Assessment of Teaching In 21ST Century

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Abstract. Assessment is a process to collect the data focused to make decision about an object, it is developed suitable with the industrial revolution. The objective of the study to explain of assessment of teaching in the 21st century. The study was qualitative by using library research approach, it focused in making decision process and analyze the relationship of a dynamic phenomenon with logical scientific. The finding noted three keys of assessment contents: the complex competences of assessment, the value of outcome accomodate full range beside cognitive and academic achievement, and focus of interaction will end up of assessment.

Entering a new world in 21st century, the characteristic of teaching in this era are: performance in thinking critically and solve the problem, innovative and creative, collaborative and cooperative learning, teamwork, leadership, build the understanding of cross culture, communication and information, media and literacy, ICT, and career and learning self-reliance. One of assessment model in this era is teaching assessment based HOTS. It designs to develop critical and creative thinking skills and positive character for students.

1. Introduction

At the beginning of the microcomputer era, it realized Personal Computer (PC) which contain a book called Mindstorm. The writer was Seymour Papert, it has an important message for education. He predicted by introducing this PC as an engine to develop children mind and education provider would continue old assessment to reform following the revolution era. The term of ‘digital native’ is a description for children who were born in this century and they will grow up in a digital world (in Yusuf, I., Widyaningsih, S. W., & Purwati, D., 2015). A new skill is needed by children in the 21st century, it covers digital literacy. Model of teaching changed because the students will be active players in teaching activity not passive receiver information.

21st Century marked by the development of information, computers, automation, and communication which penetrate human being in the world. Automatically it has the effect to an educational system which applied including a model of teaching. The system should effort to adapt all of demands 21st century. Model of teaching in industrial revolution should be prepared some skills like be an autonomous learner, problem-solving, analytical thinking in making decision, and cooperative in solving the problem (Lambert, J., & Cuper, P., 2008)).

The phenomena of teaching in 21st, teacher or lecturer should care in standard quality like content, process, and assessment to produce an output which critically and creatively. For assessment, we need...
to focus on measuring, instruments, and the way to scoring and evaluating. Assessment and teaching cannot separate, both integrated into one system. Quality of teaching can be seen in the quality of assessment. For this reason, it needs a model assessment which suitable with paradigm and model of teaching in the 21st-century era.

Educational context today uses term ‘assessment’ more than past time. It uses together with evaluation and measurement. Berk, R. A. & Popham, W. J. (1995) stated the definition of evaluation and measurement is different. Evaluation is included all process to make decision like good or bad, useful or useless. Measurement is an action to determine the extent someone has certain attributes. It can conclude if the measurement is status determination and evaluation is worth determination. Assessment categorized same with evaluation, it is more polite than the term of evaluation (Dantes. N. 2008). According to Silvia and Ysseldike (1994) assessment is process to collect the data focused to make decision about an object. It is a final and formal way to determine an object on measuring all aspects of the teaching process (Uhl, D. M. A., 2012). The assessment gives decision to students success or not in learning. The result can be followed up to evaluate the teaching process to be better in the future.

The claim of education is the formation of competence to students. It is need improvement in teaching include assessment. Assement based competence did to measure someone skill. The competence is an individual attribute of students, therefore assessment based competency is individual, it called assessment based class (Akib, E., & Ghafar, M. N. A., 2015). This is used authentic assessment to prove real competence of students. Authentic assessment is on going, it applies in a process of teaching by instruments covering indicators and competence.

2. Method

The study was qualitative by using library research approach, it focused on making the decision process and analyze the relationship of a dynamic phenomenon with logical scientific. The data collected from books, academic paper, proceeding, and factual information without field study, it obtained from the library, academic seminar, and academic online resource like journals in google scholar. The result showed argumentation and reasoning after comparing some resources which related to the topic. The topic is about the assessment of teaching in the 21st century. The data analyzed with content analysis and description. Content analysis is the way to study the meaning of resources which has the correlation with assessment, and description is a way to give explanations of data.

3. Discussion

3.1. Contents of Assessment in 21st Century

In 2013, the Gordon Commission introduced and recommended the a suggestion “Future Assessment in Education, it is supported in 2014 of Pearson Paper “The preparation for a renaissance in assessment”. The finding focused of three keys of assessment contents (Bialic. M at all, 2016):

1. The competencies of assessment is must be fully represent with the complex world demands
2. The value of outcome assessment is must be accommodated with fully range and not only focused by cognitive or academic but comprehensive.
3. The focus of interaction will end up of assessment

The basic of assessment was developed by analyzing and synthesizing the need assessment of the 21st century, and supports a multi-dimensional, holistic view of the learner (Bialic. M at all, 2016). In aligning assessments to help students and employees meet the challenges of an increasingly complex world, it is important to note that current knowledge areas covered in curricular subjects will need to be carefully redesigned in order to include modern disciplines as well as a select set of traditional
disciplines, with options for interdisciplinary exploration and themes woven throughout (Bhattacharya, S., Zhang, Q., Carmichael, P. L., Boekelheide, K., & Andersen, M. E., 2011). The experts agree of three dimensions is need to cover of assessment including multi skills, basic characters, and metalearning, it is illustrated of figure 1.

**Figure 1.** The Dimension of Assessment covered knowledge, skills, and character

3.2. Skills-Based ICT in the 21st century

The paradigm of 21st century emphasizes the students skill in critical thinking, collaboration, and problem-solving. The achievement of skills will be achieved with the teaching method which supporting knowledge and skill (Darling-Hammond, L., 2006). The competence to correlate between knowledge and real life can be done by inviting students to see the true world.

Entering the new world in the 21st century, the characteristic of teaching in this era are:

1. The ability of thinking critically and solve the problems.
2. Building the creativity and innovation.
3. Collaboration, teamwork, and leadership.
4. Cross-culture understanding, communications, information, and literacy media.
5. Computing and ICT literacy.
6. Career and learning self-reliance.

The implication of paradigm changing in education has features to be a unique principle. The principles brings changing of learning: 1) teacher center to students center, 2) form one direction toward interactive, 3) from isolation to a networking environment, 4) from passive to active, 5) abstract to the real life, 6) from individualism to collaborative team, 7) civilize the law of attachment, 8) form single stimulation to all direction of stimulation, 9) from single media to multimedia, 10) form single direction to cooperative, 11), from one knowledge and technology in multi-discipline, 12) from central control to autonomous learning, 13) from factual to critically, and 14) from delivery of
knowledge towards the exchange of knowledge. To face the 21st century, there are four skills category which needs:
1. Smart ways in thinking to build our creativity, the ability of thinking critically, solving the problems, and decision making.
2. Ways of working and communication
3. Tools of working covered ICT and literacy
4. Multi talent in the world living; covering civil education, career, personal responsibility, social and culture including cultural awareness and competence.

Besides that, there are some characters of teaching need to build in the 21st century like;
1. Communication; the students prosecuted knowing, managing, creating of effective communication in any content of skill like speaking, writing, and multimedia.
2. Collaboration; the students showed their ability in group cooperation and leadership, adapting in any role and responsibility, productive workers, empathy, and respect of different opinion.
3. Critical thinking and problem solving; the students undertake logical reasoning in understanding complex problems and self-controlling.
4. Creativity and innovation; the students have the skill to develop, apply, and giving suggestion in the formal meeting.

3. The role of assessment in developing skills in 21st century
The standard-based assessment gives an empirical perspective to assess performance and it becomes a basic policy in decision making (Lockie, S., 2001). The purpose of assessment becomes standard to achieve the goals for accountability, selection, placement, evaluation, diagnosis, and revision. The effects of assessment in the past time will give some contributions;

a. Assessment will a priority in evaluating curriculum and teaching, visibility function will be focused on a content standard of education.
b. Teachers dominant use pedagogic approach model with higher visibility based assessment
c. The instruction used focusing on cognitive skills
d. Development of curriculum for commercial purpose will use assessment as the basic reason to modify all books and teaching materials for business.
e. The teacher will focus on contents standard and teaching purpose, not for examination aspects material.
f. Design of assessment development should combine teaching materials based on research findings in the teaching process and increasing it to create the new generation.

3.3. Higher Order Thinking Skills (HOTS) for Assessment Model in 21st century
The definition of higher order thinking skills (HOTS) defined by some experts, Edwar and Briers (2000:2) based on Bloom Taxonomy explained HOTS showed intellectual level complex function. Bhisma Murti (2011:2), Robinson (2000:3), defined HOTS including teaching skill and strategy. It used to give reasoning, creativity and innovation in thinking, making of decision, and solve the problems. It can be concluded definition of HOTS is higher thinking level skill which needs complex thinking like applying, analyzing, evaluating, and creating. It is supported skills like understanding to support the ability of critical thinking, giving the logical reason, systematic, and practical, skill in problem-solving, making decision, and skill in creating a product. In developing HOTS, students should have basic knowledge, remembering, comprehension, and understanding. It is showed by the framework of HOTS below (Widihastuti, 2015);
According to Thomas and Thorne (2010), HOTS can be developed for children and adults. It is supported by More and Stanley (2010: 7), they stated intelligence is nature and thinking is a skill developed by teaching. Thinking skill is very important to develop by the human being. HOTS have to belong for everyone to prepare our human resources which critically and creative, they will face globalization era in the 21st century where people need multi intelligent skill to still survive in this era.

Teaching model of 21st century become an important reason to develop an assessment which suitable the information era. One of assessment model in this era is teaching assessment based HOTS. It designs to develop critical and creative thinking skills and positive character for students. Assessment model designs to help students increasing positive habits, training, and HOTS. It can integrate all subjects in university. Teaching assessment based HOTS can apply in 21st teaching which improves critical and creative thinking skills and powerful character to prepare our human resources in the 21st century. The characteristic for this assessment are:

1. Assessment process integrated with ongoing teaching procedure.
2. Assessment process involved four elements like sharing learning goal and success criteria, using effective questioning, self-assessment and self-reflection, and feedback.
3. Assessment process purposed to increase and develop HOTS, attitude and positive character and improving the quality of teaching.
4. Assessment process focused skills in applying, analyzing, evaluating, and creating to help students in critical thinking, logical reason, analytic and systemic, problem solving, making decision, and creating something not only remembering the subjects.
5. Teachers can give problems to the students for discussion material and problem-solving to help their thinking activity.
6. Assessment activity can be done with some activities like discussion, field activity, practical work report and the students asked to evaluate their self-activity.
7. The assessment can improve the students' motivation.
8. Assessment activity involves the students doing self-assessment and self-reflection to measure their material mastery.
9. Assessment activity can give corrective feedback to the students.
4. Conclusion

The finding noted three keys of assessment contents; the complex competences of assessment, the value of outcome accomodate full range beside cognitive and academic achievement, and focus of interaction will end up of assessment. Entering the a new world ini 21st century, the characteristic of teaching in this era are; critical thinking and problem solving, creativity and innovation, collaboration, teamwork, and leadership, cross-culture understanding, communications, information, and literacy media, computing and ICT literacy, and career and learning self reliance. One of assessment model in this era is teaching assessment based HOTS. It designs to develop critical and creative thinking skills and positive character for students. Assessment model designs to help students increasing positive habits, trying, and HOTS. It can integrate to all subjects in university.

5. References

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