

Elementary Teacher Profile about Assessment of Higher Order Thinking Skills (HOTS) in 2013 Curriculum

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Abstract. Higher-order thinking test developed as an instrument to measure student skills based on Bloom Taxonomy of Cognitive level, there are analyzing, evaluating, and creating. Higher order thinking includes critical, logical, reflective, metacognitive, and creative thinking. In 2013 curriculum, the subjects is integrated with others and the learning is directed to use the scientific approach includes observing, asking, trying, negotiating, communicating, and creating. Higher order thinking skills is integrated with scientific approach which is a level analyzing (observing, trying, and negotiating), evaluating (observing and communicating), and creating. The research objective is to know the profile of elementary school teacher about assessment of Higher Order Thinking Skills (HOTS) for elementary student based on the implementation of 2013 curriculum. The method is qualitative research. The data collected from interviewing elementary teacher and observing in the learning process. Based on the result of interview and observation, the elementary teacher comprehension about assessment of higher order thinking skills still not developed optimally by the teachers.

INTRODUCTION

Along with the implementation of the 2013 Curriculum, the government has planned a set of rules and infrastructures that support to achieve the expected goal, there is prepare Indonesian people to have the ability to live as individuals and citizens who are faithful, productive, creative, innovative and affective and be able to contribute to life society, nation, nation, and world civilization [1]. The creation of productive, creative and innovative Indonesian people beings can be realized through the implementation of learning that can be implemented in various scopes, and documented in the guidebook, the teacher book and student book. The learning that can be applied is the learning that can support students to face the challenges of the 21st century, one of them is high-order thinking (Higher Order Thinking). To fulfill this the role of a teacher is as a facilitator in learning.

The 2013 curriculum has adopted Bloom's Taxonomy revised by Anderson, there are level of knowing, understanding, applying, analyzing, evaluating and creating. In the 2013 curriculum it uses a scientific approach. In accordance with the SKL in the curriculum of 2013 it has been mentioned that in the cognitive aspect the student must have (through observing, asking, trying, processing, presenting, reasoning, creating) effective and creative thinking and action in the abstract and concrete realms as assigned to them [2]. Because the demands of the 2013 curriculum to the level of creating, then the teacher must also prepare instruments that support the high-level thinking process, among others, analyze, evaluate, and create in accordance with scientific approach applied to the activities of reasoning, communicating, and creating. This indicates that the student's graduation standard already covers at a high level of thinking. High-level thinking skills are determined from the breadth of mind use for new challenges [3].

Higher order thinking includes critical, logical, reflective, metacognitive, and creative thinking [4]. These skills are activated when students of any encounter unfamiliar problems, uncertainties, questions, or dilemmas. Higher order thinking has long been confirmed as a critical predictor of success, both in academia and the workplace [5]. Successful applications of these skills result in explanatinos, decisions, performances, and products that are valid within the context of available knowledge experience, and promote continued growth in higher order thinking, as well as the intellectual skills [6]. While the category of high-level thinking includes several aspects, there are: 1) analysis,

evaluation, creation, 2) logical reasoning, 3) decision and critical thinking, 4) problem solving, 5) creativity and creative thinking [7]. Thinking is an exercise and apply the cognitive ability, as posing, focus to answering the question, searching memory, processing information and evaluation potential solution to problems. The results of research shows that higher order thinking skills is the key in learning success. The research it's known that the students higher order thinking skills still low especially in a complex problem [8].

There is an urgent need to transform educators' beliefs, knowledge, and skills on assessing student achievement, since teaching to pass a test could impede knowledge transfer and deter the development of learners' higher order thinking skills. [9]. To do an assessment, needed an instrument in accordance with competence to be measured, effective, efficient, educational, objective and accountable. With an instrument assessment that can measure the capacity of higher order thinking skills, students will be called to analyze, evaluate, create, think critically, and logical reasoning [10]. But in fact, higher order thinking skills learning and assessment still not developed optimally by the teachers, then it is important to begin developing the assessment that can measure higher-order thinking learning outcome

In the learning process teachers not only teach, but they must be prepare all about learning, implement learning and evaluate. Teachers should be able to develop assessment instruments which used to assess the process and learning outcomes in students. A test that leads to high-level thinking skills can be given to encourage students to have these skills. Assessment of HOTS requires alternative forms of assessment to replace the standardized tests that measure only cognitive or content mastery. The common options suggested by researchers were multiple choice items, performance tests, and portfolios. [11].

Based on the results of interviews, questionnaires and observations conducted on grade 4 elementary school teachers in Boyolali sub-district who have implemented the 2013 curriculum it is found that many teachers are still confused in the assessment of the curriculum 2013. Teachers in assessing their daily learning can not be fully implemented because of constraints of time limitations. Some teachers already understand HOTS but it turns out in the execution of their assessment also has not applied it. Evident from the still many problems that are at the level of Lower Order Thinking Skills (LOTS). To reveal the knowledge that the students have in more depth, able to measure the high-order thinking skills of students, teachers should already understand the competence that must be achieved in the learning of students. So in preparing the assessment instrument in accordance with the level of students' thinking skills. With scientific learning that stimulates students to analyze and even create something new, HOTS has been applied in the 2013 curriculum. It is therefore important for teachers to know how to measure high-level thinking skills to assess whether their students have reached the appropriate level of thinking / in line with the curriculum or not yet.

METHODOLOGY

This research was qualitative. The design of this study was the real situation on the ground. Herdiansyah explains that the design of qualitative research is natural, in the sense that the researcher did not attempt to manipulate the background of the study, but did a study of a phenomenon in a situation with such phenomena exist. The method used in this research is interview, questionnaire, and observation. Moleong explains that the interview is a conversation with a purpose. The conversation was conducted by the two parties, namely interviewers and interviewees were asked questions that provide answers to the question.

In this study the subjects that the researcher who conducted the interview. While subjects in the interview that elementary teacher at State Elementary School in Boyolali sub district. There are 10 teachers. Interview questions in this study related to the comprehension, implementation and assessment higher order thinking skills of 2013 curriculum. that has been applied in many State Elementary School in Boyolali sub district. Sutarna describes the observation is a technique of datacollection by collecting data and information through observation or observation is done by exposing / see and / or hear the people or events. While objects in the observation is the instrument which used in First Term Test and instrument that used daily. Then the researcher analyze the level of cognitive domain which support in higher order thinking skills. Beside of that, the researcher collect the data from questionnaire which the elementary teacher in grade 4 in Boyolali sub district as the subjects.

RESULTS AND DISCUSSION

In implementation at school, many teachers don't understanding fully how to implementation 2013 curriculum on daily learning. Teacher's mindset still carried on the previous curriculum habits that have separated lesson from one and another. Add more, curriculum 2013 still developed that make teachers confused and difficult to adapt with all change and revision on curriculum 2013. Measuring higher-order thinking in Elementary Schools has not been fully implemented by teacher because they thought higher-order thinking measurement is harder than normally classroom assessment. They do not have enough ways to measure the skills.

Interview

Based on the results of interview with teacher class IV in elementary school in Boyolali Sub District who has applied 2013 curriculum, that many teachers still confused especially to do assessment for measure the result of student learning.

Questionnaire

Based on the result of questionnaire on some teacher, many teachers are not understand and some teachers hear it for first time. Higher Order Thinking Skills (HOTS) be something new in some teachers because its never implement in previous curriculum (KTSP). That is be the one causes for teachers that feel hard to develop instrument which use Higher Order Thinking Skills (HOTS). Generally teacher only teach in the daily use the guide book or text book of curriculum 2013 without develop the curriculum more deep. This is also occurred in the assessment process that teachers only use the question on the text book without developing it to the highest thinking levels.

Here are the indicators which in the questionnaire filled by 10 elementary school teachers in grade 4 in Boyolali sub-district below

TABLE 1. Questionnaire Result From the Teachers

| No | Indicator | Already understood and already implemented | Not really understand | Do not understand | Total |
|----|--|--|-----------------------|-------------------|-------|
| 1. | Understand the components of the assessment (affective, psychomotor, cognitive) | 4 | 5 | 1 | 10 |
| 2. | Knowing how to make an assessment instruments are developed in the 2013 curriculum | 3 | 5 | 2 | 10 |
| 3. | Be able to design and develop curriculum assessment instruments 2013 | 3 | 4 | 3 | 10 |
| 4. | Developing an instrument on LOTS and HOTS | 2 | 3 | 5 | 10 |
| 5. | Applying assessments that support high-level thinking skills in students | 1 | 4 | 5 | 10 |

Based on the table, we can conclude that many teachers still didn't know and didn't apply the instrument which support in higher order thinking. From 10 teacher who interviewed, most of them still not knew and developed about it.

Observation

Besides of interview and questionnaire results, this finding is reinforce with the observation result in the instrument assessment that use in First Term Test. The instrument that use in every theme, the content of the lesson is still separated and the level of the question also less varied because still 65% question is at the remembering, understanding, and applying level (Lower Order Thinking).

The Teacher`s overview that they can`t assess higher order thinking skills (HOTS) especially to developing that instrument assessment based on because it is less of socialization about HOTS in the teacher reach so that they have a little understanding in developing that instrument. The content in the guidebook also shallow and not yet considered to the level of higher order thinking skills.

CONCLUSION

To reveal the knowledge that the students have in more depth, able to measure the high-order thinking skills of students, teachers should already understand the competence that must be achieved in the learning of students. So in preparing the assessment instrument in accordance with the level of students' thinking skills. With scientific learning that stimulates students to analyze and even create something new, HOTS has been applied in the 2013 curriculum. It is therefore important for teachers to know how to measure high-level thinking skills to assess whether their students have reached the appropriate level of thinking / in line with the curriculum or not yet.

Based on the research result and discussion, can be concluded that many teachers still didn't know and didn't apply the instrument which support in higher order thinking especially in 2013 curriculum.

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REFERENCES

1. Fadlillah, M. *Implementasi Kurikulum 2013 Dalam Pembelajaran SD/MI,SMP/MTS, atau SMA/MA* (Ar-Ruzz Media, Yogyakarta, 2014)
2. Majid, Abdul. 2014. *Implementasi Kurikulum 2013*. Bandung : Interes Media. (P 28)
3. Shidiq, Ari Syahidul, Masykuri, Mohammad, and Susanti, Elfi. *Pengembangan Instrumen Penilaian Two-Tier Multiple Choice Untuk Mengukur Keterampilan Berpikir Tingkat Tinggi (Higher Order Thinking Skills) Pada Materi Kelarutan dan Hasil Kali Kelarutan untuk Siswa SMA/MA Kelas XI*. (Jurnal Pendidikan Kimia (JPK), Vol. 3 No. 4 Tahun 2014 Program Studi Pendidikan Kimia Universitas Sebelas Maret). p.85
4. King, F.J., Goodson, L. & Rohani, F., (2013). Higher order thinking skills. *Center for Advancement of Learning and Assessment*. Retrieved (A publication of the Educational Services Program, now known as the Center for Advancement of Learning and Assessment,
5. from: http://www.cala.fsu.edu/files/higher_order_thinking_skills.pdf
6. Jihyun, Lee, and Hyoseon Choi. *What Affects Learners's Higher Order Thinking in Technology-enhanced learning environments? The Effects of Learner Factors*. (School of Dentistry, Seoul National University, 2017)
7. E. Grondlund and R. Linn, *Measurement and Evaluation in Teaching* (Macmillan Publishing Company, 1990), p.201
8. Brookheart, Susan M. *How to Assess Higher Order Thinking Skills in Your Classroom*. (ASCD Alexandria, Virginia USA, 2010)
9. Gani T., Auliah A., Faika S., *Penguasaan Pengetahuan Deklaratif dan Kemampuan Berpikir Tingkat Tinggi Mahasiswa Prodi. Pendidikan Kimia. J. Chemica*. 12:1-9. (2011).
10. Kantar, Lina D. *Assessment and instruction to promote higher order thinking in nursing students*. (Rafic Hariri School of Nursing, American University of Beirut, 2013) p

11. Damayanti, Indah. Masykuri, Muhammad, Yamtinah, Sri. *Development of Electrochemistry Testlet for Measuring Higher Order Thinking Abilities for Student in Vocational High School*. (Proceeding The 2nd International Seminar on Chemical Education 2017. ISBN: 978-602-73192-1-9)
12. Nguyễn Thị M.T, and Nguyễn. Thị Thùy L. *Influence of explicit higher-order thinking skills instruction on students' learning of linguistics* . (Thinking Skills and Creativity, Vietnam National University, 2017) p 116

