

Analysis of Making LKPD Based on the 7E Learning Cycle Model to Empower Critical and Creative Thinking (CCT) Skills

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Abstract

Student Worksheet (LKPD) is a supporting tool as a tool to facilitate students in carrying out learning and learning activities well. So that it is expected to form interactions in the form of critical and creative thinking. This study aims to form a synchronized LKPD using the 7E learning model which is expected to be able to empower students' critical and creative thinking. The 7E learning model consists of seven well-organized phases, namely eliciting, engagement, exploring, explaining, elaborating, evaluating, and expanding. The method used in this study is qualitative research using a test in the form of 10 description questions and questionnaires to be conducted on 28 fourth grade students A SD N 1 Labuhan Ratu Bandar Lampung, as well as a literature study. study by reviewing several journals relevant to the topic. study. The results of data analysis obtained in the form of students who are less interested in participating in the ongoing learning process because the media delivered by educators is less attractive and seems monotonous. The average of the researchers' findings from their investigation of the test recapitulation is 23.11%, with very low standards. In addition to tests, researchers also distributed questionnaires to find out the extent of students' critical thinking and creative thinking skills, so that there was a questionnaire recapitulation result that researchers averaged 57.43% with fewer criteria.

Keywords

Making LKPD; 7E learning model; critical thinking; creative thinking



I. Introduction

Education is a system that is built from several components that are interconnected and can help students to achieve optimal abilities (Handriyatma & Anwar, 2021). Education is considered important because it can improve the quality of life (Damayanti, 2021). Given the importance of education, it is only natural that the quality of education must continue to be improved through a better curriculum in the implementation of the education system in Indonesia. Indonesia's present curriculum is from 2013, while socialization and modification are still taking place. A tool to guide students toward becoming: i) skilled human beings who are capable and active in meeting the challenges of the changing times, ii) educated human beings who believe in and fear Almighty God, have character good and healthy, wise, able, creative and free to learn in 2013, which is based on the achievement of three competencies. democratic and accountable citizenry, iii) these three elements work best together to create moral and informed individual (Jumriani, Syaharuddin, Noorya Tasya Febrylia Witari Hadi, Mutiani, 2021).

The 2013 curriculum learning process develops creativity, curiosity, and the ability to formulate questions to form critical thinking and creative thinking needed to live intelligently and learn lifelong (Ellya Novera, Daharnis, Yeni Erita, 2021). Curriculum changes require educators to change learning methods so that students are more critical, creative, and innovative in learning what they need to know. Meanwhile, future challenges require learning to further develop creative and critical thinking skills (high order of thinking). Higher order thinking or abbreviated as "HOT" is one component of the 21st century literacy issue (21st century literacy issue). Meanwhile, according to (Ellya Novera, Daharnis, and Yeni Erita, 2021), These factors are related to HOT: (1) the ability to meet new and unexpected challenges; and (2) the ability to systematically analyze, synthesize, and analyze behavior. (3) The ability to make accurate predictions about natural and living things in a systematic, innovative, critical and natural way.

This thinking pattern develops cohesive, logical, and logical reasoning. Reliable, concise, and convincing (Rif'atul Fadilah, Muqawim, Jonata, 2022). One must carefully select whether to accept, reject, or delay obtaining information with the capacity to think clearly and sensibly. Everyone must be capable of critical and creative thought given the significance of good thinking and thinking abilities (Handayani, Budiarti, Kusmajid, & Khairil, 2021). The 7E learning cycle may be used to encourage continual learning that fosters the development of 21st century abilities. This paradigm incorporates teaching and therapy methods and is based on Piaget's theory. This kind of instruction tries to increase students' capacity for computational and abstract thought (or from concrete to abstract)..

The 7E cycle learning model developed by Eisenkraft (Andriana, Kurniawan, & Rahayu, 2021), consists of seven well-ordered phases, namely 1) acquiring prior knowledge), 2) engagement (involving), 3) exploration (list), 4) explanation (explaining), 5) elaboration (applying), 6) evaluation (assessing), and 7) expanding (expanding). Each stage in the 7E Learning Cycle model will train students' critical thinking and creative thinking skills that are adapted to the characteristics of the material. Educators act more as facilitators and mediators in the learning process. In each syntax students will be guided toward critical and critical thinking through the Circle 7E learning approach. Students participate actively in experiments to uncover new concepts as they master cycle 7E's syntax. Students must be capable of critical thought and original problem-solving, both problems during the experiment and those given by educators, students also make decisions in solving a problem. From all learning activities, the 7E Learning Cycle model will hone critical thinking and creative thinking skills from beginning to end in conducting evaluation tests.

An additional method to enhance student learning outcomes is to use learning materials in the form of Student Workbooks (LKPD). The presentation of LKPD can be developed with various kinds of innovations. There are various kinds of innovations that can be applied in writing LKPD, one of which is combining LKPD with the 7E learning model. The 7E learning model is considered quite appropriate to improve analytical thinking skills because this method is given problem solving procedures with various approaches or models (Farhati, 2016).

Student Worksheet (LKPD). LKPD is a worksheet that contains instructions for work steps in accordance with the designed learning strategy (Pansa, 2017: 231). According to Hendro Darmodjo and Jenny RE. Kaligis (1992:40), LKPD is a tool for education that instructors may use to engage students in the process of teaching and learning. Due to the fact that the LKPD and learning preparation aims to alter the

learning environment from the instructor to focus on students, promote student engagement in the teaching and learning process, and also assist educators in guiding students to be able to find concepts. By involving students actively, LKPD can offer opportunity for them to develop conceptual knowledge and exercise critical and creative thinking abilities. This reason encourages the creation of Student Worksheets (LKPD) based on the 7E learning model to empower students' critical and creative thinking skills because based on the results of interviews conducted by researchers by educators at SD N 1 Labuhan Ratu Bandar Lampung, students are not motivated to engage in the educational process. This takes place because the media delivered by educators is less attractive and seems monotonous. According to educators in classroom learning, students are less motivated in learning because educators only use textbooks or blackboards as intermediary media for students, this has an impact on students' critical thinking and creative thinking skills.

Table 1. Recapitulation of Needs Analysis Aspects of Critical and Creative Thinking Skills (CCT)

No	Aspects of CCT Penilaian Assessment	Average
1	<i>Problem Sensitivity</i>	26,79
2	<i>Analysis</i>	30,88
3	<i>Inference</i>	7,35
4	<i>Make Elaboration</i>	41,91
5	<i>Evaluation</i>	23,90
6	<i>Novelty</i>	7,81
Rerata		23,11

In addition to tests, researchers also distributed questionnaires to determine the extent of students' critical and creative thinking skills, so that there was a questionnaire recapitulation result that researchers averaged 57.43% with fewer criteria. This shows that critical thinking and creative thinking skills are still lacking in grade IV A students of SD N 1 Labuhan Ratu Bandar Lampung.

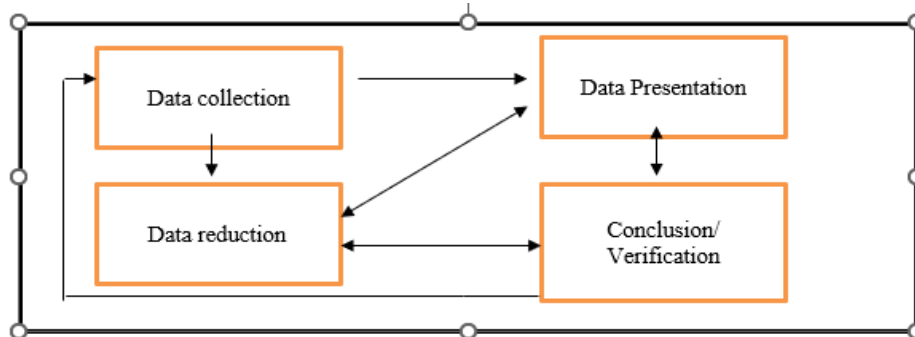
Table 2. Recapitulation of Critical Thinking and Creative Thinking Skills (CCT) Needs Analysis

No.	Code	F	N	P	Criteria
1-15	R1-R15	1206	2100	57,43	Not enough

II. Research Method

This study aims to assess the degree to which students' critical and creative thinking have been developed using the 7E learning cycle model. In order to gather information and data for this kind of research, many sources of information and data are used. Secondary data, or data gathered inadvertently about the item under investigation, is the type of data that is employed in the data gathering process. Numerous national and international publications that may be accounted for were employed as secondary data sources in this study and are connected to the 7E Learning Cycle model as well as critical and creative thinking abilities. The results were evaluated utilizing After gathering several papers relating to the 7E learning cycle, critical thinking, and creative thinking skills, a qualitative descriptive analysis from a literature review was produced. In order to create descriptive

data from surveys that serve as references for this study, qualitative methodologies are used. In this study, 28 students in grade IV A at SD N 1 Labuhan Ratu Bandar Lampung were given research papers as part of a research instrument in the form of ten descriptive questions. The general approaches to data analysis and qualitative research, according to Miles and Huberman, are as follows:



Activities in qualitative data analysis include 4 stages as follows:

1. Data collection, or the process of gathering data in the field (both through journal reviews and experiments) in order to get the data required to meet research objectives.
2. Data reduction, which entails summarizing, selecting the key elements, and concentrating on the elements that are crucial in order to provide the data gathered a clear image and make it simpler for researchers to collect further data.
3. Presentation of data (data display), narrative text in the form of succinct descriptions, charts, relationships between participants, and the like is the presentation of data in qualitative research that is most frequently utilized.
4. Conclusion and validation, particularly brand-new discoveries that have never been made before.

III. Result and Discussion

Learning Cycle is a constructivist learning paradigm that Robert Karplus created in the 1970s for the Science Curriculum Improvement Study (SCIS) at the University of California, Berkeley (Trowbright & Bybee in Wena, 2009). The Learning Cycle is made up of activity stages (phases) that are set up so that students may actively participate in mastering the competences needed for learning. The exploration phase, the discovery phase, and the discovery phase were the first three phases of the Learning Cycle learning paradigm. Lawson (1988) identifies the exploration, idea introduction, and concept application phases as the 3E learning cycle.

The model was further developed and further detailed into five phases known as the 5E model, namely Engage (involving), Exploration (investigating), Explanation (explaining), Elaboration (elaborating), and Evaluation (evaluation) (Lorsbach, 2006). The 5E learning and learning model, the development of research on how people learn, and curriculum development require that the 5E model be extended again into the 7E model (Bybee in Eisenkraft, 2003). By dividing the engagement aspect into the two parts of elicit (fishing) and engagement (involved), as well as the two phases of elaboration and assessment into three parts, the Learning Cycle 5E learning model is transformed into the Learning Cycle 7E learning model. Specifically, developing, assessing, and extending (Eisenkraft, 2003).

The development of the 5E Learning Cycle model does not replace the engagement component with the elicit component, because the engagement component is an important element in good learning. The goal is to keep students interested and identify previous conceptions. Therefore, they acquire components that must stand alone as an important means of remembering previous concepts and connecting them with new concepts so that learning becomes meaningful. Developing the elaboration and evaluation phases into elaboration, extension, and evaluation is a way of emphasizing that transfer of learning, as required in the extended phase, is used as part of the evaluation phase of the learning cycle (Eisenkraft, 2003).

Implementing the 7E learning cycle learning model ensures that students' prior knowledge is not overlooked and allows students to relate it to new knowledge. According to (Nur & Noviardila, 2021), this change is not intended to complicate and add complexity but to ensure that educators do not neglect important phases in learning. The importance of providing stimulus to provoke students' understanding of previously known concepts is important for educators to know so that educators do not miss out because students can build knowledge from existing knowledge, educators need to know what knowledge students already have. According to Bransford (2000) failure to do so can make students develop concepts that are very different from the concepts intended by educators during learning. The explanation of the stages of the 7E Learning Cycle model according to Eisenkraft (2003) is as follows:

1. Elicit. In this phase, by asking questions that will stimulate their interest and get a response from them, the instructor tries to determine how much the students already know about the subject being studied. Consider and pique interest in the concerns that educators have brought up. This stage focuses on asking pupils to apply prior knowledge or experiences that will be connected to new material.
2. Engage. In this phase, leading demonstrations, having conversations, and showing photos or films that are utilized to expand students' knowledge, this phase is intended to concentrate students' attention as well as to pique their interest and motivation in the content to be studied. cultivate student curiosity.
3. Explore. In this phase, teachers provide their pupils the chance to observe, record data, isolate variables, draw graphs, examine results, form hypotheses, and arrange their findings. Students explore with new knowledge in this stage using their past expertise. Teachers lead students as they explore new information and address their questions.
4. Explain. In this phase, students summarize their research and discuss the outcomes of the exploration phase while the teacher teaches new scientific terms and offers commentary on the student-generated conclusions.
5. Complicated. In this phase, in new contexts connected to the instances of lessons taught, students are permitted to apply their knowledge in the form of symbols, definitions, ideas, and skills. These applications may take the shape of follow-up questions or learning-related quantitative questions. the topic.
6. Extend. In this phase, by making connections between previously taught content and the material to come, instructors may help students apply their knowledge in a new environment. The goal of this phase is for students to reflect on, seek for, identify, and explain how the ideas they have learned are applied. Additionally, this exercise may inspire students to look for connections between the concepts they have learned and other concepts they may or may not have studied.
7. Evaluation. This stage is used to determine whether the student's level of comprehension is in line with the planned learning objectives. Both formal and informal assessments are used in assessment.

The seven steps outlined above are what teachers and students must do in order to use the 7E Learning Cycle model in the classroom. Each learning activity that utilizes the stages of the learning cycle has a specific purpose for educators and students. It is planned that students would actively participate in investigating and enhancing their grasp of the ideas being studied in addition to listening to the teacher's explanations, which is based on the phases in the 7E Learning Cycle model above. According to Husna, Parlan, and Sukarianingsih (2013:2) in (Dina Nur Adilah & Rini Budiharti, 2015), the Learning Cycle learning model does not always involve practical activities in the learning process. asserts that theoretical learning may be facilitated by the use of constructivist learning models, such as the Learning Cycle.

By utilizing the Learning Cycle 7E learning model, teachers are supposed to be able to arouse students' initial knowledge, concentrate their attention, pique their interest, inspire them, and foster their ability to think critically and creatively about the content they will be studying used to increase students' comprehension and pique their interest (Eisenkraft, 2003). Optimizing the provision of facilities to do this is necessary for educators so that learning can be carried out successfully, but it is difficult to visualize mathematical concepts.

The result of the research is LKPD based on Learning Cycle 7E to empower students' critical and creative thinking skills, so that there are results from the test recapitulation in the form of 10 description questions which the researchers averaged 23.11% with very less. criteria. In addition to tests, researchers also distributed questionnaires to determine the extent of students' critical and creative thinking skills, so that there was a questionnaire recapitulation result that researchers averaged 57.43% with fewer criteria.

After seeing the average percentage of student test results, it is necessary to have a teaching material that is very suitable to train students' critical and creative thinking skills in learning activities. Therefore, researchers must have a solution that must be done to overcome the problem of the lack of fulfillment of indicators of critical thinking skills and students' creative thinking skills is to choose innovative teaching materials. The results of data analysis obtained in the form of students who are less interested in participating in the ongoing learning process because the media delivered by educators is less attractive and seems monotonous. Based on the data above, it can be interpreted that the data obtained based on the results of the LKPD analysis based on Learning Cycle 7E to empower Critical and Creative Thinking Skills (CCT), students are very interested in the learning media introduced so that they are expected to develop better and can be empowered in the community various public and private schools.

The analysis of developing LKPD based on Learning Cycle 7E to empower Critical and Creative Thinking Abilities (CCT) may be concluded from the study's findings that it captures students' interest and has the ability to develop both critical thinking and creative thinking skills. efficiently and effectively. The average score from the researchers' examination of the test recapitulation, which took the form of 10 description questions, is 23.11%, which is a very low standard. To measure the amount of students' critical and creative thinking abilities, researchers also gave out questionnaires. As a consequence, there was a questionnaire recapitulation result that researchers averaged 57.43% with fewer criteria. Through several stages using 7E in the form of Elicit, Engage, Explore, Explain, Elaborate, Evaluate, and Extend which are arranged systematically and in detail to meet the needs of educators in public schools and private schools in Indonesia.

IV. Conclusion

The analysis of developing LKPD based on Learning Cycle 7E to empower Critical and Creative Thinking (CCT) Skills may be concluded from the study's findings that it captures students' interest and has the ability to develop both critical thinking and creative thinking skills. efficiently and effectively. The average score from the researchers' examination of the test recapitulation, which took the form of 10 description questions, is 23.11%, which is a very low standard. To gauge the level of students' critical and creative thinking abilities, researchers also gave out questionnaires. As a consequence, there was a questionnaire recapitulation result that researchers averaged 57.43% with fewer criteria. Through several stages using 7E in the form of Elicit, Engage, Explore, Explain, Elaborate, Evaluate, and Extend which are arranged systematically and in detail to meet the needs of educators in public schools and private schools in Indonesia.

References

- Andriana, P., Kurniawan, D., & Rahayu, U. (2021). Efektivitas Model Pembelajaran Learning Cycle 7E Untuk Meningkatkan Motivasi Belajar Dan Kemampuan Berpikir Analisis. *Jurnal Elementaria Edukasia*, 4(2), 171–178. <https://doi.org/10.31949/jee.v4i1.3104>
- Damayanti. (2021). Kontribusi Orang Tua Dalam Pendidikan Anak Pada Keluarga Petani Di Desa Bulu Tanah Kecamatan Kajuara Kabupaten Bone (Doctoral dissertation, Universitas Negeri Makassar).
- Dina Nur Adilah, & Rini Budiharti. (2015). Model Learning Cycle 7E Dalam Pembelajaran IPA Terpadu. *Prosiding Seminar Nasional Fisika Dan Pendidikan Fisika (SNFPF) Ke-6*, 6(1), 212–217.
- Darmodjo, Hendro dan Kaligis, Jenny R.E. 1992. Pendidikan IPA II. Jakarta: Depdikbud.
- Eisenkraft, A. (2003). Expanding The 5E Model: A Proposed 7E Model Emphasizes “Transfer Of Learning” And The Importance Of Eliciting Prior Understanding, *The Science Teacher*, 70 (6), hlm. 57-59.
- Ellya Novera, Daharnis, Yeni Erita, A. F. (2021). *Jurnal basicedu*. *Jurnal Basicedu*, 5(6), 6349_6356. <https://doi.org/https://doi.org/10.31004/basicedu.v5i3.898> ISSN
- Farhati, Z. (2016). Pengaruh Model Learning Cycle 7E Terhadap Keterampilan Berpikir Kritis Peserta didik Pada Konsep Sistem Endokrin (Bachelor's thesis, Perpustakaan Ilmu Tarbiyah dan Keguruan).
- Handayani, S. L., Budiarti, I. G., Kusmajid, K., & Khairil, K. (2021). Problem Based Instruction Berbantuan E-Learning : Pengaruhnya terhadap Kemampuan Berpikir Kritis Peserta Didik Sekolah Dasar. *Jurnal Basicedu*, 5(2), 697–705. <https://doi.org/10.31004/basicedu.v5i2.795>
- Handriyatma, R., & Anwar, M. (2021). Rancang Bangun Aplikasi Augmented Reality pada Komponen Komputer sebagai Media Pembelajaran Berbasis Mobile. *Ranah Research: Journal of ...*, 3(2), 108–116.
- Jumriani, Syaharuddin, Noorya Tasya Febrylia Witari Hadi, Mutiani, E. W. A. (2021). Telaah Literatur ; Komponen Kurikulum IPS di Sekolah Dasar pada Kurikulum 2013. *Jurnal Basicedu*, 5(3), 1120–1129. <https://doi.org/https://doi.org/10.31004/basicedu.v5i4.1111>
- Lawson, A.E. 1988. *Science Teaching And Development Of Thinking*. Belmont, California: Wadsworth publishing company.
- Lorsbach, A. W. (2002). *The Learning Cycle As A Tool For Planning Sience Instruction*.

- [Online]. Tersedia di: <http://www.coe.ilstu.edu/scienceed/Lorsbach2571rcy.htm>. Diakses 31 Maret 2022
- Nur, S. S., & Noviardila, I. (2021). Kajian Literatur Pengaruh Model Learning Cycle terhadap Hasil Belajar Tematik Terpadu. *Journal of Education Research*, 2(1), 1–5. <https://doi.org/10.37985/jer.v2i1.38>
- Rif'atul Fadilah, Muqawim, Jonata, A. S. A. H. (2022). Integrasi Nilai-Nilai Islam Peserta Didik Dalam Pembelajaran Fikih Di Mi Tanwirul Hija Cangkreng Sumenep. *J-Abdi Jurnal Pengabdian Kepada Masyarakat*, 1(9), 2211–2226.
- Pansa, Hani Ervina. 2017. Pengembangan LKPD dengan Model Problem Based Learning (PBL) untuk Meningkatkan Kemampuan Komunikasi Matematis Peserta didik. *Prosiding Seminar Nasional Matematika dan Pendidikan Matematika 2017*. 229-238.
- Wena, M. (2009). *Strategi Pembelajaran Inovatif Kontemporer*. Jakarta: Bumi Aksara.