Development of LKPD Based on PQ4R Strategy to Improve Students' Creative Thinking

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Keywords	Abstract
Creative Thinking; *LKPD;* *PQ4R Strategy;* *Classroom Action Research;*	This study uses LKPD based on the PQ4R strategy, as an alternative to increasing students' creative thinking. This study aims to determine the validity and effectiveness of LKPD based on the PQ4R system to improve students' creative thinking. This research is a type of Research and Development (R&D) research; the development is carried out according to the theory of Borg & Gall. The population of this study was fourth-grade students at an Elementary school in Indonesia (*SD Gugus Labuhan Ratu*, Bandar Lampung- Indonesia). The subjects in this study were determined using a purposive sampling technique and obtained as many as 24 students. The data collection tool uses valid and reliable test instruments. The validity data analysis technique shows that the PQ4R strategy-based worksheet is perfect. The effectiveness data analysis technique uses N-Gain with a calculation result of 0.63 with a significance of 0.01 <0.05. Based on this research, the LKPD based on the PQ4R strategy developed is valid and effective for increasing the creative thinking of elementary school students.

1. Introduction

Education is an essential aspect in the development of a nation, especially regarding the outcome of human resources (HR), which has received special attention from the government and society through improving the education system. National Education aims to create a prosperous community with human resources, character, and quality and have an equal position with other nations. The goals

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of national education, as stated therein, are by Article (Masulah, 2018), 3 of Law no. 20 of 2003, namely national education functions to develop capabilities and form noble national character and civilization in the context of educating the nation's life. Education is a field that has a vital role in creating human resources who have skills in the 21st century now. Efforts to realize skills in the 21st century require humans who are innovative in thinking from memorizing activities and thinking intelligence that is formed from the habituation process to solve problems and think creatively21st-century education requires students to process the information they learn through analyzing, assessing, and creating. (Bialik & Fadel, 2015) states that the abilities that students in the 21st century must possess are Creativity, Critical Thinking, Communication, and Collaboration. Students must be able to use the information obtained to create something new, make reasonable opinions, communicate the knowledge gained, and work with other students to build more optimal abilities.

In the 21st century, educators have carried out 4C activities, including communication, collaboration, critical thinking, and creativity. In contrast, students have presented a problem, asked questions, cultivated reading or looked for other causes, collaborated, and displayed a work worthy of knowing a technology. So that educators not only accept it but develop the ability to think creatively. The ability to think creatively is one of the abilities that students must have to solve various problems (Martin, 2009) argues that being able to generate new ideas and ways to produce a product is being able to think creatively. (Sambo & El-Yakub, 2012) describes "a creative person as an individual who provides unique and unusual problem solutions, different from others. Therefore, creative thinking is the way of thinking which directs the generation of new ideas or views or new ways of solving the problem. It means that creative individuals will provide solutions to unusual situations that are different from others. Therefore, creative thinking is a way of thinking that leads to the emergence of new ideas or views or new ways of solving problems.

The use of LKPD in the learning process also requires a learning model to achieve the expected goals and improve student learning outcomes. One way is to use the PQ4R model. Trianto (2012) argues that LKPD is a student guide used to carry out investigative or problem-solving activities. This activity sheet can be in the form of a guide for developing cognitive aspects as well as a guide for developing learning aspects in the form of experiments or demonstrations. Furthermore, (Siddiq, 2008) states that LKPD is packaged by only emphasizing exercises, assignments, or questions. Even though it only emphasizes this, LKPD still presents a description of the material, but it is presented briefly(Toman, 2013). The study's results found that worksheets (LKPD) activate more students and usually increase success. A study was conducted in this study to evaluate worksheets while teaching prepared ethanol fermentation according to the constructivist model. It is also known that behaviors that individuals learn by trying them are more effective than those they acquire by simply hearing or seeing. (Suryadi & Herman, 2008) state that creative thinking skills are cognitive skills to generate and develop new ideas, new ideas as the development of ideas that have been born before, and skills to solve problems divergently (from various points of view).

2. Materials and Methods

This study uses the development model that will be used is Research and Development (R&D) model. Research limits existing steps or revises current products that experts must verify (Sugiyono, 2010). This development research does not cover all the R&D development steps; it is modified only using the R&D steps from Brog and Gall, considering the time and cost limitations with the following changes:
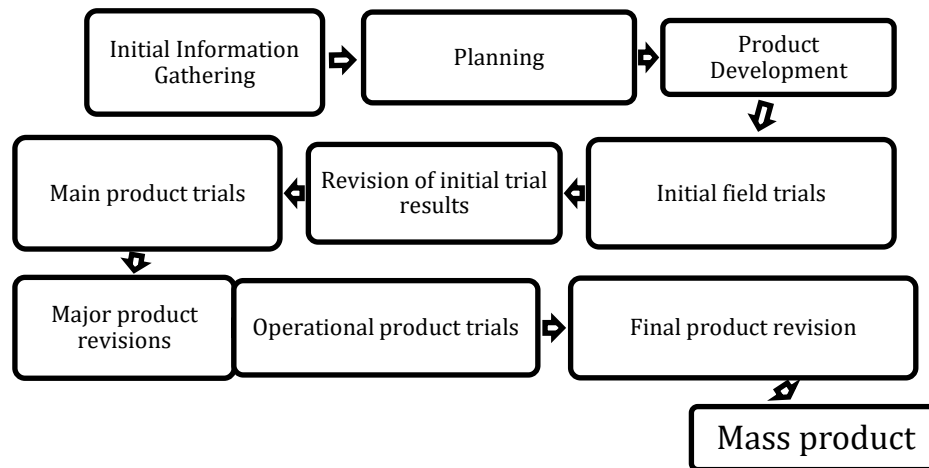
Figure 1.
Development Model (Borg & Gall, 1983)

The PQ4R-based LKPD product development follows the Borg & Gall development procedure. First, it conducts a preliminary study, which is the initial or preparatory stage for development (Sukmadinata & Syaodih, 2009). The preliminary examination is to collect data on existing conditions as a comparison or primary material for the product being developed. The research was conducted at SDN 2 Kampung Baru, Labuhan Ratu sub-district, Bandar Lampung city. Research activities were conducted to obtain information about user needs, and development activities were carried out to create PQ4R-based thematic worksheets. The subjects of this research were all 24 students of class IV. Data collection tools using tests, questionnaires, and interviews. The data analysis technique used paired sample t-test with a significance level of 0.05.

3. Results and Discussions

The product produced in this development research is LKPD in the form of LKPD based on PQ4R. This LKPD uses the PQ4R strategy. This LKPD contains materials and exercises and is supplemented by pictures as a medium for observing material developed based on the national curriculum content standards, which are core competencies (KI) and basic competencies (KD), created in the formulation of indicators and implemented in objectives—arranged based on a combination of various subjects. The essential competencies of social science subjects are integrated with science, Indonesian, Civics, and SBdP subjects. After the research phase, field tests were conducted to obtain data about the effectiveness of using PQ4R-based worksheets with learning in 6 meetings. The first step is to provide pretest questions to see initial abilities. Then do the learning using the PQ4R-based LKPD media. Finally, offer post-test questions to know the competence of students.

Based on the activities mentioned above, the effectiveness of learning is measured through students' creative thinking, by looking at the highs and lows of creative thinking obtained before students use the PQ4R-based LKPD and after using the PQ4R-based LKPD. Learning using PQ4R-based LKPD is said to be effective if the N-Gain value of students is higher in students whose learning after using PQ4R-based LKPD compared to students whose education before using PQ4R-based LKPD. The results showed that the PQ4R-based worksheets developed included effective criteria. This can

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be seen from the independent test results of the sample t-test post-test of the experimental group and the control group showing the average score of students between the experimental group and the control group (Sig. 0, 00<0.05). Furthermore, the N-gain test was carried out by calculating the difference between the pretest and post-test scores; there was a significant increase from implementing the PQ4R strategy-based worksheet on students' creative thinking abilities. The results of the independent sample t-test N-gain test stated that there was a substantial difference from the implementation of PQ4R strategy-based worksheets on students' creative thinking skills during learning (Sig. 0.01 <0.05), with the experimental class' N-gain of 0 .63 is included in the moderate category.

Based on the calculation of the results of the N-Gain analysis above, it can be concluded that the average increase in competency achievement and the N-Gain value of the experimental class is higher than that of the control class. This shows that the PQ4R-based LKPD can improve students' creative thinking better than conventional learning media. Comparing the control and experimental courses, the practical lesson is better than the control class; this shows that using PQ4R-based worksheets can improve students' creative thinking. The learning success of good students shows that the LKPD indicators invite students to arouse their curiosity can be realized. Also, other indicators such as LKPD invite students to explore their knowledge, LKPD encourages students to be able to explain/present concepts, LKPD encourages students to learn to develop understanding and skills, and evaluate student progress to achieve instructional goals, namely students learn to assess their knowledge and ability, these things are all manifested. Therefore the function of LKPD can also be felt. The results of this study follow the results of research by (Ozmen & Yildrim, 2011) that LKPD is more effective than classes taught by conventional methods. Because students actively participate in learning, teachers can determine learning targets that can be achieved, changes in behavior that can be expressed, and mental attitudes that can be formed through education.

4. Conclusion

Based on the analysis of research and development results with the title development of LKPD based on the PQ4R strategy to increase the creative thinking of fourth-grade elementary school students" it can be concluded that: the LKPD products based on the PQ4R strategy developed are valid for use based on the validation of material experts, linguists, and media experts, LKPD based on the PQ4R strategy is effective for increasing the creative thinking skills of students with a Sig (2-tailed) of 0.000 <0.05, so it can be concluded that there are differences in the creative thinking abilities of students using PQ4R-based strategies with those who do not use the PQ4R approach.

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