# An Investigation of How Visual Picture Economics Textbook Explains the Increasing Phenomena of Reading Literacy and Critical Thinking Skills

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#### **Abstract**

The low level of reading literacy is still a serious problem considering the low reading literacy of Indonesian students based on PISA results, the average reading literacy score of Indonesia is 371 from the international average of 500 points. In addition, the world of education is also faced with the problem of low critical thinking skills both nationally and internationally. This study aims to: 1) determine the effect of visual picture economics textbook based on problem-based learning on improving reading literacy skills; 2) determine the effect of visual picture economics textbook based on problem-based learning on improving critical thinking skills. This type of research is a pre-experimental design (one group pretest-posttest design). This research uses a sample of 35 students of class XI IPS 4 with a sampling technique that is cluster random sampling. The data obtained from this survey used various techniques, including (1) interviews, (2) observations, (3) documentation, (4) questionnaires, and (5) questions. The data analysis technique in this study used quantitative descriptive analysis techniques and inferential statistical data analysis techniques. The results of data analysis show that: 1) visual picture economics textbook based on problem-based learning affect increasing reading literacy skills; 2) visual picture economics textbook based on problem-based learning affect increasing critical thinking skills.

**Keywords**: Visual Picture Economics Textbook, Reading Literacy, Critical Thinking Skills, Problem-Based Learning

# **INTRODUCTION**

Education is the process of shaping students into quality people from the aspects of knowledge, skills, and attitudes. Efforts to realize the Indonesian state a developed country can be started by improving the quality of education in Indonesia because quality human resources are created from the quality of education. The learning process in education is oriented towards the success of the output of the 2013 curriculum which focuses on reading habituation or often referred to as reading literacy accompanied by the achievements of 21stcentury skills (Rusmono & Alghazali, 2019). Characterized with rapid development of science and technology, the 21st century needs a wellestablished society who can think properly as well as a good problem-solving skill (Arisoy & Aybek, 2021). Thinking well is being able to think logically, creatively, and critically, therefore the learning objectives must be aligned with education in the 21st century and the 2013 curriculum, namely learning focuses on reading literacy achievement and critical thinking.

However, the reading literacy ability of Indonesian students is still low, as evidenced by

the results of the 2018 program for international student assessment (PISA) released Schleicher (2019), showing that Indonesia's average score on reading literacy obtained a score of 371 from the global average score of 500. Indonesia's average score on mathematical literacy received a score of 379 from the international average score of 500, and Indonesia's average score on science literacy obtained a score of 396 from the international average score of 500. The three literacy that became the benchmark of PISA demonstrates that the lowest average score of Indonesian students was on reading literacy ability. From these results, Indonesia was ranked 74th out of 79 countries participating in PISA. These results show that the implementation of education in Indonesia has not been able to achieve international standards.

Reading literacy is the ability to understand the text and its content, evaluate its meaning and value, and be able to express thoughts from the information that has been received from the reading that has been read (Shaimardanova et al., 2020). (Shaimardanova et al., 2020)Reading literacy is a skill related to reading, thinking, and writing activities that aim to improve the ability to understand information critically and creatively (Gogahu & Prasetyo, 2020). Thus it can be concluded that reading literacy is the ability to understand the text and its content critically and creatively to express thoughts from the information gleaned from the reading activity.

The insufficient reading literacy skills will make students difficult in following the learning process in all subjects as they find it challenging to understand the information geared from myriad sources such as textbooks, non-lesson books, and other learning resources (Oktaviyanti et al., 2022). Many factors cause low reading literacy skills in students, including the lazy attitude of students in reading, lack of motivation or interest in reading, the development of increasingly sophisticated technology makes students prefer to play with cellphones instead of reading, and reading habits have not being accustomed to the home environment (Fikriyah et al., 2020).

The low interest in reading significantly impact on the low literacy of reading. Many students read without understanding what they read (Saadati & Sadli, 2019). Reading literation requires teachers to know the basic abilities possessed by students and their socio-emotional context such as motivation or interest in reading, academic background, socioeconomic background, and so on. Teachers' readiness to recognize students' characteristics in reading literacy is the basic conception of conveying learning materials and an indicator of the success of learning implementation (Alfin, 2019).

In Indonesia, teaching materials only rely on textbooks in the form of text (textual) forms, so they have not fully touched the souls of students. As result, the lessons become boring and students do not understand the subject matter in the context of life (Fuadi et al., 2020). It can be said that less attractive textbooks cause students to be less fond of reading (Suarni et al., 2019). One of the efforts to overcome this problem is that teachers should be able to make teaching materials that can make students interested in reading to have implications for improving reading literacy skills (Lubis, 2018). Therefore, the readiness of teaching materials is a determining factor in the success or failure of implementing reading literacy.

The results of research by (Reichenberg, 2016) show that textbooks do not influence improving students reading literacy. It is found that textbooks are limited to influencing the satisfaction of using the book. The results of other studies show different conditions, so bookkeeping must be visually based to support student understanding by showing the relevance of concepts in reading to attract students' interest in reading (Lupo et al., 2020). The current learning process is increasingly convergent on learning outcomes accompanied by increased reading literacy. Students better understand reading textbooks accompanied by visuals (Rusmono & Alghazali, 2019). Based on the results of these studies, it is concluded that a well-designed textbook with visual images to enhance students' interest, and their reading literacy skills are critical to develop.

Another effort that must be made to improve reading literacy in addition to developing textbooks accompanied by visual images is to hone or improve critical thinking skills because the meaning of reading literacy is the ability to understand the text and its content critically and creatively so that it can be sensitive to the surrounding environment and be able to apply what is read. Based on this meaning, it can be concluded that it is necessary to make various efforts to improve critical thinking skills first, to have an impact on improving reading literacy skills.

However, Indonesia still faces the problem of low critical thinking skills. Indonesian students' low critical thinking skills can be proven from the results of interviews between researchers and economics teachers at one of the state high schools in a district in Indonesia. The interview results showed that the student's learning outcomes in the final semester exams that had used HOTS-based questions with KKM 70 showed that 25% of students scored above KKM, while 75% cut below KKM. Low learning outcomes are believed to result from students' lack of critical thinking skills and the impact of suboptimal learning processes (Saputri et al., 2019).

The results of the research conducted by Mulyanto et al., (2018); Saputra et al., (2019); Seruni et al., (2020); Wati et al., (2020) show that problem-based learning is effective in improving critical thinking skills. Thus, an effort that can be made to improve reading literacy and critical thinking skills is to develop a visual picture economics textbook based on problembased learning. Therefore, the purpose of this survey is to determine the influence of visual picture economics textbook based on problembased learning on improving reading literacy skills and to find out the influence of visual picture economics textbook based on problembased learning on improving critical thinking skills.

# LITERATURE REVIEW Reading Literacy

Literacy is one of the basic skills that must be acquired in order to acquire other types of literacy. Being able to read allows people to live a better life in their own lives. Reading literacy is a higher-level thinking activity that requires the reader to have a critical understanding of the reading material and to be able to relate the content of the reading to life's problems. The reading process is inextricably linked to the critical thinking process for finding ideas and ideas contained in the text (Shara et al., 2020). Better readers tend to read more because hard work leads to success, more reading leads to better vocabulary, and further improvement in reading skills (Ho & Lau, 2018).

Reading strategy lessons have been reported to be effective in improving students' reading comprehension. However, some unresolved issues are related to teacher strategies and student characteristics that teach students to read (Yan & Cai, 2021). This is in accordance with the results of observations in the field that the teacher instructs students to read at the beginning of the learning process and students are characterized by liking textbooks that contain visual images which are believed to be more interesting to read.

# **Critical Thinking Skills**

Critical thinking is an educational process designed to help students organize and build their opinions, formulate problems, formulate hypotheses, and prove themselves (Nisa et al., 2018).

Critical thinking is the ability to express rational thoughts about what to believe and what needs to do. Critical thinking skills can also be interpreted as the ability to think logically, reflectively, productively, assess situations, and make the right decisions (Hadi et al., 2018). This interpretation can become a complete conclusion about what critical thinking skills are.

# **Problem Based Learning**

PBL is an academic technique that targets students to improve their abilities to understand and fix problems through the involvement of actual and unstructured problems. Students gather new understanding by figuring out the gap between their contemporary level of understanding and the level of understanding required to address a given problem. To complete PBL assignments, students must have

a variety of abilities and superior problemsolving, logical thinking, and collaborative skills to acquire knowledge of abilities and motivation (Kim et al., 2018). Problem-based learning is a teaching method in which students learn about a complex and freeway problem. These questions are real questions and are used to facilitate student learning. Principles and concepts. PBL is both a teaching method and a curriculum approach. It can develop critical thinking skills, problem-solving skills, communication skills, and lifelong learning skills (Ali, 2019). It can be concluded that PBL is a teaching method designed to develop critical thinking skills, problem-solving skills, communication skills, and lifelong learning skills. Thus, to complete PBL assignments, students must have a wide range of abilities and superior problem-solving, logical thinking, and collaborative skills to acquire knowledge of abilities and motivation. To achieve the research goals, researchers sought to investigate the following research questions:

- 1. Is there any effect of visual picture economics textbook based on problem-based learning on improving reading literacy skills?
- 2. Is there any effect of visual picture economics textbook based on problem-based learning on improving critical thinking skills?

# **Research Method**

The type of research in this study is preexperimental design (one group pretest-posttest design). This research was conducted at one of the state high schools in a regency in Indonesia.

# **Participants**

The population used was 130 students with the sample of this study being 35 students from class XI social studies 4. The technic of taking samples used is cluster random sampling.

# **Course Description and Implementation**

The procedure in this study consists of three stages, namely: (1) the validation stage of the research instrument, namely the reading literacy pre-test questions and the critical thinking pre-test questions; (2) the instrument trial stage for students to test the validity and reliability of the instrument; and (3) the stage of field or

experimental testing. In the testing process, there are several stages used, namely: (1) giving pretests to students who are in class XI IPS 4; (2) carrying out the learning process with treatment, namely using a visual picture economics textbook based on problem-based learning; (3) carry out a post-test of reading and critical thinking literacy in class XI IPS 4.

# **Data Collection and Data Analysis**

The data obtained from this survey uses various techniques, including (1) interviews, observations, (3) documentation, and (4) questionnaires, questionnaires are used to test the feasibility of pre-test instruments for reading and critical thinking literacy at the instrument validation stage. The grid of validation sheets for the pre-test instrument for reading and critical thinking literacy given to research instrument experts consists of aspects: material/content, construction, and language. (5) test questions, reading literacy test questions using questions in the form of essays totaling 12 questions, while critical thinking test questions use multiplechoice question types totaling 20 questions. This study's data analysis techniques use quantitative descriptive and inferential statistical data analysis techniques. In this study, quantitative descriptive analysis is used to test the feasibility of reading and critical thinking instruments and determine the scores obtained from the test questions to determine the level of reading and critical thinking literacy skills. Specifically, it deployed an inferential statistical analysis with a t-test preceded by a prerequisite test consisting of a normality test and a homogeneity test.

# **FINDINGS**

# **Validating Instrument**

As outlined in the previous section, the procedure in this study consists of three stages, namely: (1) the validation stage of the research instrument, namely the pre-test question of reading literacy and the pre-test question of critical thinking; (2) the instrument trial stage to students to test the validity and reliability of the instrument; and (3) the stage of field or experimental testing. First, to test the feasibility of reading and critical thinking literacy instruments are carried out by asking for

validation by research instrument experts, namely one of the lecturers from the master of economic education study program who has been an expert in making national examination questions. Then, the results are processed with quantitative descriptive analysis techniques. The validation results of the reading literacy instrument obtained an average score of 4 with a percentage of 80%, so it had decent criteria, while the validation results of the critical thinking instrument obtained an average score of 3.7 with a percentage of 74%, so it had decent criteria.

# **Instrument Validity and Reliability Results**

After carrying out the instrument validation test, the second stage is to conduct an instrument trial to test the validity and reliability of the instrument carried out in class XI science 3, which totals 30 students. Based on the validity test, out of 12 reading literacy questions, 2 invalid questions were found, namely questions number 5 and 12, while out of 20 critical thinking questions, 5 invalid questions were found, namely questions number 3, 7, 8, 9, and 14, so that these invalid questions must be abolished and not used in field testing. Based on the reliability test, 10 reading literacy questions and 15 critical thinking questions were declared reliable. After the data is declared valid and reliable, the question of reading literacy and critical thinking can be tested in class XI IPS 4 as an experimental group. Furthermore, the third stage is the testing stage in the field, then testing is carried out using a statistical process to see the differences in reading and critical thinking literacy skills before and after the treatment.

Inference Statistical Analysis Results

The data normality test in this study uses the Kolmogorov-Smirnov test with the condition that if the significance value (Sig.) for all data > 0.05 then the data is normally distributed. Therefore, based on the output of the normality tests, the significance value (Sig.) for all data on the Kolmogorov-Smirnov test > 0.05, it can be concluded that the research data on reading literacy and critical thinking skills are normally distributed. Furthermore, a homogeneity test was carried out to determine whether the variance (diversity) of data from two or more groups is

homogeneous (equal) or heterogeneous (not the same).

Based on the output of the test of homogeneity of variance known significance value (Sig.) Based on the Mean is 0.000 < 0.05, it can be concluded that the variance of the pre-test reading literacy data and the test post data is not the same or inhomogeneous. while the output of the test of homogeneity of variance on the critical thinking data is known significance value (Sig.) Based on the Mean of 0.727 > 0.05, it is concluded that the variance of small-scale pre-test critical thinking data and small-scale post-test post data is the same or homogeneous, but the homogeneity test is not required to conduct a paired sample test.

Next, perform a hypothesis test (t-test). There are two hypothesis tests (t-test), the first hypothesis test aims to see whether or not there is an influence of visual picture economics textbook based on problem-based learning on improving reading literacy skills.

H0: there is no influence of visual picture economics textbook based on problem-based learning on improving reading literacy skills.

H1: there is an influence of visual picture economics textbook based on problem-based learning on improving reading literacy skills.

The basis for decision-making is if: H0 is accepted if the significance the > 0.05 H0 is rejected if the significance of the < 0.05 The hypothesis test output uses a paired sample test.

Table 1. Uji Paired Sample Test
Paired Samples Test

t df Sig. (2-tailed)

Figure 1. Results of Reading Literacy

Furthermore, the second hypothesis test was carried out, aiming to see whether or not there is

an influence of visual picture economics

textbook based on problem-based learning on

economics textbook based on problem-based

learning on improving critical thinking skills.

economics textbook based on problem-based

there is no influence of visual picture

there is an influence of visual picture

Source: Processed primary data, 2022

improving critical thinking skills.

Pair 1 Pre-Test -17,771 34 .000
Experiment Experimental Test
Post

Source: Processed primary data, 2022

Based on the above output, it can be interpreted that there is a significance (2-tailed) of 0.000 < 0.05. It can be concluded that H0 is rejected, meaning that there is an influence of visual picture economics textbook based on problembased learning on improving reading literacy skills. Furthermore, to see the difference in the level of reading literacy before and after the treatment can be seen in the paired samples statistics table.

Table 2. Paired Samples Statistics
Paired Samples Statistics

1 uncu	Dampies Diai	istics	economics tenterous sused on prostem sused			
Mean		Mean	N Std.	Std. Error learning on improving critical thinking skills.		
			Deviation	Mean	The hypothesis test output uses a paired sample	
Pair 1	Pre-Test	38.46	35 4.680	.791	test.	
	Experiment	ts				
	Experimental 58.89		35 9.301	1.572	Table 3. Uji Paired Sample Test	
	Test Post				Paired Samples Test	
Source: Processed primary data, 2022					t df Sig. (2-tailed)	

H1:

The output above showcases that the pre-test score got an average score of 38.46, while the post-test score got an average score of 58.89. It can be concluded that a visual picture economics textbook based on problem-based learning is effective in improving students' reading literacy skills. The results of the comparison can be seen in the following figure.

Pre-Test -12,599 34 .000
Pair 1 Experiment Experimental
Test Post

Source: Processed primary data, 2022

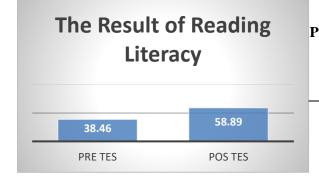
Based on the above output, it can be interpreted that there is a significance (2-tailed) of 0.000 < 0.05. It can be concluded that H0 is rejected, meaning that there is an influence of visual picture economics textbook based on problembased learning on improving critical thinking skills. Furthermore, to see the difference in the level of critical thinking skills before and after the treatment can be seen in the paired samples statistics table.

Table 4. Paired Samples Statistics
Paired Samples Statistics

Mean N Std. Std.

Deviation Error

Mean



	PreTest	29.60	35	13,556	2,291
Pair 1	Experiments				
Pair I	Experimental	53.29	35	13,555	2,291
	Test Post				

Source: Processed primary data, 2022

In the output above, it can be seen that the pretest score gets an average score of 29.60, while the post-test score gets an average score of 53.29. It can be concluded that a visual picture economics textbook based on problem-based learning is effective in improving students' critical thinking skills. The results of the comparison can be seen in the following figure.



Figure 2. Critical Thinking Results Source: Processed primary data, 2022

#### **Result and Discussion**

The visual picture economics textbook based on problem-based learning is the development of a textbook in which it is equipped with conceptual images that can explain economic material these images contain various problems to be solved by students and are supported by a collection of evaluation questions in form of multiple-choice and essays. The purpose of a visual picture economics textbook based on problem-based learning is through the addition of conceptual images that are expected to attract students' interest in reading books, including students' increased interest in reading, it is hoped that it can have implications for improving reading literacy skills. In addition, collaboration with problem-based learning in the learning process can help teachers to hone students' critical thinking skills. This is by the results of previous research that proves that using of textbooks as a medium or learning resource for students in the learning process is to make it easier for students to learn. A good textbook will help students increase their interest and motivation in learning (First et al., 2018). In addition, the facts show that students have more time to interact with the textbook compared to the teacher. In this fact, there is an opportunity to train students to have literacy skills by optimizing the function of textbooks. However, of course, there is a need for textbooks that can be used to help students to have good literacy skills by enriching textbooks with research activities to find out student needs. Therefore, the content of textbooks for students should be the main consideration (Rokhmah et al., 2017).

The scales in determining textbooks must be adjusted to the characteristics of students, the objectives of the 2013 curriculum, as well as the educational needs in the 21st century. The learning outcomes of the 2013 curriculum are increasingly focusing on learning outcomes accompanied by improved reading literacy, while one of the skills needed in 21st-century education is critical thinking skills. Therefore, the books used should be able to improve reading literacy skills and critical thinking. Textbooks should be visually based to support student understanding by showing the relevance of concepts in reading to attract students' interest in reading (Lupo et al., 2020). The existence of visual aids can improve reading literacy echoes research by Rifqiawati et al., (2020), who argued that using biomagazines can increase students' reading literacy. This can be seen from the reading literacy value which increased after students read biomagazine due to the addition of visuals. In addition, awareness is needed for students by emphasizing the importance of reading as an important factor in improving their critical thinking skills (Itmeizeh & Hassan, 2020). Based on the results of research from Seruni et al., (2020), the use of e-modules in problem-based learning effectively improves critical thinking skills.

However, the focus of this study is not on the process of preparing the textbooks that the author has developed, but on the results of the use of these textbooks to achieve the research objectives, namely the skill of reading literacy and critical thinking. The results of the expert validators of the research instrument showed a

percentage of 80% with feasible criteria on the pre-test instrument literation of reading and a percentage of 74% with feasible criteria on the critical thinking pre-test instrument. The purpose of validating research instruments is to determine the feasibility aspects of the material/content, construction, and language in the instrument. The advice given by the expert validators of the research instrument is the removal of the repetition of a malfunctioning stimulus, the image still needs to be corrected so as not to cause multiple interpretations, and the improvement of the problem that shows the criteria of analysis (C4).

The matter of reading literacy has 4 indicators, including the ability to re-express information, the ability to develop interpretations, the ability to reflect and evaluate the reading, and the ability to connect the content of the book with the reader's experience. The reading literacy indicators selected by the researchers are based on the guidelines for reading literacy assessment indicators conducted by PISA. This is in accordance with the results of the study (Amri & Rochmah, 2021), the reading assessment carried out by PISA in the aspect of comprehension pays attention to the following things: accessing and retrieving information from the text, integrating and interpreting the content of the reading, reflecting and evaluating the text, and linking the content of the text with the reader's experience. Critical thinking has 4 indicators, including the ability to conclude, the ability to solve problems, the ability to evaluate information, and the ability to analyze. Indicators of critical thinking questions were selected by researchers based on the indicators presented by (Azizah et al., 2018; Safrida et al., 2018).

Based on the results of trials of reading and critical thinking literacy instruments carried out outside the population and research samples, namely in class XI Science 3. The result was that out of 12 reading literacy essay questions given to students, 2 invalid questions were found, namely question number 5 and question number 12. So, 10 essay questions are said to be valid and reliable, so in the field trial process at the time of experimental research, researchers only used 10 pre-test questions for reading literacy

that had been declared valid and reliable, while there were 5 questions out of 20 invalid questions of critical thinking, so that there are only 15 critical thinking questions tested in class XI IPS 4 that have been declared valid and reliable.

The research process by the experimental method is carried out for 3 weeks. The first week is used to test the validity and reliability of instruments given to students of class XI Science 3 and continue the implementation of pre-tests in XI IPS 4, two days after the implementation of the validity test and reliability second week of conducting test. The experimental research in class XI IPS 4 is to carry out the learning process with treatment. The treatment means using a visual picture economics textbook based on problem-based learning and using a problem-based learning model

In the implementation of the use of visual picture economics textbook based on problem-based learning in the experimental class, namely class XI IPS 4, it was found that during the learning process, students were active in reading the visual picture economics textbook based on problem-based learning because based on students' assessment of the book, students admitted that they were more interested because there were many images that could help learning materials, in addition, understand visual picture economics textbook based on problem-based learning have another advantage, namely the material presented in the book is more complete because it is also equipped with real examples, so that students are easier to apply examples to books with daily life, so that during the question and answer session between teachers and students, students are faster to answer questions given by the teacher accompanied by giving examples in books with daily life, so that during the question and answer session between teachers and students, students are faster to answer questions given by the teacher accompanied by giving real examples in everyday life, based on the process of such experiments students are honed to use their critical thinking skills.

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A post-test for reading and critical thinking literacy was carried out in the third week. The provision of post-tests determines how much students possess the level of reading and critical thinking literacy skills after the implementation of the experimental process. Furthermore, a hypothesis test was carried out, preceded by a normality test, a homogeneity test, and a paired samples test.

The results showed that reading literacy data were normally distributed and inhomogeneous. At the same time, critical thinking data were distributed normally and homogeneously. However, homogeneity tests are not a prerequisite in hypothesis tests or t-tests using paired samples tests. The t-test analysis results of 0.000 for reading literacy skills and 0.000 for critical thinking skills. The overall results of the t-test showed an influence of visual picture economics textbooks based on problem-based learning on improving reading literacy and critical thinking skills.

The increase in students' reading literacy and critical thinking can be measured through the analysis of paired samples statistics test which aims to determine the improvement score when pre-test and post-test are carried out. The results showed that the results of the post-test to test reading and critical thinking literacy skills have increased. The average score of the reading literacy rate before using the visual picture economics textbook based on problem-based learning got a score of 38.46, while the average score of the reading literacy level after using the visual picture economics textbook based on problem-based learning got a higher score of 58.89. Furthermore, the results of the average value of the level of critical thinking before using the visual picture economics textbook based on problem-based learning got a score of 29.60, while the average value of the critical thinking level after using a visual picture economics textbook based on problem-based learning got a higher score of 53.29. It can be concluded that a visual picture economics textbook based on problem-based learning is effective in improving reading literacy and critical thinking skills.

# Conclusion

This pre-experimental design research (one group pretest-posttest design) undergoes three stages: the feasibility test of reading literacy and critical thinking instruments, validity and reliability tests, and field tests or experiments. The implementation of the three stages has succeeded in producing instruments regarding reading literacy and critical thinking that are feasible and valid for use in research. In addition, visual picture economics textbook based on problem-based learning affect to improve reading literacy and critical thinking skills. This study implies that the development is based on efforts to improve conventional textbooks that are not optimal in achieving the demands of the 2013 curriculum and 21st-century skills, namely reading literacy and critical thinking. Conventional economics textbooks have not attracted students to read, causing students' reading literacy to be low, in addition to the evaluation in economics textbooks conventional there are still many based on lower-order thinking skills (LOTS), this has an impact on the low critical thinking skills of students because learning outcomes have not focused on achieving the level of high in this case that is critical thinking. The hope is that the existence of a visual picture economics textbook based on problem-based learning can add to the literature in the field of education because textbooks can improve reading literacy and critical thinking.

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