Journal of Education and Learning (EduLearn)
Vol.12, No.4, November 2018, pp. 725~730
ISSN: 2089-9823 DOI: 10.11591/edulearn.v12i4.9377

The Teaching Material Development of Problem Based Learning: Improving Student's Civic Knowledge

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Article Info

Article history:

Received Mar 23, 2018
Revised Apr 21, 2018
Accepted Oct 10, 2018

Keywords:

Civic education
Civic knowledge
Elementary school
PBL

ABSTRACT

The purpose of this research is to know the teaching material condition in classes and the need of PBL-based on civic education; to know the development of PBL-based civic education; to know the effectiveness of PBL-based civic education for fourth-grade students of elementary school as textbooks to improve students' civic knowledge. This book is written based on PBL syntax as a student learning activity. The method of this research uses Borg and Gall techniques modified by Sukmadinata which consists of three namely preliminary study, product development, and product effectiveness test. The result of this research is the necessary analysis on preliminary study. It shows that the civic material based on PBL is needed in the teaching learning process as a companion book. The validation result in product development trials indicates appropriateness. In the effectiveness experiment shows that there are differences and get it if the development between pre-test and posttest in the experiment class is more than control class. Therefore, the teaching material civic education is highly effective to improve the civic knowledge of students.

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1. INTRODUCTION

Civic Education has an important role. The main goal of Civic Education is to educate students become mature and capable citizens. It has also a responsibility to introduce the younger generation to the political system and to give understanding to be a good participant of government [1]. The public participation and skills are necessary for inform and responsible citizenship [2]. This research will focus on civic education or part of a citizen. It relates to the contained values and should be known by students as citizen [3]. This aspect concerns the academic ability developed from various theories or concepts of politic, law, and moral. The importance of civic education competence is to equip students in order to become democratic citizens by mastering a number of knowledge about citizens. Civic education, internal politics, and civic self-efficacy are the interrelated factors and have a direct effect on expected student participation [4]. Such participation can be encouraged by making students' believe in their citizenship and political abilities.

In the learning civic education, there are three developed competencies, namely civic knowledge, civic position, and civic skill. This research focuses on civic knowledge or knowledge as a citizen. The reason is knowledge as one important aspect in forming the citizen awareness and developing other competencies of civic education. Citizens who have civic knowledge will be smart citizens. Citizens who possess citizenship skills will be self-interested citizens, whereas citizens who have the citizenship characters will be responsible citizens [4]. In learning civic education in elementary school, students are introduced to civic knowledge about the phenomena exist around the students' daily life. The goal is to provide awareness as early as possible about Civic education. The aspects of civic knowledge competence concern on the academic-scientific abilities

developed from various theories or concepts of politics, law, and morals. In reality, the Civic education learning in classes is only considered as learning that focuses on memorization and uses the lecture method in delivering the material. It ignores the cognitive aspects including several components that not only focus on aspects of memory. The competency proposition of civic knowledge includes 25% knowledge and 75% reasoning [6]. Civic knowledge includes several aspects in cognitive such as (1) remember, (2) understand, (3) apply, (4) analyze, (5) evaluate, and (6) create [7]. Civic learning should be able to develop all these cognitive aspects and not only focus on one aspect.

In 2009, Indonesia was one of 38 countries involved and became the sample of International Civic and Citizenship Studies (ICCS) research. The ICCS report on conditional civic education in five countries (Indonesia, Hong Kong, South Korea, Taiwan, and Thailand) states that Civic education test in Indonesia and Thailand is lower than one of other Asian countries [8]. That both in conceptual level and praxis level, there is a very basic paradigmatic weakness of developing Civic education in Indonesia [9]. The learning problems of Civic education in elementary school are (1) the hardest curriculum; (2) less capability to find out the keywords in competency standard and basic competence; (3) the conventionally teaching practice; (4) the contextual learning; 5) the textbook teaching; (6) evaluation only focuses on the memory aspect [10].

This research is conducted in elementary school of Surakarta. It shows that the learning Civic Education still use the old methods as lecture method and assignment. In addition, teachers still like a textbook as source of learning guidance, no media usage. The result shows that students' civic education is under average. Some students who have high scores, then tested with problems lead to the problem solving or reasoning and they face a difficulty. It indicates that the learning Civic Education is undeveloped the civic knowledge wholly. Learning in class still orientates the old model/method, although a new curriculum using a scientific approach has been applied. In classes, teachers are still confused applying the main scientific approach to the content of civic education. Civic education is a subject that cannot be separated from daily life.Through a scientific approach, students can directly examine the phenomena in their daily life. Teachers can ask students to conduct a simple research with activities such as observing, interviewing, discussing, and others oriented towards self-knowledge development.

Teaching material is component supporting the learning quality. Teaching material is a content that must be mastered by students through learning activities. It can be developed and modified in line the need of learning activities [11]. The same teaching material as learning material is anything that becomes the content of curriculum that has to be mastered by the students in line with the competency standard of each subject in a particular education [12]. It should be innovated on the current teaching material. From the previous study result, it is obtained that the current teaching material is not used in line with the need of student. It currently used have not yet been able to support student learning activities. It only serves as material sources learned by students' memory. There are several positions of teaching resources namely; 1) assisting in individual learning; 2) providing flexibility for short- and long-term learning presentation; 3) designing the teaching material systematically give a big influence on development of individual human resources; 4) facilitating the learning process of teachers with a system approach; and 5) facilitating the learning designed on the basis of human knowledge [13]. It reinforces that the teaching material does not only serve as a learning resource for students. It is important, because it is a guide for teachers and students. One can be used is Problem-Based Learning (PBL).

PBL is a model based on the constructivism theory [14]. The advantages of PBL are (1) providing opportunities for students to conduct research; (2) building the critical thinking skills; (3) recognizing the content of subject matter and building objectives based on the concept; (4) empowering students to become experts in particular field of study; (5) allowing students to produce more than one solution; (6) presenting uncertainty and need to develop assumptions; (7) motivating students to learn. PBL can be an innovation in the development of teaching material Civic Education [15]. Several previous researches have proven the effectiveness of PBL. This is supported by the previous research Rahayu and Endang conducted that the development of learning material based on PBL including the teaching material on the natural sciences subject. This research was conducted to know the development of learning material based on PBL to improve problem-solving skills and students' science attitude. The result of this research indicates that PBL on teaching material can improve students' problem-solving skill and science attitude as well as worthy to use in learning [16]. The other research found in classes relate to the research are: (1) PBL is very effective learning for teacher certification classes; (2) PBL is an innovative learning strategy that can help teachers practice the problem solving. PBL can be an innovation in the development of teaching material Civic education in elementary school [17].

2. METHOD

R&D is a process used to develop and validate the educational product. It is a development study by creating a product conducted systematically by testing, validating, and evaluating so as to achieve the effectiveness of product in line with the expected quality [18]. This research uses qualitative approach. It is used to know the need of teaching material in class and qualitative with experimental method. This research is conducted on eight elementary schools fourth grade in Surakarta. The reason is the fourth grade has used the same curriculum.

3. RESULT

3.1. The Need for Teaching Material in Class

Textbook is very important teaching material for teacher. Both student and teacher are only guided by the existing textbook. It is provided by school and only lent to the student. Some issues relate to the teaching materials in Civic Education including: (1) there is no independent innovation from teacher to develop teaching material; (2) the used book only oriented to the student's memory; (3) the available teaching material does not support the student learning activities; (4) teacher still needs the additional references for the comprehension of material.

3.2. Findings of PBL-Based Learning Materials of Civic Education to Improve Students' Civic Knowledge

From the findings, it is set that the teaching material is the Civic Education textbook which is based on Problem-Based Learning (PBL). It uses PBL syntax in student learning activities. Cognitive, affective, and psychomotor achievement of students who are taught by using meta-cognitive approach through PBL model, which is better than RL (Reciprocal Learning) model. PBL steps are as follows: (1) orienting students toward problems; (2) organizing students to learn; (3) assisting independent and group investigations; (4) developing and presenting the work and then exhibiting it; (5) analyzing and evaluating students' problem-solving results [19]. PBL-based Civic education material integrates PBL syntax into student learning activities.

The prototype of PBL-based teaching material is arranged based on PBL syntax. PBL syntax is integrated into student learning activities.

Table 1. PBL Syntax Table is in PBL-Based Civic Education Teaching Material

PBL Syntax	Rubric in Teaching Material
Orienting students toward problems	Let's Observe
Organizing students to learn	Let's Think
Assisting independent and group investigations	Let's Read Let's Work
Developing and presenting the work and then exhibiting it	Let's Discuss
Analyzing and evaluating students' problem-solving results	Let's Write

The next step is the assessment of the products conducted by experts. Some experts provide value and input. They are linguists, material experts, media expert, and two teachers in fourth grade and practitioners. Besides, there is also a peer assessment. Here are the results of experts' judgment:

Table 2. Experts' Assessment Results on PBL-Based Civic Education Teaching Material

Experts	Present
Linguists	92.5%
Presentation aspect	92.5%
Media Experts	95%
Material Experts	90%
Average	92%

From the result, the score is 92% indicating PBL-based Civic education teaching material is very feasible used in learning Civic education in the classroom. The experts inputs then used as materials for the improvement of PBL-based Civic education teaching material.

3.3. Fiels Trial Anaysis

The teaching material prototype of PBL-based civic education is conducted. Interview with students and teachers are aimed to see shortcoming of the teaching material design as input to fix and improve.. The assessment results of the PBL-based teaching material by the teachers show 85% point means that the product of PBL-based teaching material is feasible. The teaching material has been revised, then consulted with teacher and tested on a broad test. In board test uses the experimental method with Pretest-Postest Control Group design. The average values of pretest and posttest are as follows:

Table 3. The Average Pretest and Posttest Value on Broad Test

School's Name	Al Irsyad	Kristen Stabelan 1
Pretest	62.55	60.00
Posttest	80.45	79.58

The table above shows the difference between average posttest and pretest of Elementary School Al Irsyad Surakarta and Kristen Stabelan 1 Surakarta. The both school is relatively similar and shows an average increase. It can be concluded that the teaching material of PBL-based Civic Education is influential. In a wide-ranging assessment by the teacher, the picture shows 90% indicating that the PBL-based teaching material can be suitable to use.

3.4. The Effectiveness Test of PBL-Based Civic Education Teaching Material

Two schools used this experimental test are Elementary School Muhammadiyah 6 Surakarta as the control class and Integrated Islamic Elementary School Ar Risalah as the experimental class. After fulfilling the prerequisite analysis tests (the normality test with Kolmogorof Smirnov and homogeneity test) then the data analysis is conducted with independent t test. Here are the pretest and posttest results on the effectiveness test:

Table 4. The Average Pretest and Posttest Values on Effectiveness Test

Class	Experimental	Control
Pretest	63.68	61.08
Posttest	80.50	72.00

The table above shows that there is a significant difference between pretest and posttest in both the control group and the experimental group. The difference in the experimental group is 13.14, while the control group is 12. It indicates that the experimental group is higher increase than the control group. The results of t test between posttest of experimental class and the control class show a mean difference (sig (2 tailed): $0.00 < 0.05$)

4. DISCUSSION

PBL allows students to find information and build their own knowledge to solve a problem. The problem-based learning strongly supports the use of self-directed, collaborative, meta-cognitive thinking skills, adequate recognition of information, all of which are competencies in a career [20]. Trianto states that the problem-based learning has advantages where the problem is realistically studied with students' life, accumulates student inquiring attitudes so that the retention of students' concepts becomes stronger [21]. Thus, it is expected to foster problem-solving abilities. PBL has students' performance significantly improved after applying problem-based learning, especially on the knowledge (cognitive), affective, and psychomotor aspects [22]. It is very helpful in learning to develop students' competence especially in civic knowledge. Utomo, Wahyuni and Hariyadi explain that problem-based learning can build students' own knowledge whereas the group learning can facilitate students to collaborate, exchange ideas, teach each other and solve problems in many different ways implying that PBL is contextually meaningfull [23]. Tillman connects the problems in real life with very important academic content because this is an opportunity for student to see the relationship between phenomena and the theory in learning [24].

PBL starts with an unstructured problem that has more than one answer [25]. Problem solving is needed in daily life. With the problem solving in learning, teachers can observe the different and diverse development of students' thinking. Students can learn carefully how to solve a problem and go beyond learning barriers. Students will try to identify the problem and find the starting point of the cause, after which the student

will define their own learning objectives. Even in a group work, they will try to face ideas and problem-solving techniques as well as share knowledge. Problem-based learning may implicate individual and group activities, stimulating and inciting curiosity, intrinsic motivation, self-guided study and personal and group reflection [26]. Referring to the findings of a research conducted by Ari and Katranci they show that problem solving in PBL can improve students' thinking ability and provide permanent learning [27]. Mat, et al explained that PBL was designed to help students to acquire critical thinking skills, problem solving skills, and to apply the knowledge in problem solving [28]. The obstacles in preparing the PBL is that it takes a lot of time to train students to solve real-life problems.

The problems given in the form of the open ended questions. The aim is to make that students are able to provide varied answers. Students will try to provide answers according to how they view the problem. Husain et al said if open questions have characteristics that can test the critical thinking skills and analysis students to support their views and lead to the ability to make decisions [29]. That way will help students to be more critical in respond every information that they get. The teacher can use it as a material for student discussion. Yew and Goh state that open metacognitive questions can be an effective way for teachers to facilitate discussion and development of students' collective knowledge verbally [30]. For the examples of open ended cases in everyday; Dina comes from a poor family, she does not go to school because she has to help her parents to work. The question is 'what do you think about Dina who is not in school?' This question can stimulate students to develop their metacognitive by finding out the solution. In addition, it can be a material for teachers to conduct discussion activities. Teachers as facilitators must be able to guide students to discuss and research to find a bright spot. In this case, active interaction between teachers and students is needed. This is reinforced by Alrahlah's opinion says if in PBL between student and tutor influence each other [31]. By carrying out the approach, students are more actively to explore the concept of knowledge and solve daily problems [32]. The teacher must be able to be a motivator so that students are interested in learning process, and students who are enthusiastic can make the teacher recognize the character of the student well.

5. CONCLUSION

The findings in this research are divided into three stages: the preliminary study, the development stage, and the product effectiveness test stage. The conducted preliminary study aims to find information related to teaching materials used currently in classes such as the description of the currently used teaching materials and analysis of the need of PBL-based Civic education teaching materials. The preliminary study results show that the currently used teaching materials in classes have not yet been able to meet the needs of students. Therefore, the development of PBL-based Civic education teaching materials is needed. At the product development stage, broad and limited tests are conducted. In the limited test, the findings still lack of the presentation of PBL-based civic knowledge teaching materials. In the broad test, the average difference between before and after using PBL-based civic knowledge teaching materials points out a difference. The pretest and posttest results show a significant increase. The assessment of teachers in the limited test and broad test also show the number 85% and 90% indicating the civic knowledge teaching material can be considered worthy to use. In the effectiveness test, pretest and posttest have been conducted in order to get the value of 80.50 in the experimental class. In the control group is 72.00. The result of t test shows 0,000 < 0.05, this indicates that H_0 is rejected and can be concluded that PBL-based civic knowledge teaching material on the effectiveness of PBL improve students' civic knowledge. It indicates that the PBL-based civic knowledge teaching materials can improve students' civic knowledge.

ACKNOWLEDGEMENTS

In this research, a lot of people provide motivation, advice, and support for the researcher. In this valuable chance, the researcher intends to express her gratitude and appreciation to all of them. Thanks to teachers and students in elementary schools of Surakarta. The researcher also thanks to the headmaster for allowing me to conduct the research. Finally we want to thank everybody who is important to successful realization of this research.

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