

LITERATURE STUDY: E-MODULES BASED ON CONTEXTUAL TEACHING AND LEARNING (CTL) AS THE MAIN SOLUTION TO IMPROVING CRITICAL THINKING ABILITY

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Abstract

This study aims to examine the literature on the need for Contextual Teaching and Learning (CTL)-based modules as the main solution to improving the critical thinking skills of grade 7 students. The results of research and international surveys such as PISA show that the critical thinking ability profile of Indonesian students is inadequate. This phenomenon is caused by teachers still focusing on learning outcomes that show indicators of student learning mastery, while students are not allowed to explore knowledge and relate science concepts in everyday life. This has an impact on the concepts taught are still less meaningful and rote, and student's understanding of concepts is still low causing students' process skills in critical thinking cannot be exploited. The right learning media needs to be chosen by an educator to improve critical thinking skills, namely Contextual Teaching and Learning (CTL) based modules. This research is qualitative. The instruments used in this research are interview tests for teachers and an analysis of the needs of students at Junior High School 8 Malang, Indonesia. The method used is a literature review, interviews, and observing the teachers and students in learning science at Junior High School 8 Malang. Based on the literature review, an ideal solution was obtained to solve the problem, namely an update to a more ideal learning process, namely learning media in the form of e-modules based on Contextual Teaching and Learning (CTL) that can link the learning materials studied in schools with facts that students encounter in everyday life.

Keywords: E-module, Contextual Teaching and Learning (CTL), Critical Thinking

Received: June 2022, Revised: June 2022, Published: October 2022

INTRODUCTION

The object of the study of science learning in Junior High School (SMP) is integrated with physics, chemistry, biology, and the discussion of earth and space sciences. The object of the study is studied thoroughly so that it forms a unified whole concept (Anjarsari, 2013). Science learning in junior high school is carried out in an integrated and applicable way and is expected to not only include cognitive assessments, but also the domains of attitudes and skills. (Permendiknas No 22 Tahun 2006, 2006).

21st-century skills are an issue that is always discussed regarding adequate skills in the world of education (Habiddin et al., 2022). This skill is related to the thinking process of students based on the stage of reasoning, analyzing a problem, gathering information, making hypotheses, and expressing conclusions (Ratnasari et al., 2020). This is because critical thinking skills are important fundamental skills that students must have in facing real competition in the field, including students' ability to criticize problems, both related to learning materials and real events in everyday life. Critical thinking skills have become the target and competence of educational goals (Fitriyah et al., 2021). Students who have mastered high critical thinking skills can integrate knowledge in terms of their skills, attitudes, and knowledge so that they create a good mindset in recognizing problems. Developing student's critical thinking skills can be done by applying science learning (Anjarsari, 2013).

The results of the 2018 Program for International Student Assessment (PISA) survey, Indonesia was ranked 73rd out of 79 countries that took part in the survey with an average score of 379 (Schleicher, 2018). The resulting score shows a decrease compared to 2015 when Indonesia ranked 65th out of 70 countries with a score of 386 (OECD, 2016). This shows that student's skills related to critical thinking skills such as reasoning and solving problems of daily life still need to be developed in solving PISA questions. The results of research by Ghaliyah et al, (2015) stated that teaching and learning activities have not been able to facilitate students in honing critical thinking skills so 87% of students have difficulty understanding science material (Ghaliyah et al., 2015). Dewi (2019) also said that the teaching and learning process in science is still dominated by teachers as the main source of knowledge (Dewi & Primayana, 2019). This is because the teacher pursues the target subject matter set by the curriculum. This phenomenon is caused by teachers still focusing on learning

outcomes that show indicators of student learning mastery, while students are not allowed to explore knowledge and relate science concepts in everyday life. This has an impact on the concepts being taught which are still less meaningful and rote, and student's low understanding of concepts causes students' process skills in critical thinking cannot be honed to the maximum.

To overcome these problems, the government through Permendikbud (Regulation of the Minister of Education and Culture of the Republic of Indonesia) No.81a of 2013 concerning the Implementation of the 2013 Curriculum has set a one-way learning pattern that only involves teacher and student interaction in multidirectional learning, which involves interaction between teachers, students, the community, the environment, as well as learning resources or media. others are used. This is expected to be able to change the pattern of learning from what was originally passive learning to active, critical, and innovative (Nuryana, 2017). Thus, learning should be student-centered (student-centered learning). Student-centered learning also facilitates students in solving problems at a higher level (HOTS), one of which is the ability to think critically (Suhariami et al., 2019). Multidirectional learning can be done by using the right learning media. Based on the problems above, a literature study was conducted on the learning media needed to be used as a solution in improving the critical thinking skills of seventh-grade students of Junior High School 8 Malang.

RESEARCH METHODS

The method used for this research is the distribution of questionnaires for students, science teacher interviews, and an e-module literature review based on Contextual Teaching and Learning (CTL) which can be used as solutions to improve student's critical thinking skills. The instruments of this research are interview tests for teachers, observation sheets, and an analysis questionnaire for the needs of students at Junior High School 8 Malang. The data from the questionnaires and observations in schools were processed by describing the problems that arose, the causes of the problems, and an estimate of the right solution based on the results of the literature study. The description of the results of the questionnaire and observation follows the opinion of the majority of the research subjects.

RESULTS AND DISCUSSION

Based on the observations of researchers at Junior High School 8 Malang, the learning method used is still using a direct instruction system. With this system, the teaching and learning process is still focused on the teacher. Whereas the government through Permendikbud (Regulation of the Minister of Education and Culture of the Republic of Indonesia) No. 81a of 2013 concerning the Implementation of the 2013 Curriculum has set a one-way learning pattern that only involves teacher and student interaction in multidirectional learning, which involves interaction between teachers, students, community, environment, and other learning resources or media used. However, at Junior High School 8 Malang the multidirectional learning pattern has not been implemented properly. This indicates that the learning process of understanding concepts and critical thinking skills cannot be fully empowered. For this reason, a student-centered learning media is needed to improve students' critical thinking skills.

One of the student-centered approaches is the Contextual Teaching and Learning (CTL) approach (Hasanah et al., 2019). This approach directs students to construct their knowledge so that they can improve their critical thinking skills (Hasrudin et al., 2015). The CTL approach can link the learning material learned in school with the facts or reality that students encounter in everyday life (Smith, 2010). By linking problems in everyday life, it will give the advantage that the material learned at school can be well absorbed through the mature understanding obtained by students. Linking learning with facts in everyday life is an effective step because students interact with family, school, community, and nature every day. In these interactions, many things related to science concepts can be learned at school.

Based on the results of interviews and distribution questionnaires to students, it shows that the learning media used is in the form of science textbooks. According to students, the use of media in the form of printed books will make students feel bored with learning. This leads to the need for more interactive learning media. The media is expected to be a solution to learning problems during the Covid-19 pandemic with the limitations of face-to-face learning. Therefore, in applying the CTL approach, an appropriate intermediary or learning media is needed to make it easier for both teachers and students. One of the learning media that can be used is the module. The module is a learning device that is specifically designed to contain material and evaluation so that it can be used for independent study (Wahyuningtyas, 2017). The development of the digital era allows the role of technology in learning so that the learning process will be more interesting for students. In the world

of education, technology is developed to modify print modules into electronic modules or so-called e-modules (Handayani et al., 2021).

An electronic module (e-module) is a set of learning that is made systematically and attractively according to the level of complexity electronically to achieve the desired competence. Through electronic modules, students will be more motivated to learn to use specially designed features such as displaying images, animations, videos, and audio so that they can create fun learning. Electronic modules can be an online-based learning media solution because they are flexible and interactive (Maison & Wahyuni, 2021). In developing the module, the product made must support student self-learning (self-instructional), the presentation of material or activities be presented thoroughly (self-contained), and the developed module facilitates students learning without other learning media (stand-alone), linking it to everyday problems. actual and current day (adaptive), and attractively designed modules according to the age of junior high school students (user friendly) (Hasanah et al., 2019).

Learning to use the module can be done anytime and anywhere according to needs (Idris et al., 2017). Electronic modules are characterized by relatively small file sizes so that they can be stored on smartphones, electronic modules (e-modules) are easy to carry and learn at any time without having to use a laptop or computer. The electronic module includes links that can help students browse recommended related materials. Electronic modules can also be equipped with animations and video simulations and students can find out the completeness of their learning through interactive self-evaluations (Fonda & Sumargiyani, 2018).

The module section is specifically designed based on CTL which includes: constructivism, asking (questioning), learning community, modeling, and authentic assessment (authentic assessment) (Dewi & Primayana, 2019). The e-module also contains student activities or worksheets that apply investigations so that students can be actively involved in activities and hone thinking skills (Hasanah et al., 2019). In addition, in the evaluation section, the e-module also contains questions at the HOTS (Higher Order Thinking Skills) level with critical thinking indicators according to Facione including interpretation, inference, evaluation, analysis, explanation, and self-regulation (Facione, 2020). The six critical thinking indicators are also applied in the stages of the learning implementation plan.

Table 1. Differences in Contextual and Conventional Approaches

No	Contextual Approach	Conventional Approach
1	Students are actively involved in the learning process. The student is the passive recipient of information.	The student is the passive recipient of information.
2	Students learn from friends through group work, discourse, and mutual correction.	Students learn individually.
3	Learning is associated with real-life and or simulated problems. Learning is very abstract.	Learning is very abstract.
4	Behavior is built on self-awareness.	Behavior is built on habits
5	Skills developed based on understanding	Skills are developed based on practice.
6	The reward for good behavior is self-satisfaction.	A reward for good behavior is a compliment or a value (numbers) report cards.
7	A person does not do the ugly because he realizes it is wrong and detrimental.	A person does not do anything ugly because he is afraid of punishment.
8	Language is taught with a community approach, where students are invited to use language in a real context.	Language is taught with a structural approach: formulas are explained until they understand, then trained.
9	The understanding of formulas is developed based on schemata already present in the student.	The formula exists outside of the student, which must be explained, accepted, memorized, and trained.
10	The understanding of the formula is relatively different from one student to another, according to the student's schemata (ongoing process development).	The formula is the absolute truth (the same for everyone). There are only 2 possibilities, that is, the understanding of incorrect formulas or the correct understanding of formulas.
11	Students use critical thinking skills, are fully involved in pursuing the effective learning process, and take responsibility for the effective learning process.	Students passively accept formulas or rules (reading, taking notes, listening,

No	Contextual Approach	Conventional Approach
		memorizing), without contributing ideas to the learning process.
12	The knowledge that students have is developed by the students themselves. the student creates or builds knowledge by giving meaning and understanding his experience.	Knowledge is the capture of a series of facts, concepts, or laws that are outside the human self.
13	Since knowledge is constructed and developed by the man himself, while man is always experiencing new events, then it is always evolving and never stable (tentative & incomplete).	Truth is absolute and knowledge is final.
14	Students are held responsible for monitoring and developing their learning.	The teacher is the determinant of the course of the learning process.
15	Respect for student experience takes precedence	Learning does not pay attention to the student experience.
16	Learning outcomes are measured in different ways: the process of work, the result of work, appearance, recordings, tests, etc.	Learning outcomes are measured only by tests.
17	Learning occurs in a variety of places, contexts, and settings.	Learning only occurs in the classroom.
18	Remorse is a punishment for bad behavior.	Sanctions are punishments for bad behavior.
19	Good behavior is based on intrinsic motivation.	Good behavior is based on extrinsic motivation.
20	A person behaves well because he believes it is the best and most useful	Someone behaves well because they are used to it. This habit is built with a pleasant gift.

In the context of science learning, material for the interaction of living things with the environment is a material whose application is easy to find and material that is contextual in everyday life. This material is one of the materials taught in class seventh grade students. From the analysis of the needs of students and teachers in science at Junior High School 8 Malang, it is necessary to have a variety of reading sources as the main guide for independent study and honing critical thinking skills. The e-module developed will be an interesting and interactive source of student reading because students are fully involved in the learning process such as video observations, actual reading texts according to events in daily life, problem-based worksheets, and online quizzes that can be accessed on smartphones. and online assignment collection will provide a non-boring student learning experience. Hasanah in her research states that the science module can improve students' critical thinking skills if it is packaged based on CTL components (Hasanah et al., 2021). Similar research shows that CTL-based learning is effective in improving students' skills, in this case, critical thinking skills (Y. Bustami et al., 2018) (Yakobus Bustami et al., 2020) (Tari & Rosana, 2019).

CONCLUSIONS AND SUGGESTIONS

A. Conclusion

Based on the above problems, students need learning media in the form of e-modules based on Contextual Teaching and Learning (CTL) on the interaction of living things with their environment that can relate the topic with facts in the daily life of the students that are packaged in an attractive, adaptive and multi-directional manner so that it supports independent learning of students and is expected to improve student's critical thinking skills.

B. Suggestion

The researcher recommends developing an e-module based on Contextual Teaching and Learning (CTL). The e-module developed must be tested for its effectiveness in the learning process and the results

compared with the use of learning resources or learning media that already exist in Junior High School 8 Malang.

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