

Problem based learning model: The development of elementary school student worksheet as learning process support

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ABSTRACT

This study aims to develop student worksheets based on problem-based learning in subjects to determine student feasibility and support the learning process. Student worksheets are printed teaching materials that are packaged in such a way that they contain material, summaries, and instructions for carrying out tasks that must be done by students so that students can learn independently. Problem-based learning is a problem-oriented learning model related to the surrounding life. The problem-based learning model directs students to think critically and rationally about solving existing problems with the presented learning material. The method used in this research is research and development (R and D). The procedure was chosen because it was oriented toward developing existing products or creating new products with systematic development steps. In contrast, the steps used in this research are six steps: analyzing potential and problems, literature study and information gathering, product design, product validation, product revision, and final product. The data collection technique in this study used observation and a product validation sheet to validate the product. The data analysis resulted in a decision that student worksheets based on problem-based learning on the subject matter tested were feasible to apply in education. The results of this study are addressed to teachers and school managers to be able to make knowledge and use the outputs of this research as a product to support learning.

KEYWORDS

student worksheet; problem-based learning; learning process support

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Introduction

Learning is an interactive process between students and educators and learning resources in a learning environment. Learning activities are essential to curriculum implementation to determine whether learning is effective and efficient. Effective and efficient learning depends on the teacher's skills in delivering learning and teaching materials. Learning teaching materials are tools that function to convey learning messages. Based on the above understanding, it can be concluded that teaching materials are essential to the learning process's success. Therefore, the teaching materials used by a teacher must consider whether the teaching materials used can attract interest in learning and activate students in learning optimally or not.

A teacher must have skills in using teaching materials and interesting teaching styles so students can be active in learning. Because basically, a teacher teaches to make students understand the material presented. A teacher educates and trains his students well according to his expertise. All the knowledge he mastered was taught in depth. He makes his students master all the lessons that have been given. Learning teaching materials limited to Buddhist education books is a significant problem in formal education learning. Teaching materials in Buddhist education books are still considered less attractive in the field of knowledge. Teachers in schools are still limited in the use of learning teaching materials because making teaching materials is considered too difficult. Thus, teachers sometimes avoid making new learning teaching materials and prefer to use improvised teaching materials. The use of these teaching materials can cause the learning process to become monotonous. Because the learning method focuses on the lecture method, students are less enthusiastic about participating in the learning process in class. Another effective teaching material to increase students' interest in learning and make it easier for teachers to deliver learning

materials is student worksheets. Student worksheets has printed teaching materials that are packaged to contain materials, summaries, and instructions for implementing learning tasks that students must do to learn independently.

Based on the existing background, the researcher intends to develop teaching materials in the form of student worksheets based on problem-based learning or assignments to students to solve problems in the surrounding life associated with the material. student worksheets based on problem-based learning is deemed suitable by researchers to be applied at Bodhisattva Junior High School Bandar Lampung, especially in Buddhist education subjects for class VIII.

The material deliberately makes students more active in the learning process, think critically, learn independently by understanding learning materials, practice solving a problem, and not entirely rely on the material presented by the teacher during class learning. This study aims to innovate to design a teaching material for Buddhist Education that can complement the shortage of teaching materials that are limited in availability. So, specifically, this study aims to answer: 1. How is the process of developing problem-based learning student worksheets as learning materials, 2. Are the teaching materials created suitable for use based on expert judgment? 3. Could the teaching materials be developed by supporting the learning process?

The use of teaching materials not only makes it easier for students in the learning process but also makes it easier for teachers to carry out learning and teaching activities. With teaching materials, the teacher will become a facilitator and provide direction if there are students who do not understand the content or learning material. According to (Prabawati, et al., 2019: 38), teaching materials are a set of learning materials arranged systematically and used by teachers and students in the learning process. Examples of teaching materials are books, worksheets, and modules that students or teachers can use. Teaching materials are all forms of materials used to assist teachers in carrying out teaching and learning activities.

Teaching materials are expected to facilitate students in understanding learning materials to improve student learning outcomes. The teaching materials consist of several kinds: textbooks, modules, Student Worksheets, learning audio, learning videos, and so on (Praswoto, 2013: 303). One of the teaching materials or learning resources to support the achievement of student competency goals is the student worksheets. Student worksheets is student assignment sheets that contain systematic instructions for students to add information (Dian, 2016). These instructions direct students to achieve their goals in learning. Student Worksheet is a learning media in the form of print media. It aims to activate students and facilitate students to study independently according to their learning abilities and interests. To get the correct understanding, the right experience is needed, the testimony from other people and the observer or self-reflection are required as accurately as wisely. Observers who can become facilitators of students are teachers, and peers can also be facilitators for learning outside of school.

PBL is a learning model that involves students solving a problem through the stages of the scientific method. So that students can learn knowledge related to the problem and, at the same time, have the skills to solve problems (Ngalimun, 2014: 89). Meanwhile, according to Sri Haryani, et. al, (2018: 3) PBL is learning that begins with a problem to lead students to be able to construct their knowledge. Learning activities in PBL encourage students to be actively involved in problem-solving processes; students' activeness in participating in the learning can affect the level of understanding of students' concepts. PBL is learning obtained through a process toward understanding or resolution of a problem (Huda, 2013: 271). Meanwhile, according to Sujana (2014: 134) PBL is learning that presents various authentic and problematic situations for students. These problems can be used as springboards for conducting investigations and research.

Therefore, PBL is learning that requires students to construct their knowledge through problems. Learning conditions with the PBL model have specific characteristics that distinguish it from other learning models. According to Ngalimun (2014:90) PBL has the following features: (1) learning begins with a problem, (2) ensures that the problems given are related to the real world of students, (3) lessons revolve around problems, not scientific disciplines, (4) provide great responsibility to students in shaping and directly carrying out their learning process, (5) using small groups, and (6) requiring students to demonstrate what they have learned in the form of a product or performance.

Students' success in understanding the material presented by the teacher can be judged by how many learning indicators are achieved by students. To accomplish a hand, a teacher must have their way. Supporting teaching materials can also be one factor that helps students succeed in learning. Teachers must be able and careful in choosing teaching materials because inappropriate teaching materials can affect students' success in understanding learning materials. Teachers must have the skill to determine suitable teaching materials to be applied based on considerations of student character, strengths, weaknesses, class conditions, and others. In the following verse, Buddhism once explained that a teacher should be as skilled as a shepherd tending his cows.

"A teacher is likened to a shepherd who must have skills in herding, such as having skills about the shape of a cow, knowing nature, getting rid of silt eggs, covering the face, blowing smoke, knowing the river, knowing drinking water, knowing the way, knowing the meadow, and not expressing milk until finished"
(M.1.220)

The use of teaching materials in the form of student worksheets can be an alternative to assist students in learning and increase students' enthusiasm for learning. Student worksheets are sheets containing assignments that study students must do student worksheets are material that has been packaged in such a way so that students are expected to be able to explore the teaching materials independently. In the student worksheets, students will get materials, summaries, and assignments related to the material (Rohati, 2014:5). The use of student worksheets must be able to increase students' enthusiasm for learning, student worksheets which are less attractive, for example, in terms of appearance and content, will also reduce student interest. student worksheets, in which there are only monotonous questions, is considered less effective in learning. There is a need for innovations on student worksheets, which are designed to increase student activity, enthusiasm, and knowledge, one of which is Problem Based Learning-based Student Worksheets.

Methods

This study uses research and development methods. The research was conducted in SMP Bodhisattva, Bandar Lampung, Indonesia. This method is used to produce teaching materials in the form of Student Worksheets based on Problem Based Learning", and test the effectiveness of Student Worksheets. based on PBL. The research is to develop Student Worksheets based on PBL. Research and development serves to validate and establish products" (Sugiyono, 2018). Student Worksheets based on PBL is designed to be used as teaching materials for junior high school students to increase knowledge of the history of puja. Researchers will create products, validate products (test effectiveness or validity), and develop products (so that they become more practical, effective, and efficient). The research design carried out by the researcher is to make observations, compile the background of the problem, identify problems, formulate problems, make the theoretical basis used or look for theories related to student worksheets and the history of worship, make research methods, make products, and make grids, the instrument, collect data through validation, analyze data, and make conclusions. The research steps used, especially the type of R and D research, "Research and Test to Create Products that Don't yet exist, adapt the theory developed by Sugiyono (2017:48). The steps are depicted in the image as follows.

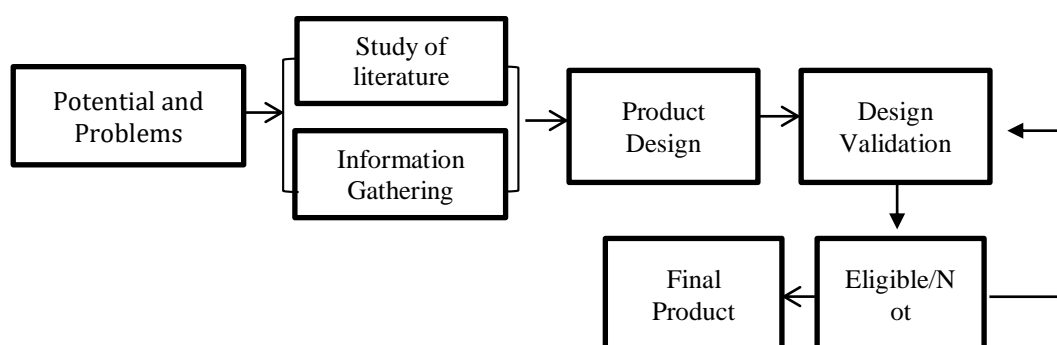


Figure 1. R&D research steps that are developing existing products

Research Phase This research consists of three stages: the preliminary study stage, the model design development stage and the model validation stage, where the researcher refers to the development model (Sugiyono, 2015). The development procedure is descriptive and qualitative. This model outlines the general steps that must be followed to produce a product. Efforts in this procedure include analysis of development needs analysis. The product design development stage consists of manufacturing media by applying the methods used. Material experts and media experts then validate the product design development results to declare whether the product made suitable for use or not. Validation testing aims to measure the extent to which the teaching materials developed are feasible to use. Expert validation data analysis was carried out using the descriptive percentage analysis technique.

This design is used to determine the extent to which the product developed can achieve the goals and objectives that have been set. The research was carried out at the Bodhisattva junior high school in Bandar Lampung, with two validators as data sources for validating teaching materials and 19 Bodhisattva junior high school students as research subjects.

Results

The product validation assessment is explained based on the recapitulation of each indicator, while the explanation is as follows:

Table 1. Product Validation Recapitulation

Media Expert		Material Expert		
No	Aspect	Mean	Aspect	Mean
1	Device Engineering Soft	4,2	Design Engineering Learning	4,2
2	Technical Quality	4,68	Function Whole	4,5
Average		4,44	Average	4,35

The results of the product validation test have been calculated that the average validation of media experts gives an assessment of learning teaching materials at a score of 4.44 and gets a percentage of 88.8% with a very high category. While the material expert, on average, assessed the material developed in learning teaching materials was 4.35 with a percentage of 87% included in the very feasible category. Thus, overall problem-based learning student worksheets on puja history materials are feasible to be applied as a tool or support for the learning process in Junior High School Students.

Discussion

The results of research and development of teaching materials were created. This discussion includes a study of the stages of developing teaching materials and a study of media expert validation and material expert validation.

Product Development Results This research and development aims to produce teaching materials in the form of student worksheets based on problem-based learning on the history of puja material and determine the feasibility of student worksheets based on problem-based learning on the history of puja material for Buddhist education subjects for class VIII even semesters in junior high school. Bandar Lampung Bodhisattva.

The learning teaching materials developed were declared suitable based on media and material expert validation. This development research refers to the development model and Borg & Gall, which is limited to a few stages. These stages include: a) the research implementation stage (preliminary study); b) the stage of implementation and development of the design of teaching materials; c) the design stage of the design of teaching materials; d) product manufacturing stage, and e) implementation phase of teaching material design and product validity test.

The results of this study support the researchers' expectations that the results of the development of teaching materials have a feasibility value to help the learning process. Based on the results of product design validation by media expert validators, the assessment obtained a mark of 88.8% and was very feasible. While the results were obtained from material expert validators, the review received results of 87% and was in a very decent qualification.

Conclusion

Product Development Results This research and development show that teachers and bodhisattva junior high school students need student worksheets based on problem-based learning to support the learning as learning materials. This development research refers to the development model and Borg & Gall, which is limited to a few stages. These stages include: a) the research implementation stage (preliminary study); b) the stage of implementation and development of the design of teaching materials; c) the design stage of the design of teaching materials; d) product manufacturing stage, and e) implementation phase of teaching material design and product validity test. The results of the product validation test have been calculated that the average validation of media experts gives an assessment of learning teaching materials at a score of 4.44 and gets a percentage of 88.8% with a very high category. At the same time, the material expert assessed the material developed in learning teaching materials, which was 4.35 with a percentage of 87% included in the very feasible category. Thus, overall problem-based learning student worksheets on puja history materials are feasible to be applied as a tool or support for the learning process in Junior High School Students.

This research shows that problem-based learning student worksheets can be used in the world of education, especially for Junior High School students. So that this will foster the motivation of actors in the field of education to make learning teaching materials more varied and innovative.

The research results show that the teaching materials made are quite feasible to be used for studying the history of puja. Junior High School students can use teaching materials well and direct the use of problem-based learning student worksheets for learning activities. Further research related to teaching materials should be developed more carefully with a more measurable needs analysis. Hopefully, the teachers can make better use of student worksheets based on problem-based learning and cover the lack of availability of teaching materials.

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