CRITICAL THINKING SKILL AND ITS CORRELATION WITH STUDENT ACHIEVEMENT INDEX CUMULATIVE

Dede Nuraida
University of PGRI Ronggolawe Tuban
email: dede.nuraida@gmail.com

Abstract: This study aims to know is there any correlation between the critical thinking skills of students with a cumulative achievement index gained. Research conducted on students of biology education class in 2014, as many as 55 people. Instruments to measure critical thinking skills such as essay questions with the topic of cell biology. Critical thinking skills obtained in this study is the average of the three aspects, namely the interpretation, analysis, and explanation. Student cumulative achievement index is obtained from the documentation in education courses in Biology. The data were then analyzed with Pearson correlation. Results of data analysis obtained 0.800 significance values greater than 0.05 α value. This means that there is no significant correlation between cumulative achievement index gained student of biology education class in 2014 with the critical thinking skills.

Key word: Critical thinking, cumulative achievement index, correlation, evaluation, critical thinking aspects

I. INTRODUCTION

Thinking skills are the skills that are needed in every person's life and even the ability to think is what can determine one's success. Zubaidah (2010), states that a person's success in life is determined by, among others, thinking skills, especially in efforts to solve the life problems that it faces. One of the skills of thinking, is critical thinking. Critical thinking belongs to the higher-level thinking. Critical thinking is an evaluative thinking, evaluation results can be either acceptance or rejection of a information. As stated Fieldman (2002), that critical thinking includes measures to evaluate the situation, problems, arguments, and choose the pattern of investigations that produce the best possible answer. It is also stated by kurfiss (Inch 2006) that critical thinking is an assessment whose purpose is to assess a situation, phenomenon, questions, or concerns to get a hypothesis or conclusion that integrates all the information available so it can be justified with confidence.

Critical thinking is a complex process, and if done properly will help in assessing the complex ideas systematically, so that the problem is easier to solve. According Lillasari (2009) and Johson (2007), that the critical thinking skills using basic thinking analyze the arguments and bring insight to each interpretation, to develop a pattern of reasoning that is cohesive and coherent, the ability to understand the assumptions, formulating a problem, do deduction and induction, as well as taking the right decision. Thus the critical thinking skills are skills that are cognitive fairly high.

The ability to think can not be changed in a short time, but should be continuously and carefully planned (Zubaidah, 2008). The ability to think can be enhanced with a variety of strategies or methods of learning. But in reality, at various levels of education in Indonesia, the learning has not become a means to develop the critical thinking skills of students so that the students' critical thinking skills are low. As stated by Ewie (2010); Hashim (2010) that the other factors that lead to low quality of science education is the lack of development of critical thinking skills in elementary school through college. The same thing also expressed by Rusyana et al. (2011), that in Indonesia critical thinking skills have not been developed to improve the quality of science education.

Critical thinking skills of students can not be separated from metacognitive skills, because the metacognitive skills is a basic component of critical thinking (Weissinger, 2004).
Metacognitive plays an important role in determining the success of student learning, because the metacognitive allows a person to manage cognitive skills, and be able to know the progress and shortcomings so as to determine the cognitive strategies that will be taken. Students who are aware of metacognitive, in other words to have a good critical thinking skills, then learn well and effectively so that it will help to plan and control the learning results. As stated Zubaidah (2008), that the lack of motivation and the critical thinking skills students will result in low learning outcomes. Susantini et al. (2008), also stated that through metacognition students to become independent learners, foster honest attitude, dare to admit mistakes, and can improve learning outcomes. The results of the study Lestari et al. (2013), that increase students’ critical thinking skills indirectly followed by the learning outcomes. Based on the above, This study aims to know is there any correlation between the critical thinking skills of students of biology education University of PGRI Ronggolawe Tuban, with their cumulative achievement index (CAI).

II. RESEARCH METHOD

This study is correlational study, to determine the relationship between the critical thinking skills of students with their cumulative achievement index (CAI) who are they have acquired. The population in this study were all student of Biology Education Departement, University of PGRI Ronggolawe Tuban. While the sample was student class of 2014, with the number of student 55 people. Instruments to measure students’ critical thinking skills is an essay test on the subject of cell biology. Critical thinking skills measured in this study is the average of the three aspects of critical thinking is observed, namely, the analysis, interpretation, and explanation. CAI in this study is a performance index derived from the values for two semesters. This data was obtained from documentation in Biology Education Departement. To determine the correlation between these two variables, the data were analyzed by Pearson correlation

III. RESULT AND DISCUSSION

Data on students’ critical thinking skills, can be seen in Table 1.

Table 1. Scores Critical Thinking Skills of Students

<table>
<thead>
<tr>
<th>No</th>
<th>Score</th>
<th>category</th>
<th>Amount (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0 – 40</td>
<td>Very less</td>
<td>41</td>
</tr>
<tr>
<td>2</td>
<td>41 – 54</td>
<td>Less</td>
<td>29</td>
</tr>
<tr>
<td>3</td>
<td>55 – 65</td>
<td>Enough</td>
<td>21</td>
</tr>
<tr>
<td>4</td>
<td>66 – 83</td>
<td>Good</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>84 – 100</td>
<td>Very good</td>
<td>0</td>
</tr>
</tbody>
</table>

From Table 1, it can be seen that 40% of the students have the critical thinking skills to the category of very less, 29% less, 21% enough category, only 9% have good category, and no student has the critical thinking skills with very good category.

Data on cumulative achievement index (CAI) can be seen in Table 2.

Table 2. Cumulative Achievement Index (CAI) of Students

<table>
<thead>
<tr>
<th>Amount (%)</th>
<th>CAI ≥ 3.00</th>
<th>CAI ≤ 3.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>89.09</td>
<td>10.91</td>
<td></td>
</tr>
</tbody>
</table>

From Table 2, it can be seen that the majority of students had a CAI ≥ 3.00, while students who have a CAI of ≤ 3.00 is at a very small portion, ie 10.91%. Average Critical thinking skills of students can be seen in Table 3. From the table it can be seen that the average students’ critical thinking skills that are in the category of less with the average score was 50.55.

Table 3. Average Score of Critical Thinking Skills and Cumulative Achievement Index (CAI)

<table>
<thead>
<tr>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
</table>

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From Table 3, it can be seen that the average score of students' critical thinking skills was 50.54, with less critical categories. While the average CAI of students is 3.23.

The results of data analysis on the correlation between the critical thinking skills of students with a cumulative achievement index can be seen in Table 4. The results of data analysis using Pearson correlation, obtained significance value of 0.800 where the value is greater than the value α of 0.05 (Table 2). This means there is no correlation between the critical thinking skills of students with CAI they earn.

Table 4. Results of Data Analysis on the Correlation Between Critical Thinking Skills and Student Cumulative Achievement Index with Pearson Correlation

<table>
<thead>
<tr>
<th>Critical thinking</th>
<th>Average score of critical thinking</th>
<th>CIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>.035</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>5252.714</td>
<td>5.070</td>
</tr>
<tr>
<td>Sum of Squares and Cross-products</td>
<td>97.272</td>
<td>.094</td>
</tr>
<tr>
<td>Covariance</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>N</td>
<td>55</td>
<td>55</td>
</tr>
</tbody>
</table>

There are several possibilities, which caused no correlation between critical thinking skills with the CAI. Firstly, that the final value is obtained by the students is the accumulated value of many components, these are the daily tasks, presentation, value midterms, final exams, in equal portions. In other words that the assessment made in the form of authentic assessment. Authentic assessment is a comprehensive assessment conducted to assess the start of the input (input), process (proces), and output (output) learning (Rehusisma & Indriwati, 2014). According Mulyasa (2013), that authentic assessment on the curriculum in 2013, which focuses on knowledge through capability-based assessment be output through the assessment process, portfolio and thorough assessment intact output.
Djulia (2012), states that authentic assessments are necessary to achieve student competence in plenary, which includes personal competence, social, pedagogical, and professional competence.

The application of authentic assessment means to record and appreciate all the activities done by the students during the learning process. It is as stated Corebima (2004), that some of the characteristics of authentic assessment are: 1) It is an integral part of learning in the classroom, 2) use a lot of size, methods, criteria, and 3) is comprehensive and holistic. The importance of evaluating alternatives to traditional evaluation (midterm and final exams), also expressed by Hill (1994), that if the main purpose of learning to create liveliness, independence, and regard learning as a process of lifelong, then the evaluation for traditional as well as the test results learning alone is not enough as an evaluation tool.

Daily tasks and presentation which is one component in determining the student's final grades are generally in the form of the task group, while critical thinking skills are measured individually. In the group tasks, assessment consists of group values and individual values. In the group values all members have the same value, while the value of the individual is a value obtained personally. With the value of the group allows students who have low values be helped so that the final value for the better. Nurhadi, et al. (2004) states that the cooperative learning consciously creating mutually beneficial interaction between the students of the other students. Learning resources for students not just teachers and textbooks but also fellow students.

Another thing that might be cause there is no correlation between critical thinking skills with CIA of students is the questions given to students, both about the midterm and final exams are less demanding advanced thinking abilities such as analysis, synthesis, and evaluation. As stated Lewis and Smith (1993), that critical thinking is a part of high-level thinking. Higher-level thinking that we associate with Bloom cognitive included into C4 (analysis), C5 (synthesis) and C6 (evaluation). According Inch (2006) Critical thinking is a process whereby a person tries to answer rational questions can not be answered easily and where all relevant information is not available. Because of the problems given to students less challenging and explore the potential of higher thought, then all students who have the ability to think better and are less, able to work on such questions. Thus they both scored equally well.

Another factor, which may be because the lack of correlation between the critical thinking skills of students with grade point average is an approach to assessments by the lecturer. In general, lecturers give an assessment using the approach of the norm referenced evaluation, not approach criterion referenced evaluation, so scoring becomes more flexible. On the norm referenced evaluation scores obtained by students compared to scores obtained classmates, while the criterion referenced evaluation approach, the score is compared with the criteria established by the lecturer. When the assessment as a basis for determining graduation or final grades of students, then in a classroom that has an average of less critical thinking skills or academic ability is low, the percentage of students passing will be very small. So the criterion referenced evaluation approach would be difficult to implement. In this research, critical thinking skills of the students were in the category of very less and less to the total number for both is 70% (Table 1), while the average critical thinking skills of the students were in the category of less (Table 3). According to Arifin (2009), that criterion referenced evaluation approach suitable for use in the evaluation that serves to improve the learning process.

In addition, other factors can also cause no correlation between critical thinking skills with a cumulative achievement index (CIA) obtained student is the critical thinking skills of the students themselves. Table 1 shows that the critical thinking skills of students is less varied, 70% are in the category of less and very less, 21% of which are in enough categories, and only about 9%, which is a good category.

IV. CONCLUSION

The results of this study concludes that there is no correlation between critical thinking skills with a Cumulative Achievement index of a student of biology education, University of PGRI Ronggolawe Tuban class of 2014.
REFERENCE
