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“Assessment for Improving Students’ Performance”

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Foreword of the Chairman

Assalamualaikum wr. wb.

Good morning ladies and gentlemen.

Praise be to Allah who has given abundant blessings so that we can hold this international conference.

This conference is aimed at improving the quality of assessment implemented in schools and other institutions. The quality of assessment determines students' ways of learning, so that it is hoped that the quality of education improves. Besides, this conference is a means of information exchanges in the forms of seminars dealing with results of research in educational assessment and evaluation. The expectation is that there is always improvement in educational assessment and evaluation methods, including in it is the instrument – both cognitive and noncognitive instruments.

The participants of this conference are the lecturers and teachers who teach educational assessment and evaluation, practitioners of assessment and evaluation, and researchers of assessment and evaluation. This conference can be held in cooperation with the Graduate School, Yogyakarta State University, Association of Educational Evaluation of Indonesia (HEPI), and Centre for Educational Research, Ministry of Education and Culture of Indonesia, supported by the Australian Council for Educational Research (ACER), Intel, Intan Pariwara Publisher, and many other institutions. For this reason, on behalf of the Organizing Committee, I would like to thank the Rector of Yogyakarta State University, Prof. Dr. Rochmat Wahab, M.Pd., M.A., and the Director of Graduate School, Yogyakarta State University, Prof. Dr. Zuhdan Kun Prasetyo, M.Ed., and all other institutions for their assistance and contribution that have made this conference possible. I would like to thank HEPI's Local Coordination Unit and all sponsors for supporting this conference and also all the audience for participating in this conference.

To the committee members, both in Jakarta and Yogyakarta, I would like to thank them for the hard work they have performed and for the togetherness so that this conference can be held.

Last but not least, we apologize for all the inconveniences you might encounter during this conference. Please enjoy the conference.

Wassalamu’alaikum wr. wb.

Prof. Djemari Mardapi, Ph.D.
Foreword of the Chairman of Himpunan Evaluasi Pendidikan Indonesia (HEPI)

Assalamu'alaikum Wr. Wb.

Indonesian Association for Educational Evaluation (HEPI) is a professional organization in education holding in the high esteem the principles of professionalism and knowledge development in the field of educational and psychological measurement, assessment, and evaluation. HEPI was established in November 19, 2000 in Yogyakarta, with a vision to become a professional organization that excels in the field of evaluation and measurement in education and psychology in Indonesia. Its mission is to develop up-to-date methodologies of evaluation, assessment, measurement, and data analysis in education and psychology, as well as studies of policies and technical implementation of the field for improving Indonesian education quality.

As a professional organization, HEPI brings together experts, practitioners and interested persons in the field of evaluation, assessment, and measurement of education, psychology and other social sciences. HEPI is open to anyone who has the interest the field with no restriction in terms of educational background and working experiences. Hopefully, through HEPI, members of the association can sustainably develop themselves as professionals. The existence of HEPI is also expected to contribute to the improvement of the quality of national education through research, consultancy, seminar, conference, publication, and training for members of the organization and for public audiences.

HEPI organizes annual workshop and conference in cooperation with the Regional Chapter of HEPI and universities. In 2016, for the first time HEPI organized International Conference on Educational Research and Evaluation: Assessment for Improving Student’s Performance in May 29-30 2016 in Yogyakarta. This conference is jointly organized by HEPI and Yogyakarta State University and supported by the Center for Educational Assessment the Ministry of Education and Culture, Australian Council for Educational Research (ACER), INTEL Indonesia, and Intan Pariwara Publisher.

It is important to note that the choice of the HEPI 2016 conference theme is driven by the fact that the quality of our national education is still under expectation as shown by the results from School National Exam and international surveys conducted by some international agencies. HEPI believes that a number of factors contribute to the low quality of national education, including low teacher’s knowledge and skills in classroom and school assessment. Therefore, improving the competence of teachers in classroom and school assessment is urgently required. In this context HEPI as a professional organization and individual members of the organization have to play an active role in improving teachers’ competence in quality learning assessment.

In line with 2016 conference theme, HEPI invited two respected guest speakers, namely, Professor Geoffrey Masters, Ph.D., Director of the Australian Council for Educational Research (ACER), who presented a paper on Assessment to Improve Student Competency and Professor Frederick Leung, Ph.D., from the University of Hong Kong, who delivered a paper on the International Assessment for Improving Classroom Assessment.

As a tradition, in 2016 conference HEPI organized two pre-conference workshops. The first workshop is on the conceptual introduction of Rasch model by Jahja Umar, Ph.D., senior lecturer at the Faculty of Psychology, State Islamic University Jakarta and the second workshop was delivered by Heru Widiatmo, Ph.D., researcher at American College Testing (ACT) Iowa, United States on Measuring Higher Order Thinking Skills (HOTS).

On behalf of HEPI, I would like to express my heartfelt gratitude to Rector of the Yogyakarta State University, invited speakers, resource persons, HEPI regional chapters, sponsors, speakers, participants, invited guests, and organizing committee who have worked hard in making this international conference a success. Thank you very much for your participation and support and we are looking forward to seeing you in the next conference.

Last but not least, we hope that all of us get much benefit from this conference for enhancing Indonesian quality education through quality assessment.

Wassalamualaikum wr. wb.

Chairman,
BAHRUL HAYAT, Ph.D.
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IDENTIFICATION CRITICAL THINKING SKILLS OF SMA MUHAMMADIYAH 1 BANJARMASIN STUDENTS TO THE MATTER DYNAMIC ELECTRICITY

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Abstract: The study is done to identify the critical thinking skills of students in senior high school. This study is aimed to describe the critical thinking skills students covering five skills, standard clarification, standard endorsement, conclusion (inference), advanced clarification, and strategies and tactics. The research is descriptive quantitative research by giving test critical thinking skills to students of multiple choice. The research was conducted in SMA Muhammadiyah 1 Banjarmasin. The subject research was tenth grade students at SMA 1 Banjarmasin in the academic year 2015/2016. The researcher took 30 students as the sample. The result showed critical thinking skills that students at elementary clarification by 95.83%, basic support by 56.67%, 76.67% by inference, advanced clarification 3.33%, and strategies and tactics of 95.83%. The result shows that students have a good score on standard clarification, conclusion (inference) and strategies and tactics, but still low on standard clarification and advanced clarification.

Keywords: identification, critical thinking skills.

I. INTRODUCTION

The essentially of physic is a collection of knowledge, ways of thinking, and investigation. Physics is seen as a process and a product (Prasetyo, 2004: 31) ¹. Physics on recited the objects of the research in the form of things and natural events is using standard procedures that is called the method or scientific process. Therefore, the learning process and learning outcomes assessment physics should reflect the scientific characteristics (Mundilarto, 2010: 4) ².

According to Ennis (Costa, 1985: 54) ³, critical thinking is rational and reflective thinking that is focused on what is believed and done. Rational means having faith and a view which supported by the evidence standard, actual, fairly, and relevant. Reflective means considering actively, diligently and carefully of all the alternatives before making a decision. It means that critical thinking requires the use of multiple strategies to produce a decision as a basis for taking action or belief.

Furthermore, Scriven (Fisher 2009: 10) ⁴ argues that critical thinking is the interpretation and evaluation of skilled and active versus observation and communication, information and arguments. Critical thinking teaches learners to think about how they make a conclusion, defend positions on complex issues, consider the various kinds of viewpoints, analyze concepts, theories and explanations, explaining the issues and conclusions, solve problems, move the idea to the new context, examine assumptions, assessing the facts, and explore the implications and consequences, and getting to know the contradictions and inconsistencies in their own thoughts and experiences (Paul & Elder, 2007: 8) ⁵.

Ennis and Noris (Nitko, 2008: 74) ⁶ divided the components of the ability to master knowledge into five skill, hereinafter referred to as critical thinking skills, those are:

1. Elementary clarification, include: focusing on the questions, analyzing the arguments, asking and answering questions that require clarification or challenge.
2. Basic support, include: considering the credibility of the resource and deliberation of observation.
3. Inference, include: conducting and considering the deduction, induction, the decision of values.
4. Advanced clarification, include: identifying the technical term, considering the definition, and identifying the assumption.
5. Strategies and tactics, include: determining an action and interacting with the others.

Based on the statements above, it can be concluded that the critical thinking skills are a high level thinking skills by using of knowledge to take an action or decision. With the critical thinking students are trained to connect the concepts to new situations, making inferences, analyzing, evaluating, and implementing a strategy. In this study, the indicator of critical thinking skills can be seen in the Table 1 below:

<table>
<thead>
<tr>
<th>Critical Thinking</th>
<th>Basic of Critical Thinking</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Clarification</td>
<td>Analizing the arguments</td>
<td>To find the similarities and the differences</td>
</tr>
<tr>
<td>Standard Endorsement</td>
<td>Considering the credibility a resource</td>
<td>To capable giving a reason</td>
</tr>
<tr>
<td>Conclusion (inference)</td>
<td>Making the deduction and considering the induction</td>
<td>To make a generalisation</td>
</tr>
<tr>
<td></td>
<td>making and considering the decision of values</td>
<td>To make a conclusion and hypothesis</td>
</tr>
<tr>
<td>Advanced Clarification</td>
<td>Defining a technical term</td>
<td>The application of principles</td>
</tr>
<tr>
<td>Strategies dan Tactics</td>
<td>Deciding an action</td>
<td>To formulate the possibles' alternatives</td>
</tr>
</tbody>
</table>

II. RESEARCH METHODS

The type of this study is descriptive research. The data of research is conducted in class X SMA Muhammadiyah 1 Banjarmasin with 30 students of the total population. The purpose of the study was to describe the critical thinking skills of students including five skills, those are the standard clarification, standard endorsement, conclusion, advanced clarification, and the strategies and tactics. The research is descriptive quantitative by giving tests of critical thinking skills to students. The test method was used to obtain the data of the students ability in critical thinking skills to solve the physic examinations of dynamic electricity. This study used the multiple choice test. The students did the test in 90 minutes, after that the researcher did the analysis of the students answers. The results of the analysis are used to describe the thinking skills of students. To gain the standard of mastery score criterion - Kriteria Ketuntasan Minimal (KKM) of indicator, the following formula is used:

\[ \text{KKM of indicator} = \frac{\sum \text{indicator score achieved by students}}{\sum \text{maximum score}} \times 100\% \]

III. RESULT AND DISCUSSION

The results of 30 students who did 25 test item of critical thinking skills are described in the following table:

<table>
<thead>
<tr>
<th>No</th>
<th>Critical thinking skills</th>
<th>KKM of Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Standard clarification</td>
<td>95.83%</td>
</tr>
<tr>
<td>2</td>
<td>Standard endorsement</td>
<td>56.67%</td>
</tr>
<tr>
<td>3</td>
<td>Conclusion</td>
<td>76.67%</td>
</tr>
<tr>
<td>4</td>
<td>Advanced clarification</td>
<td>3.33%</td>
</tr>
<tr>
<td>5</td>
<td>Strategies and Tactics</td>
<td>95.83%</td>
</tr>
</tbody>
</table>

The Thinking skills is an important thing that must be held by students for the development of science and technology nowadays. One of the purpose of learning physics is able to solve
problems related to life activities in everyday. Solving the problem was required a high level of critical thinking skills. The critical thinking skills of a student would be helpful to make an appropriate decisions, accurate, systematic, correct and logical to consider the different of perspectives or aspects.

The estimate of critical thinking skills is held after the students have learned the materials about dynamic electricity. The students in standard Clarification and the strategies and tactic got the highest indicator of the KKM. The students in the standard clarification that included to analyze the arguments, this aspect got a mastery score of 95.83%. The result showed that students are able to analyze the arguments. In the aspect of strategies and tactics that include determine a course of action, this aspect got a mastery score of 95.83%. The result showed that students are able to use the aspect of strategies and tactics. The lowest score of critical aspect of is in the advanced clarification aspect, this aspect got a score of 76.67%. The result was indicated that most of the students were not able to make an induction and consider the induction. In the aspect of standard endorsement is concluded to consider the credibility of a source of students, they only got 56.67% of mastery score of indicator. The lowest of aspect of critical thinking skills was in advanced clarification, the aspect got 3.33% of mastery score (KKM) of indicator.

Students are still not able to provide in the standard clarification dan in advanced clarification. So students have not been able to give a reason in considering the credibility of a resource and in the aspect of dentifications aspects. The critical thinking skills of students was not reached because the learning that has not been aimed at improving critical thinking. To improve critical thinking skills, can be trained continuously. Because only with exercise, the students can make the critical thinking skills becomes a habit. Critical thinking is a habit of thinking that should be instilled from an early age. And everyone has the ability to be critical thinkers reliable. Critical thinking can help anyone to be understand how to observe themselves, how the students see the world, and how it relates to the others, helping good attitude and the behavior, and evaluating themselves. The critical thinking allows anyone to analyze they own thoughts to ensure that they have the choice and making the best intelligent best conclusions. Meanwhile, people who do not think critically, they can not decide for themseve what they thinking about, what they believe and how to act. Because of having failed to think independently, they would imitate the others, adopted their ideology and accepting the conclusions of others passively.

Student-centered learning allows the discussion. Discussions is one effective way to train and develop the critical thinking skills of air, because: (1) through discussion, students share opinions, thinking perspectives, and gain the experience; (2) through discussion students may consider, reject or accept its own opinion as well as opinions of other students to conform to answer or opinion of the group; and (3) through discussions also the students can make adjustments or reduce barriers between himself and another student so that he is free to think and act. Interaction among students, students and teachers made in the discussions is very influential on the growth and development of students' critical thinking dispositions (Lambertus, 2009)[7]. The thingking skills will be trained continuously (continuous) until it become sa habit, so when students are in the problem, they can make decisions quickly, accurately, and efficiently. The thinking skills is becoming a provision for students to compete in the era of globalization.

IV. CONCLUSION

This results of the data indicated that students have a good score in standard clarification, conclusion (inference) and strategy and tactics aspects, but still low on standard endorsement and advanced clarification. The aspects of critical thinking skills to be uneven mastered by students. The critical thinking skills must be trained continuously, until it becomes a habit. This habit will be the basic attitude, and ultimately formed the disposition of critical thinking.

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