Development of Problem-Based Comic Book as Learning Media for Improving Primary School Students' Critical Thinking Ability

Devi Afriyuni Yonanda✉1, Yuyu Yuliati2, Dudu Suhandi Saputra3

1, 2, 3 Primary School Teacher Education, Universitas Majalengka, Majalengka, Indonesia

✉ deviyonanda1990@gmail.com

Abstract: This research is motivated by the lack of teachers' ability to use media related to the students environment as teaching materials to develop primary school students' critical thinking ability. The research aims at developing problem-based learning media (PBL) using comic book in order to improve students' critical thinking ability. The research employed a research and development design using the experimental research design with a one-group pretest-posttest design. The subjects of the research were 28 fourth-grade students in one of primary schools in Indramayu Regency. The research produced a product in the form of problem-based comic media developed based on the needs of teachers and students. The subject material in the comic book contained problems that occurred in the real environment within the students. Based on the validation tests carried out by material experts, media experts and practitioners, the results revealed that the product was included in the "Very Valid" category. While, the practicality test results revealed that the product was included in the "Very Practical".

Keywords: learning media, critical thinking ability, primary school, students, comic

INTRODUCTION ~ In the learning process, many students get bored with the presentation of learning activities, such as memorizing facts, concepts and theories. According to the Law of the Republic of Indonesia No. 20 of 2003 Chapter 1 Article I Paragraph 1 on the National Education System and Permendikbud Number 65 of 2013 on Primary and Secondary Education Process Standards, one of the learning principles is to change the textual approach to the process approach as a form of strengthening the use of the scientific approach. In relation to this principle, the development of the process

standards includes planning the learning process, implementing the learning process, evaluating learning outcomes, and supervising the learning process. Process standards are developed by teachers as practitioners. The learning process must be considered for the improvement of the education quality in Indonesia, because there is direct interaction between the teacher and students.

The implementation of the 2013 curriculum in thematic learning at the primary education level, namely primary and junior high school, enables students to obtain a

full knowledge, and develop the equilibrium between spiritual and social attitudes, such as curiosity, creativity, and cooperation, with intellectual and psychomotor abilities (Permendikbud 67, 2013:3).

In this 21st century, one of the efforts in training and improving students' critical thinking ability is by providing personal experience through thinking activities. According to Prastowo (2014), the main purpose of primary education is to help students develop their intelligence, mentality, and independence. This means that the objectives of educational efforts must be realized for optimizing the potential of students.

Black (2008) in Hughes (2014) defines critical thinking as logical thinking based on national discussion with rigorous and rigorous investigations and approaches. Cimer, Melih, & Mehmet (2013) state that critical thinking is the activity of mental discipline for reflective thinking and it makes sense to evaluate arguments or propositions to make decisions that must be trusted or carried out. Such an ability when properly nurtured and trained can foster awareness of critical thinking.

Hughes (2014) defines critical thinking as logical thinking that comes from national discussion with meticulous investigations and approaches. In addition, Cimer, Melih, & Mehmet (2013) state that critical thinking is the activity of mental discipline for reflective thinking, which is used to evaluate arguments or propositions for

making decisions that must be trusted or carried out. According the aforementioned explanations, it can be considered that the students' critical thinking ablitiy can be improved, if it is developed and trained properly in the learning process.

The success in achieving learning objectives depends on the effective learning process, which can be created by teachers, if they are able to utilize the learning media effectively in the learning process in the classroom. The media helps students understand the material and message conveyed by their teacher..

However, the obstacles in the implementation of learning are affected by the decline in the quality of learning. The researchers found that in the preliminary research, there are several problems that hinder the learning process, such as (1) teachers' inflexibility in using learning media, thus they only used student books as learning sources; (2) lack of students' learning motivation, during classroom observations, there were only six students of 28 in total who were active in classroom, while eight students were often talking and playing alone, and the remaining students were just silent as listeners and taking notes; (3) low students' critical thinking ability, this was evidenced based on the average score obtained by the students who classically meet the minimum completeness criteria (KKM – *Kriteria Ketuntasan Minimal*) of 67%.

In addition, based on results of the questionnaire regarding the students'

opinion about the student book, they claimed that they have difficulties in understanding the student books independently because the contents of the student book are mostly in written form, so that they showed their lack of interest in reading the book, which also do not foster student curiosity. The results implied that the learning process is considered less attractive and the students were not motivated to learn so that the students' learning outcomes were still low.

Based on the aforementioned problems, the teachers eventually find difficulties in creating meaningful learning because the learning media that is able to motivate students to learn has not been developed. Therefore, it is necessary to develop learning media that are suitable for the needs of fourth-grade primary school students so that they can improve their critical thinking ability.

Through the development of problem-based learning media in the form of comic books on the theme 8 entitled "The Area Where I Live", sub-theme 3 entitled "I am Proud with the Area Where I Live", it is expected to be a solution to these problems. This is in accordance with the Sudjana (2011), which states that learning to use comic books has a role to improve students' interest in reading and learning, thus they can improve their abilities. Pramadi, Suastra, & Candiasa (2013) states that there is a significant difference in students' learning motivation and understanding of the concept of material.

Students who were treated with learning using comics more learning motivation compared to students who were not treated with learning using comics. This research result revealed that the use of comics as the learning media has an influence on the students' motivation and understanding of the concept of material.

According to Piaget in Wood, Smith, & Grossniklaus (2001) regarding the stage of child development, fifth-grade primary school students is categorize in a concrete operational stage, which is one of the stages of development for children at the age of 7-10 years in which they have develop their intelligence abilities to think logically by understanding symbols as the concrete objects. Children at this stage experience difficulties with abstract and practical thinking, and they can only solve basic problems based on understandable realities (Slameto, 2010). Therefore, the right learning media is required to improve the cognitive abilities of the students. There are many learning media that can be used, one of which is comic media. Comic is a learning media accompanied by illustrations, models or images. Comic media can be interpreted as the learning media that are packaged in the form of illustrated stories that can add clarity to concepts, and can construct student knowledge (Sanaky, 2009).

Problem-based learning using comic book can connect learning material with information in the real environment through problems occurred in comics so that

students can construct their own knowledge through their learning experiences in solving problems and increasing their critical thinking ability. Therefore, to improve the students' critical thinking ability and the quality of learning, learning resources that have been used by teachers can be combined with problem-based learning using comic media.

This research seeks to develop a problem-based learning using comic media. In fact, this research has also been conducted before, but the previous research has shortcomings due to the limitation to increase characters from the comic, whereas in this research, comic media is used to improve the students' critical thinking ability. The results of this research can be used as an illustration to improve students' critical thinking ability using problem-based learning using comic media.

METHOD

This research employed a research and development design. According to Borg & Gall (1983), the research and development is a process that is conducted to develop and validate the developed products. In other words, the research and development can be interpreted as a process of developing and testing the effectiveness of a product with certain validation criteria.

This research procedure was adapted from the Borg & Gall model. Sugiyono (2013) describes a series of steps that must be

taken in this approach, namely: (1) potential and problems, at this stage, the researchers see a potential problem phenomenon that must be followed up; (2) information gathering, the researchers collect the information as the source of a potential problem phenomenon by analyzing the needs of developing comic media; (3) product design; after analyzing the needs, the researchers compile the comic book; (4) design validation; after completing the product of problem-based learning media in the form of the comic book, the researchers conduct a validation test on the product to the material, linguist and drawing experts; (5) design improvements; at this stage, the design is refined based on the results of the validation test from the experts; (6) product testing; product testing is conducted to determine the practicality and effectiveness of the product that has been developed by testing the research object that has been determined; (7) product revisions; the comic media is refined based on the test results from students; (8) trial use; at this stage, the product of comic media was retested to students; (9) product revisions; this comic media was then revised based on the results of the trial after the first revision and (10) making mass products, at the last stage, the problem-based learning media in the form of comics is mass produced.

The research used an experimental research design with one-group pretest–posttest design. The research design was

conducted by giving one group different treatment, which was given before and after testing. The research involved fourth grade primary students in Indramayu Regency. The research of the implementation of the comic media was based on the 2018/2019 academic year, and was conducted for six months. The research data obtained can be in the form of quantitative and qualitative data. Quantitative data were data obtained from the scores of each data analysis, such as validation from experts and practicality of teaching materials, reliability and validity of questionnaires, and test results of improvement in students' critical thinking ability. While, qualitative data were obtained from interviews with teachers and students, questionnaires, documentation, and tests.

The development procedure is the steps taken by the researchers in making a product. In the preparation of problem-based comic media development, the development procedure based on the Borg & Gall modification is as follows:
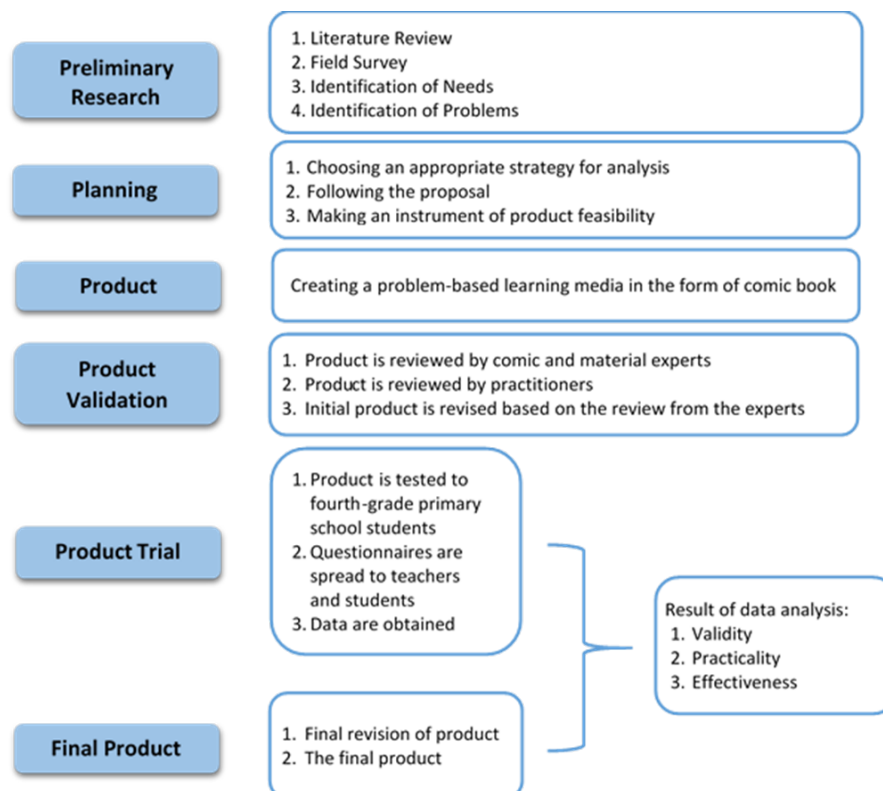

Figure 1. Procedure for Research and Development of Problem-Based Learning Media using Comic Book

RESULTS

The product developed was a problem-based learning media in the form of comic book on the theme 8 entitled "The Area Where I Live", sub-theme 3 entitled "I am Proud with the Area Where I Live" for fourth-grade primary school students. Before conducting the test, the product developed was needed to be validated by some validators. Validators consisted of media experts, material experts, and practitioners in their field. Validation was conducted by providing a draft of the initial product in the form of problem-based comic book accompanied by assessment instruments. Based on the validation test for the development of problem-based comic book for fourth-grade primary school students, the result revealed that the product was included in the "Very Valid" category with a score of 86.4.

Practicality test was conducting based on questionnaires containing an assessment of responses to problem-based comic books from teachers and students. Based on the results of the study, the student responses to problem-based learning media in the form of the comic book obtained a percentage of 82.4, and teachers' responses to problem-based learning media in the form of the comic book obtained a percentage of 83.9. The results of the practicality test indicated that the product was included in the "Very Practical" category.

Based on descriptive analysis of the experimental tests of a problem-learning media in the form of comic book on thematic learning material with the theme 8 "My Place of Rest", sub-theme 3 "I am Proud of the Area I Live", the pretest results of 28 students obtained an average score of 70.22 with a range of value of 48.

After conducting the learning process using a problem-based learning media in the form of comic book, the posttest results obtained an average value of 81.66 with a range of value of 44. Then, the increase in the value of student learning outcomes pretest and posttest with the NGain test were analyzed, the results obtained a gain of 0.92 so that it was included in the "High" category.

The research results on the development of problem-based learning media in the form of comic book showed revealed some summaries, namely (1) the contents of problem-based comic book consisted of book identity, introduction, table of contents, comic usage instructions, comic characters, six subject matter, evaluation and mini bio of the author, (2) The validation results of problem-based comic book from the experts obtained a percentage score of 86.4 with the criteria "Valid", which indicated the comic book was feasible to be used in the learning process as learning media. (3) The results of the teacher's responses on the problem-based comic book obtained a percentage score of 83.9, and it was included in the category of "Very Practical", while the results of the students' responses on the problem-based comic book obtained a

percentage score of 82.4, and it was included in the category of "Very Practical". This indicated that the use of the problem-based comic book can help the learning process effectively. (4) The use of problem-based comic book as learning media was able to increase students' critical thinking ability with N-Gain of 0.92, which included in the "High" category.

DISCUSSION

The research results were in line with the the results of research conducted by Afriliana (2014) regarding the implications for problem-based learning, the results revealed that problem-based learning has a role in achieving the effectiveness of students' learning outcomes in all types of learning methods that use problems in learning materials.

The problem-based learning using learning media in the form of comic book was able to connect learning material with information in the real environment through the problems occurred in the comics, thus the students were able to establish their own knowledge through their learning experiences in solving problems. These results are consistent with research conducted by Jonassen (2008) who revealed that problem-based learning can play a role in achieving the effectiveness of student learning outcomes in all types of learning methods that use problems in their learning material.

Therefore, to improve learning outcomes to be more effective, the teachers were expected to combine learning resources that had been used with the problem-based learning media in the form of comic book.

CONCLUSION

Based on the results of research and discussion, this research had produced the products in the form of problem-based comic book, which was developed based on the needs of teachers and students, as teaching materials for improving the students' critical thinking ability, especially fourth-grade primary school students. Moreover, the principles of developing teaching materials are formulated to enhance students' critical thinking ability, which involve practical activities and encourage students to obtain higher-order thinking skills. In addition, based on the validity test from the responses of the students and teachers regarding the problem-based comic books, the results revealed that it was obtained a percentage of 82.4 and 83.9, which indicated that it was included in the "Very Practical" category.

For the further research, these research results can be used as information, which revealed that the problem-based learning using comic book is able to improve the students' critical thinking ability so that it is expected to develop other media for accommodating students with creative thinking. Meanwhile, for the teacher, this

comic media can be used as one of the learning media to increase the students' critical thinking ability, especially in primary school.

ACKNOWLEDGMENT

REFERENCES

Afriliana. (2014). *Pengembangan Bahan Ajar Bentuk Komik dan Lembar Kerja Siswa dengan Pendekatan Matematika Realistik untuk Meningkatkan Hasil Belajar Siswa Kelas III SDN 060843 Kecamatan Medan Barat* (Master thesis, Universitas Negeri Medan, Medan, Indonesia). Retrieved from http://digilib.unimed.ac.id/id/eprint/4409

Black, B. (2008). *Critical Thinking: A* Definition *and Taxonomy for Cambridge Assessment*. Paper presented at 34th International Association of Educational Assessment Annual Conference, Cambridge.

Borg, W. R. & Gall, M. D. (1983). *Educational Research an Introduction*. New York: Longman

Cimer, A., Melih, T., & Mehmet, K. (2013). Critical Thinking Level of Biology Classroom Survey: Ctlobics. *The Online Journal of New Horizons in Education*, 3(1), 14-25.

Hughes, C. (2014). Theory of Knowledge Aims, Objectives and Assessment Criteria: An analysis of Critical Thinking Descriptors. *Journal of Research in International Education*, 13(1), 30-45. DOI: 10.1177/1475240914528084

Jonassen, D. H., & Liu, R. (2008). Problem-Based Learning. In J. M. Spector, J. G. van Merrienboer, M. D., Merrill, & M. Driscoll (Eds.), Handbook of Research on Educational Communications and Technology (3 ed., pp. 485-506). Mahwah, NJ: Erlbaum.

Pramadi, I., Suastra,, & Candiasa. (2013). Pengaruh Penggunaan Komik Berorientasi Kearifan Lokal Bali terhadap Motivasi Belajar dan Pemahaman Konsep Fisika. *e-journal Program Pascasarjana Universitas Ganesha*, 3(1), 1-10.

Prastowo, A. (2014). *Pengembangan Bahan Ajar Materitik Tinjauan Teoritis dan Praktik*. Jakarta: Kencana Prenada Media Group.

Sanaky, H. (2009). *Media Pembelajaran*. Yogyakarta: Safiria Insania Press.

Slameto. (2010). *Belajar dan Faktor-Faktor yang* Mempengaruhi. Jakarta: Rineka Cipta.

Sudjana, N. (2011). *Penilaian Hasil Proses* Belajar *Mengajar*. Bandung: Remaja Rosdakarya.

Sugiyono. (2013). *Metode Penelitian* Kuantitatif *Kualitatif dan R&D*. Bandung: Alfabeta.

Wood, K. C., Smith, H., & Grossniklaus, D. (2001). *Piaget's Stages of Cognitive Development*. In M. Orey (Ed.), Emerging *perspectives on learning, teaching, and technology*. from http://projects.coe.uga.edu/epltt/