run effectively and learning objectives can be achieved.

Mathematics learning objectives can be achieved by designing mathematical learning process such as by developing curriculum-based math learning tool 2013. Teachers stimulate students to observe the problem and then solve it. According to Kunandar (2014: 3) "Good teacher should be planning before implementing the learning in class". Good teaching and learning process should be preceded by good preparation, without good preparation its hard to produce good learning. Therefore, it is supposed to be a teacher before teaching planning or learning device. Program or plan must be drawn up by teacher before doing the learning, among others: (1) annual program, (2) the semester program, (3) syllabus, and (4) Lesson Plan (RPP).

Based on the observation of the author in SMP 20 Pekanbaru on Thursday, 13 November 2014 they obtained some of the problems regarding the learning device that causes low activity of learners in the learning process of mathematics: (1) RPP used are less innovative; (2) There are no mathematical learning device that raises student learning activities; (3) There are no socialization to teachers on how to develop a good learning tool; (4) The LKS used a ready-less correspond to the learning program teacher at the school.

Based on the interview with the author of five teachers who had never applied mathematics curriculum, 2013, can be drawn several conclusions from the interview, namely: (1) There are several aspects of the RPP are still causing confusion; (2) to the curriculum in 2013 is still too complicated to use; (3) is used LKS ready-made by the publisher.

According to Ibrahim (in Trianto 2007: 96) "learning tools needed to manage the learning process can be: the students' books, syllabus, lesson plan (RPP), student worksheets, evaluation instruments or achievement test (THB), and media learning ". To develop a learning device, the authors use a learning model that was used in 2013 is a model curriculum Problem based Learning (PBL). The model chosen for the model PBL PBL is very suitable for the study of mathematics in school, this is because students can be actively involved in the learning process.

RESEARCH METHOD

Form of research is the development of research in terms of Research & Development (R&D). Method of research and development is a research method that is used to produce a particular product, and test the effectiveness of these products (Sugiyono, 2013: 407). According to Sugiyono (2013: 409):

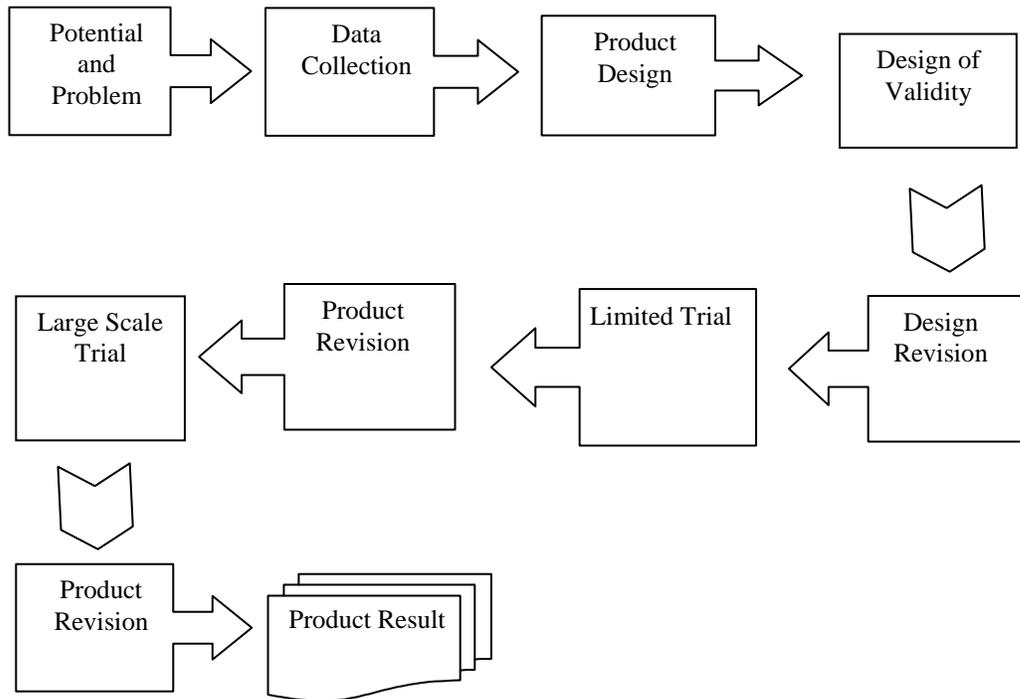


Figure1. The steps R & D

According to Brog and Gall (in Setyosari, 2013: 222) "Research development is a process used to develop and validate a product research". This study follows a cyclically steps. This study uses 4-D model of development, researchers made a study design of this development consists of three phases, namely the define, design, and develop. The disseminate phase was not done because of limited time and funds development.

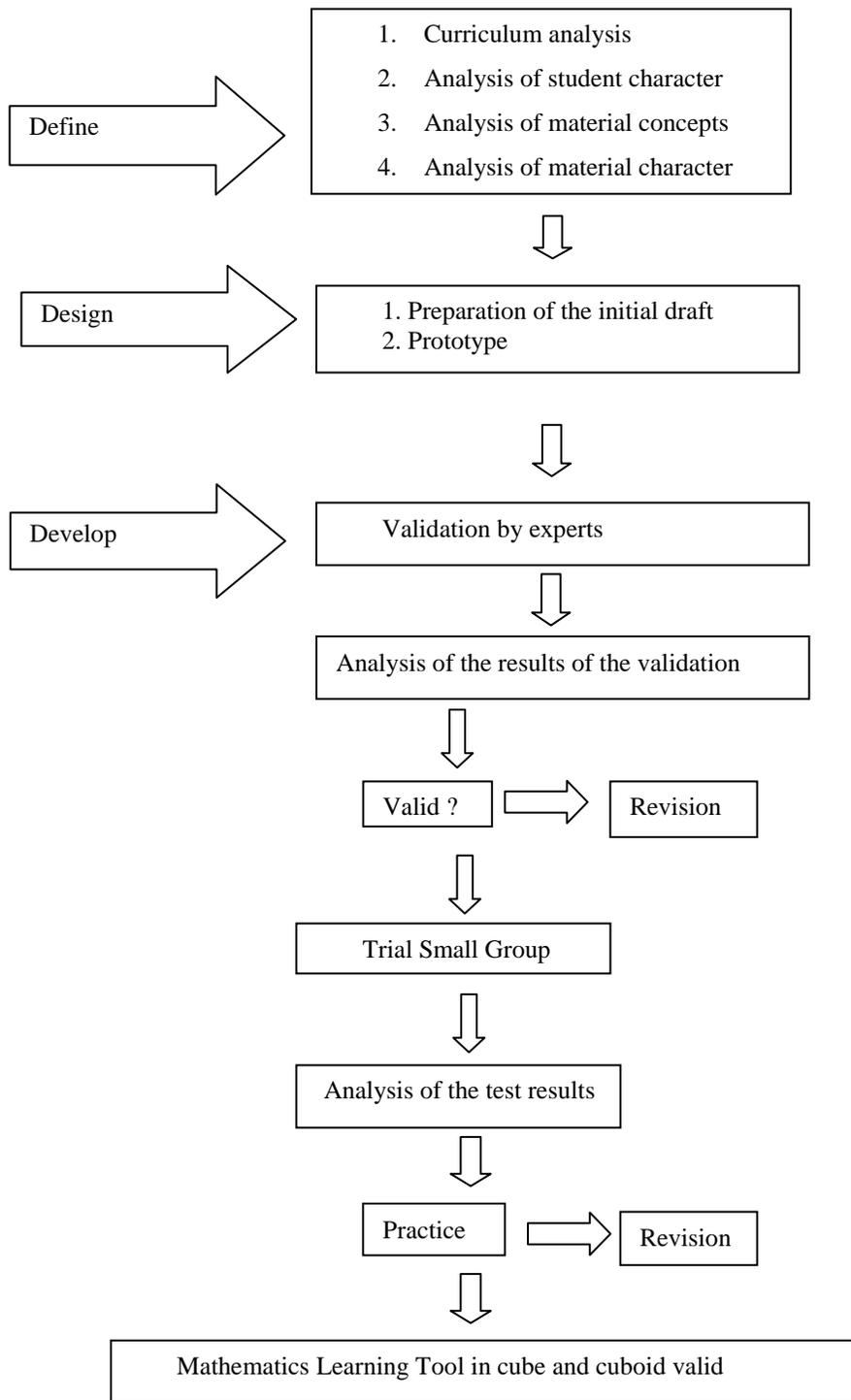


Figure2. Research Procedures Performed

RESEARCH RESULT

The study was conducted in the development of SMP 20 Pekanbaru. The product resulting from this study are math learning tools such as syllabi, lesson plans, worksheets and assessment sheet. The device is made based learning curriculum mathematics in 2013 and the device has been validated by four validators. After the validation process, the mathematics learning device is revised as advice and input by the validator. Furthermore, the device is in the learning of mathematics tested to 8 students of SMP 20 Pekanbaru.

Based on the results of the validation of RPP has been done, the result is the validation of RPP of 90.32% were categorized as very valid, and validation results for LKS at 85.59%, which is also categorized as very valid. After validation, this mathematical learning device tested on learners as 8 people. In the process of the trial, students were asked to complete a questionnaire respons of students to the worksheets that have been developed by researchers. From the results of the student questionnaire responses, showed LKS practicality of 94.18% were categorized as very practical.

At the time of execution of the learning process, the first thing you said to learners when viewing the math worksheets are all learners like math worksheets that have been developed this. LKS mathematics is not something new for them as they have also been using math worksheets, but they use only LKS issued from the publisher which they unattractive and too complicated. This is what makes them excited to see and do these worksheets.

CONCLUSION

Based on the development that has been done, can be conclude that mathematics learning tools that have been developed based on the curriculum in 2013 declared unfit for use. Based on the implementation, it can be conclude that mathematics learning tools that have been developed otherwise practical.

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