An Analysis of Critical Thinking Ability of Elementary School Students Through Model Contextual Teaching and Learning on Social Learning

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Article Info

Abstract

Critical thinking ability of students in learning social science has not been measured in the learning process. The purpose of this study tests the effectiveness of the model Contextual Teaching and Learning (CTL) toward the students' critical thinking ability, describe the process of analysis of students' critical thinking ability. This type of study was a mixed-method, with sequential explanatory design. Samples of this study were grade V Public Elementary School 01 Rajekwesi, Jepara and Public Elementary School 01 Datar, Jepara. The data collection was conducted by a test, interview, and documentation. Quantitative data analysis techniques using the test and qualitative data analysis techniques with the triangulation of the data in the form of tests, interview, and documentation. The results showed that CTL model learning effectively improved critical thinking ability. Result of the average different test of the independent table column sig test sample (2-tailed) of $0.00 < 0.05$, this means that H_1 accepted, the average critical thinking ability of CTL class is better than the expository class. Classical completeness of test results of the CTL class 80.95% students achieve at grade expository minimum completeness criteria (MCC), and that is equal to 76%. Test results of the average increase of the critical thinking ability in the classroom CTL by 30.33 and the expository class of 17.76. The description of the critical thinking ability of students in the expository class that belong to the criteria of good were the indicators of reasons and inference, which included in the criteria of moderate were an indicator of focus, situation, clarity, and overview. Meanwhile, in the classroom with CTL that belong to the good criteria were indicators of reasons, inference, focus, situation, clarity, whereas the overview included in the criteria of moderate.

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INTRODUCTION

Education serves as an important basis of development resulting in the change of the education system. Thinking is a major factor in the advancement of education. The development of the education system is one of the most important criteria in modern society. This issue becomes important in many countries, and recent decades has become an issue in developing countries. Sari, and Madio (2013) stated that education is not only oriented to the past and the present, but it is time-oriented toward the future. Education should be looking far ahead and think about what is facing the future. So the purpose of education is to prepare individuals to achieve broad-minded, able to solve the problems facing our nation today and can provide solutions for problems.

Education plays an important role in making the student be able to think as an adult, critically and logically to solve problems. Education: education community expected to realize the expectations and needs of the community. Those requirements are based on experiences that show that life in the capital to navigate the changing times: education. Quality education will improve the quality of life. The quality of education is closely related to the level of learning. Components associated with the quality of education: first, the readiness of learners. Second, the ability of teachers professionalism of teachers in educating students. Third, relevant curriculum following the demands of a globalized world. Fourth, facilities and infrastructure in support of the learning process. Fifth, public participation (parents, user, and college graduates) in the development of educational programs in schools. All these components must be the same way in providing truly qualified education (Suti, 2011).

Primary education, according to Law of the Republic of Indonesia Number 20 of 2003 shall be taken for nine years, i.e., since elementary school or madrasah until Junior High School or Madrasah tsanawiyah. Social science is one of the subjects that cover broad enough material relationship with a person's life in the community. Masrukhi, Rachman, and Suyahmo (2018) is a teacher's profession, which requires knowledge, understanding, skills, abilities, skills, and perseverance in creating quality learning. Teachers are required to complete his target implementation mastery learning students, so it needs planning and implementation of learning by using strategies, methods, approaches, media, and props, as well as adequate learning resources.

It is expected that education today able to develop the ability of learners of the ability in critical thinking. Critical thinking is the key competencies required to resolve the problem for people to live successful and responsible to the community in facing the challenges of the present and future (Nugraha, Suyitno, and Susilaningsih, 2017).

Inch, Warnick, and Endres (2006) critical thinking is a process in which a person tries to answer the questions that cannot easily be answered, and all the relevant information is not available in a rational way. The competence in the global world needs to be done by considering the establishment of the criteria of learners who can think critically due to the current global world competition which is getting higher and the level of complex problems in the modern life.

Observations from Public Elementary School 01 Rajekwesi, Mayong District, Jepara Regency, which was done by the researcher to the fifth-grade teacher, some students have learning difficulties during the learning. Social science learning was seen only as a monotonous and procedural activity, the teacher explaining the material, giving an example, assigning students to do the exercises, then, students answering a cursory check, then discussing them. The class learning that emphasizes developing critical thinking ability of students was still less given. The use of media/instrument was also not used optimally by the teacher. In the academic year of 2017/2018 of 25 learners obtained from the 1st semester of grade V, there were 15 students did not complete the minimum completeness criteria specified which is 70, and the average score was only 67.

Considering such circumstances, a breakthrough by teachers is necessary to improve

students' critical thinking ability. Many things can be done, one of them is by applying different learning models, which is appropriate to teach social studies learning. One of the model of learning that can be applied is a learning model of CTL for students to absorb the material and can improve students' critical thinking ability.

Wilson (2016) stated that the teacher as a facilitator and the students themselves develop the knowledge and understanding, as for the involvement of teachers hone critical thinking skills of students in learning by giving a written or oral test. Model CTL to motivate students to understand the subject matter learned by linking the material with everyday life and also for students to learn not only memorization, but it is necessary to understand.

The use of CTL model change from the first learning center teacher into a student center. In the CTL model, it allows students to find out some relationship between the material studied the real condition of life. This means that students are required to capture the relationship between learning experiences in school to real-life by applying measures that exist in the model of CTL.

METHODS

This type of research was a mixed-methods using design sequential explanatory. Quantitative method was used to test the effectiveness of critical thinking ability with the model of CTL in the experimental class. A qualitative method was used to describe the process of critical thinking ability of the analysis with a model of CTL.

The study population was the students of grade V in Dabin 01 District Mayong, Jepara regency. The sampling technique used was a type of non-probability sampling which is in the form of purposive sampling, the obtained the sample of the research of grade V Public Elementary School 01 Rajekwesi, Jepara and Public Elementary School 01 Datar, Jepara. The number of the overall sample were 46 students.

The data collection techniques were done using tests, interviews, and documentation. Instruments critical thinking ability' using tests. The analysis technique used was the technique of

quantitative and qualitative analysis. The quantitative analysis consists of classical completeness of test, test improvement, and different test average. The analysis of qualitative data that has been collected using data analysis interactive model that is data collection, data reduction, a data display, and conclusion. The collection of data from critical thinking ability were categorized into high, moderate, and low. The test of the validity of the qualitative in this study using the triangulation of data/source.

Ennis (1996) indicators of critical thinking ability in the study were: focus, reason, inferences (conclusions), situation, clarity, and overview (inspection or review).

RESULTS AND DISCUSSION

Critical thinking as a mental discipline activity for reflective thinking, and it makes sense to evaluate the arguments in the decision of what has been done. Unlike other intelligence, critical thinking can be improved and developed and does not depend on age (Çimer, Timuçin, and Kokoç, 2013). Educator or teacher task of creating effective learning that can motivate students to continue to learn well (Pujiono, Safitri, and Utomo, 2017). Therefore, to improve the quality of learning, teachers must be able to improve students' critical thinking skills.

The result of data score of students of grade V Public Elementary School 01 Rajekwesi, Jepara, and Public Elementary School 01 Datar, Jepara on pre-test and post-test of critical thinking ability test after being given treatment model of CTL on the material of economic activity. The results of pre-test students' critical thinking abilities of CTL class and expository class can be seen in detail in the following Table 1.

Table 1. Pre-test Result of Critical Thinking Ability of Students

Subject	Average score	Number of students	
		Completed	Not completed
CTL class	69.33	12	9
Expository class	67.33	18	7

Based on Table 1, CTL class with the total number of twenty-one students, the students who

completed twelve and nine were not completed the learning, and in the expository class, from the total number of 25 students, 18 was notably complete the learning and 7 completed the minimum completeness criteria 70. The pre-test data indicated that if learning, that emphasizes critical thinking ability was not maximized. The results of post-test students' critical thinking abilities of CTL class and expository class in detail can be seen in Table 2.

Table 2. Post-test Results of Critical Thinking Ability of Students

Subject	Average score	Number of students	
		Completed	Not completed
CTL class	77.57	17	4
Expository class	70.72	19	6

Based on Table 2, the average score of critical thinking ability that completed in the experimental class of 77.57 minimum completeness criteria were 17 students from 21 students. In the expository class, the average score of students' critical thinking ability of 70.72 MCC completed by 19 students from 25 students. Based on these details, it can be seen that there was a difference on the average score of the class, and the number of students who completed the test minimum completeness criteria critical thinking ability in the classroom of CTL and expository class. The differences in the average score of the class, and the number of students who completed the minimum completeness criteria shows the influence of the use of the model of CTL compared to the model of expository.

Hidayati (2017) demands of the curriculum in 2013, which is to make students more critical and creative. Therefore it is very important to train the high-level thinking ability in primary school students. A critical thinker must have a good understanding, the ability to use the principle of the subject-specific and subject-neutral (logical) effect in assessing thinking (Nio, Sukestiyarno, Waluya, Rochmad, Isnarto, and Manullang, 2017)

Test results of the average difference test on independent table column sig test sample (2-tailed) of 0.001 < 0.05 this means that H_1 is accepted, therefore, on the average test, the critical thinking ability using CTL model was better than the average of critical thinking ability using expository models.

Results of the classical completeness analysis based on the post-test students Contextual Teaching and Learning class of 21 students showed that there were 17 students reached the minimum completeness criteria and four students have not reached the minimum completeness criteria. This means that 80.95% of students in the Contextual Teaching and Learning has achieved the minimum completeness criteria or completed the learning. In the expository class of 25 students who achieve a complete score were only 19 students; meanwhile, six students were able to complete the learning. Thus, the percentage of completeness in the expository class that is equal to 76%.

The result of an increase in critical thinking ability in the classroom using CTL model for 30.33 and the average increase in critical thinking ability using the model of expository 17.76 meaning that the average increase in critical thinking ability of students use CTL model is better than the average increase in the critical thinking ability using expository model. The criteria for the achievement of critical thinking ability included in good, moderate, and low can be seen in more detail in Table 3.

Table 3. The Achievement Criteria of Critical Thinking Ability

Score	Criteria
$2.0 < x \leq 3.0$	Good
$1.0 < x \leq 2.0$	Moderate
$0 < x \leq 1.0$	Low

Classification results based on the achievement indicators of students' critical thinking ability of CTL and Expository class can be seen in more detail in Figure 1.
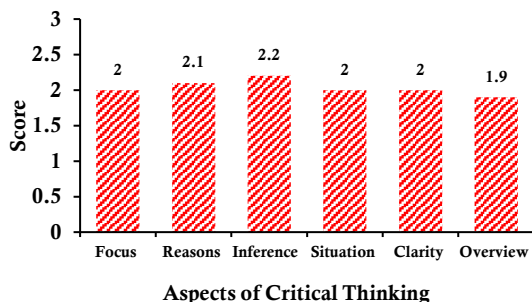
Figure 1. The Achievement Indicators of Critical Thinking Ability of Expository Class

The achievement indicators of critical thinking ability of expository class for indicators focus falls within the criteria of good, indicators reasons qualifies as a good indicator of inference qualifies as a good indicator of situation qualifies as a moderate, an indicator of clarity qualifies as moderate, meanwhile, indicators overview included in the criteria of good, The results of the classification of students based on the completeness of indicators of critical thinking ability in the classroom of CTL more detail can be seen in Figure 2.
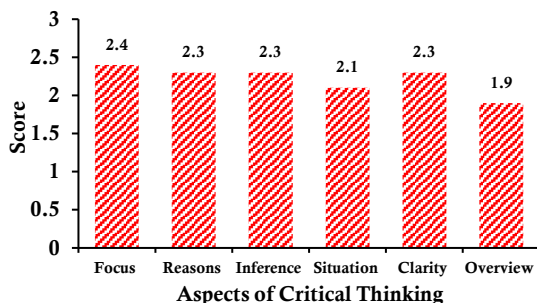

Figure 2. The Achievement Indicators of Critical Thinking Ability of CTL Class

The achievement indicators of critical thinking ability in the classroom CTL for indicators focus included in the good criteria, indicators reasons qualifies as a good indicator of inference qualifies as a good indicator of situation qualifies as a good indicator of clarity qualifies as good. Meanwhile, indicators overview included in the criteria of good.

The data proves the success of the learning process using a model of CTL. This success is due to a model of learning and learning tools managed to improve critical thinking ability that allows students to solve problems related to the real context in their everyday life — the learning model of Contextual Teaching and Learning emphasis on high-level thinking skills (Susilo, 2012).

The results are consistent with research conducted by Wulandari, Hayus, and Martini (2015) that teaching and learning of Contextual Teaching and Learning (CTL) can improve critical thinking skills and student achievement. Ulya, Irawati, and Maulana (2016) that learning with the contextual approach is significantly better than conventional learning in mathematical connections and improve students' motivation. Oktaviansa, and Yunus (2013) states the use of CTL model can provide a new learning environment to students to motivate more learners in learning. Following the results of the test value critical thinking ability of students high categories in Figure 3.
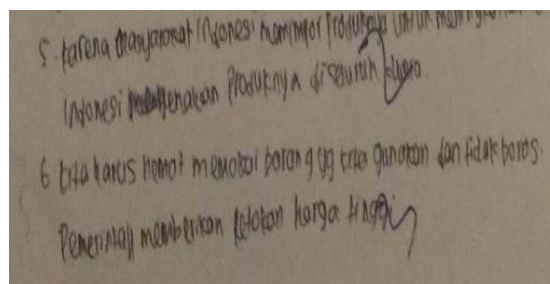

Figure 3. Test Results Critical Thinking Ability of High Category

Figure 3, answers number 6 students able to answer the question properly, and correctly though the question still lay heard among elementary school students. This shows that students can think critically following the results of the test value critical thinking ability of students medium categories in Figure 4.
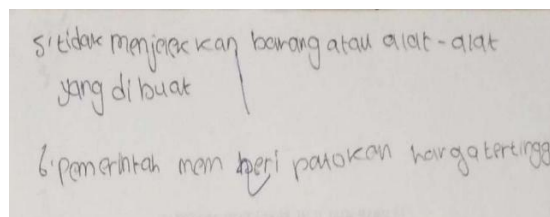

Figure 4. Test Results Critical Thinking Ability of Medium Category

Figure 4, answers number 6 students can answer the question but still hesitate with the answer that only a cursory answer only insufficient though the problem still lay heard among elementary school students following the results of the test value critical thinking ability of students low categories in Figure 5.

Figure 5, answers number 6 students are not able to answer the question, the student only answer what is in his mind so that the critical thinking ability of the students have yet to appear. Critical thinking ability of students need to be honed by frequent-often provide a rational matter, required a deeper understanding to solve them so that later the students attuned in solving the many found in the environment.
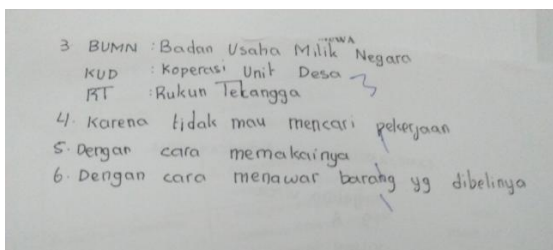

Figure 5. Test Results Critical Thinking Ability of Low Category

Results of interviews were analyzed based on the test scores of critical thinking skills. Here are the results of essential interviews thinking skills are analyzed based on the test scores are included in the category of high, medium, and low.

Subject 1 (Test Scores High)

Subject first is that the test scores of students critical thinking skills high category: (1) indicator of the ability to think critically focus (focus), students are categorized either as a matter tested he could do all and be able to explain to my friends when told to explain again, (2) indicator of the ability to think critically reasons (reasons), students enter either category for sure if the answer is correct and does not doubt the contents of the reply, (3) indicator of the ability to think critically inference (conclusion), students are categorized either as students were able to deduce the answer to every problem that exists,

(4) indicator of the ability to think critically situation (situation), students fit in either category since the matter which is considered rather difficult to just one number and the answer is correct technique of the easiest first then continued that is considered difficult, (5) indicator of the ability to think critically clarity (clarity), students are categorized either as referring to the students' answers when getting asked about who has not understood the teacher until students understand the matter in question, (6) indicator of the ability to think overview (inspection or review) critically, students categorized as good as before collected examined again the answer of any questions that students answer.

Subject 2 (Test Scores Moderate)

Subject second is that the test scores of students critical thinking skills medium category: (1) indicator of the ability to think critically focus (focus), students categorized as being due to a matter being tested there is, and there can not be done while when told to explain again still undecided, (2) indicator of the ability to think critically reasons (reasons), students enter middle category because it is still undecided what he replied, (3) indicator of the ability to think critically inference (conclusion), students are categorized either as students were able to deduce the answer to every problem that exists, (4) indicator of the ability to think critically situation (situation), the students into the category of being a matter that is considered difficult because there are several numbers but the technique is correct answer on the easiest first then continued that is considered difficult, (5) indicator of the ability to think critically clarity (clarity), students are categorized either as referring to the students' answers when getting asked about who has not understood the teacher until students understand the matter in question, (6) indicator of the ability to think overview (inspection or review) critically, students enter middle category because if a student can not answer dikosongi and not examined again the answer.

Subject 3 (Test Scores Low)

Subject third is student critical thinking skills test scores lower category: (1) indicator of the ability to think critically focus (focus), students categorized as low as about being tested is considered difficult for students while when told to explain again could not, (2) indicator of the ability to think critically reasons (reasons), students categorized as low as indecisive with the contents of the answer, (3) indicator of the ability to think critically inference (conclusion), students categorized as low because students are not able to deduce the answer to every problem that exists, (4) indicator of the ability to think critically situation (situation), incoming students in the low category that is considered difficult as a matter of more than half of test tested answer is correct but the technique of the easiest first then continued that is considered difficult, (5) indicator of the ability to think critically clarity (clarity), students were categorized as referring to the students' answers when getting asked about who has not understood the same to the teachers but the students could not answer the problem, (6) indicator of the ability to think critically overview (inspection or review), students categorized as low as if the student can not answer and not examined again the answer.

CONCLUSION

Based on the above results, it can be concluded as follows: (1) learning model of Contextual Teaching and Learning effectively in improving students' critical thinking ability. The effectiveness can be seen from the data result of the average different test of independent table column sig test sample (2-tailed) of $0.00 < 0.05$ this means that H_1 is accepted, the average critical thinking ability using CTL model was better than average of critical thinking ability using expository model. The result of the classical completeness test of Contextual class Teaching and Learning was 80.95% of students achieve the MCC and in the expository learning was 17.76%. The test results of average increase of critical thinking ability in the classroom of CTL by 30.33 and in the expository class by 17.76, (2) the

description of critical thinking ability of students based on test scores of critical thinking ability in the expository that belong to the good criteria were indicators of reasons and inference, then, which belong to the moderate criteria were the indicator of focus, situation, clarity and overview. Meanwhile, in the classroom of Contextual Teaching and Learning that belong to good criteria were indicators of reasons, inference, focus, situation, clarity, whereas the overview included in the criteria of moderate.

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