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Higher Order Thinking Skills (HOTS) – Based Assessment: A Proposed Model for Arabic Learning

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Abstract: *The integration of higher-order thinking skills (HOTS) in learning assessments has become a crucial issue in 21st-century learning. However, not many teachers are aware of the need to incorporate HOTS in assessments due to their insufficient knowledge and the absence of good examples. Further, there is not much research and literature on HOTS-based formative assessment that can be used as references. This research aims to fill the existing gap by providing a model of higher-order thinking skills (HOTS)-based assessments for Arabic learning. Good Arabic learning cannot be separated from the meodel applied. By employing research and development design, this research describes the validation of the assessment model. The proposed model of assessment may be used as a prototype for assessing Arabic language learning, wich will affects to achievement of graduate competencies which include attitudes, knowledge, and skills in accordance with national goals of education.*

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INTRODUCTION

Educators have a significant role in learning development such as how they both transform their knowledge and know learning methods that can be easily accepted by students to achieve the goal of learning, and therefore there is a need of the assessment. Assessment is part of the learning evaluation. Assessment for learning is of particular concern to researchers and educator and has become a keyword in the field of education. In the assessment requires teachers and students to use assessment to improve instruction and learning. Assessment in learning system is one of many substantial activities required to do routinely in certain periods especially for two things in between are monitoring the quality of education and helping the process of learning and teaching in class, so it needs a measuring instrument beforehand. Because of the assessment, the student's understanding toward learning materials can be known and acquired substantial information in making decision (Yulinda Erma Suryani, 2017, p. 143). Hence, the measure matters a significant position practically in the process of assessment. Assessment aims to know the result of learning and enhance the learning process to the better.

There is an assessment model based on HOTS (Higher Order Thinking Skills) amongst the other. According to Kenedi, the capacity to think consists of two elements which are the lower level of thinking skills (LOTS) and the higher level of thinking skills (HOTS). LOTS is the capacity of remembering, understanding, and applying while HOTS stands for analysing, evaluating, and creating. (Destrinelli dkk., 2021, p. 6440) It is a way to solve any kind of education problems nowadays.

The problem that has been dealing with during the implementation of national education is its low level of education. A survey in education quality released by Programme for International Student Assessment (PISA) reveals that Indonesia comes to the bottom 5 from 77 countries in a total. (Additional information on Welle (DW), t.t.). To improve the quality of education, there is a need of learning evaluation to achieve the goal of national education based on the Law on Education No. 20/2003. (The law on education No. 20/2003 about National Education Systems & The Law No. 14/2004 about teachers and lecturers, t.t.) The role of education on school cannot be negated that it contributes in preparing students to survive when facing challenges in their future lives.

Tiwery describes the characteristics of people who can overcome hardship during challenges which are critical, logical, creative, innovative, and productive thinkers; problems solver and decisions maker during every aspect in life. (Badsebe Tiwery, 2019, p. 4). Besides, Bernie Trilling formulates the life competencies in 21st century compiled in the form of The Seven C's 21st Century Lifelong Skills: (1) critical thinking, (2) creativity, (3) communication, (4) collaboration, (5) studying independency, (6) cross-cultural understanding, and (7) technology literacy. (Bernie trilling, 2005) Critical thinking has a huge signification in the individual development that can be both the capacity to argument and reason and the sensitivity training of social problem happened in society. (Davies, 2014, p. 44). Unfortunately, it has not yet been applied effectively and efficiently by all academicians. Thus, there is a need of the right learning method that can open up the opportunity for students in developing their potencies, especially the potency of critical, analytical, and creative thinking.

The methods have a purpose in line with the guidance of Ministry of Education and Culture Policies in facing this 21st century that is either learning process (Badseba Tiwery, 2019, p.1) or learning evaluation (Widana, 2017, p. 32) based on the higher level of thinking skill or HOTS (Higher Order Thinking Skills) developed from many concepts and cognitive methods of Bloom's taxonomy which are learning, teaching, and evaluating taxonomies. (Saputra, 2016, p. 91) By having a high level of thinking skill, one can distribute new information along with solving complex problems. (Ridwan Abdullah Sani, 2019, p.1)

The implication of the policy is that it encourages teachers to have a better understanding about must mastered skills by their students. Those skills have significant roles to be both developed in the learning process or learning evaluation to make it less theoretically, allowing to open up to contextual issues in the school area as the stimulus to increase the cognitive development of students. By having HOTS (Higher Order Thinking Skills), they take into the right consideration theoretically and empirically.

Arabic is one of the subjects taught from the madrasah level to several universitis in Indonesia. Along with times, the orientation of learning Arabic is directed at increasing critical and creative thinking. In line with the mandate of the curriculum of Islamic education and Arabic learning in the guidance of Ministry of Religion No. 182 of 2019 which requires conducting assessment based on higher order thinking skills (HOTS). It is undeniable, the assessment of Arabic language based on higher order thinking skills is the right choice in carrying out evaluations of today's learning.

Based on the explanation above, researchers are going to describe "Higher Order Thinking Skills (HOTS) – BASED Assessment: Aproposed Model for Arabic Learning "

METHOD

Research method is an attempt or a systematic way of working to answer problems or questions by collecting data and formulating generalisation based on the data. (Ismayani, t.t., p.1) The type of this research is library research. This research discusses knowledge findings from literature, and therefore it can provide information related to evaluation based on HOTS (Higher Order Thinking Skills).

The analysis technique examines secondary data from the result of some research, journals and any relevant source which applied HOTS model in the learning evaluation. The technique takes into three steps included organizing, synthesizing, and identifying. The early step is to find the idea, goal, and conclusion of some literature. The second step is to organize the data into an overview by finding the relation among the literature. The third step is to find the significant data to be profoundly examined dan interestingly written.

FINDINGS

Definitions of Assessment and Evaluation

In terms of learning and teaching, assessment is frequently confused and confounded with evaluation. Assessment and evaluation are two different concepts with number of differences between them. According to the Webster Dictionary, evaluation is estimation or determining the value of something, Then, according to the same dictionary, assessment means appraisal. Evaluation is a learning process component in a way to comprehend the success of learning that has been conducted. (Astrini Eka Putri, 2019, p. 4). The result of evaluation can be feedback for teachers to both completing or improving the learning activity. Mahmudi stated that evaluation has been included (1) making standard to score quality and deciding whether the standard is relative or absolute, (2) submitting relevant information, and (3) applying that standard to determine the value, quality, benefit, effectivity or significance. (Mahmudi, 2011, p. 114).

While the assessment is used to take a closer look at the progress of students and to collect information and evidence about their learning and the teaching process. According to Hairun, the assessment activity in learning does not rely on techniques of trial and error or intuition because the activity allows educators to learn by the integration, students involvement, coherence, pedagogy, and accountability principles.

The term assessment for learning was first used by Mary James in a conference in 1992. Then, Gipps used this tem to explain a shift from traditional assessment model to a more holistic assessment from the structure and quality of students learning.

Assessment is process of gathering information using established standards to make a determination about a participants learning. The purpose of assessment is to improve the quality of learning. A teacher must be precise in choosing an assessment model. Because well-designed assessment strategies and models have a significant role in learning decision making and in the learning process.

Currently the assessment recommended by the ministry of education in the implemented curriculum or 2013 curriculum is an assessment with strategies that demand critical thinking or creative problem solving, will realizing a higher level of student performance or achievement and can help students become more effective independent learners. This assessment model is known as Higher Order Thinking Skills or HOTS.

HOTS (Higher Order Thinking Skills)

Based on some research syntheses on thinking skill, they allow a differentiation between lower order thinking skills and higher order thinking skills. (Ridwan Abdullah Sani, 2019, p. 2). Higher order thinking skills or HOTS is a substantial

aspect in education as the process where students reach a higher cognitive together with its development's concepts and the methods. (Sofyan, 2019, p. 3).

HOTS can be defined as the capacity to handle implementation challenges that have not yet been discussed before. Comparing to Brookhart's definition on HOTS, he defined HOTS as the students' skill in a way to connect learning materials to its another not included elements. (Janner Simarmata dkk., 2020, p. 16) Assessment HOTS-based has a main goal which are increasing students' intelligence to get into a higher position, practicing a creative thinking in solving complex problems. (Sofyan, 2019, p. 3).

Bloom Taxonomy categorizes various thinking skills including knowledge, understanding, implementation, analysis, synthesis, and evaluation that are classified into three spheres which are cognitive, affective, and psychomotor. (Ujang Suparman, 2020, p. 28) Cognitive spheres consisted of 6 levels: (1) remembering, (2) understanding, (3) implementing, (4) analyzing, (5) evaluating, and (6) creating. The 1, 2, and 3 levels stand for lower order thinking skills while higher order thinking skills starts from level 4 to 6. The classification of high order thinking skills adopted from three types of learning goals which are: (Janner Simarmata et al., 2020, p. 16) (1) HOTS as transfer, (2) HOTS as critical thinking, and (3) HOTS as problem solver.

HOTS as transfer is a skill to implement developed knowledge and skill in the process of learning. This type of HOTS consists of various skills such as analyzing, evaluating, and creating. Besides, HOTS as a critical thinking is a skill to consider in a right way and deliver critics logically and empirically, and these skills lead to the goal of learning which encourages students to be able to deliver opinion, reflect, and make a right decision.

There are four skills related to critical thinking which are defining problems, choosing relevant information in solving problems, developing and choosing relevant hypotheses; making conclusion and evaluating inference. The table below shows the characteristics between a critical and uncritical thinker in the capacity to make decision and solve personal problems. (Janner Simarmata dll., 2020, p. 17).

Table 1. Table Title The Characteristics of Critical and Uncritical Thinkers Table

Critical Thinker	Uncritical Thinker
a. Recognition for his limitations b. Perceiving problems similarly as challenges c. Understanding as the goal d. Consideration evidence based e. Interested in others people ideas f. Thinking before acting g. Open-minded h. An active listener i. Avoiding emotional action j. Being sceptic to extreme views	a. Considering an opinion b. Quick consideration making c. An inactive listener d. Assuming her ideas better than others e. Derecognizing changes f. Cheating himself frequently g. Having hardship changing his thought h. Applying first approach

Critical thinking similarly tends to be a type of skill such as making inference, reasoning, etc. (Davies, 2014, p. 42) Critical thinking related to cognitive decision making that mostly applied in critical thinking education to deliver a strong cognitive basis as a way to give assessment and make decision. (Davies, 2014, p. 43). According to Facione, critical thinking as a process aims to determine what to be sure and to be done. (Facionne, t.t., p. 28) It is likely to be the statement of

Norris that critical thinking leaded to find alternatives and consider others perspectives that are needed to be sure before doing anything. (Norris, 1989, p. 21)

On the other side, Harpen formulated a critical thinking taxonomy consisting of (a) verbally reasoning skill, (b) argument analysis skill, (c) thinking skill in examining hypotheses, (d) skill to determine possibility and uncertainty. (Ujang Suparman, 2020, p. 34-35) Cognitive critical thinking classifies into four categories which are lower-level thinking skills, higher-level thinking skills, complex thinking skills, and thinking about thinking skills or metacognitive skills. (Davies, 2014, p. 54).

Ennis provided six elements of critical thinking characteristics which are focus, reason, inference, situation, clarity, and overview, or to be known as FRISCO. ((PDF) *Critical thinking as an educational* ideal, t.t., p. 11) Focus means to get to know the root of the problems. Reason stands for having a relevant reason to support that conclusion. Inference accurately values the conclusion. Situation pays attention to a situation involved others, and it concerns both physical and social settings included giving information based on data that is relevant to the problem. Clarity takes a role to deliver, clarify clearly and explicitly, avoid ambiguity as the most important element. Overview creates a general description and recheck findings while being decided; considered and concluded afterward. (Hapsari S, 2016, p. 230)

HOTS aims to identify and solve problems by using automatic strategics. Problems that emerge critical thinking skills are complex problems that cannot be undone by using simple memory because of its need of specific strategics and processes. The complex problems similar to the problems used in PBL (Problem Based Learning) as not well-structured authentic problems (ill-structured problems). (Ridwan Abdullah Sani, 2019, p. 5).

Sugrue gives in information from several research in the problem-solving model study and identify three used formats in measuring HOTS which are (1) choosing answers or multiple-choice and matching questions (2) awakening or short-answer questions, essay, and practice (3) describing or giving a reason to the choice or an answer of a question. (Ridwan Abdullah Sani, 2019, p. 6) HOTS related to critical and creative thinking, problem solving, and making decision skills. (Ridwan Abdullah Sani, 2019, p. 3). For example, students have to be able to analyze and evaluate in solving problems. In addition, to think critically or make decisions, students can reason, consider, analyze, and evaluate.

Learning Assessment Based on HOTS (Higher Order Thinking Skills)

One of many learning characteristics in 21st century leads to students' critical thinking and teachers' creativity in both the learning evaluation and process. (Elis Warti, 2019, p. 6) Lesson plan or syllabus of 2013 curriculum revised edition in the year of 2017 practically demands students to achieve HOTS which the skill has to refer to HOTS characteristic questions, especially in this competitive era.

In the assessment, HOTS characteristic questions are rarely used as the indicator of the achievement of learning goals. On the other hand, the questions are still classified into C1 to C3 criteria. (Yahya Hairun, 2020, p. 50). Based on Laron Anderson and David Krathwohl, skills consist of knowing-C1, understanding-C2, applying-C3, analyzing-4, evaluating-C5, and Creating-C6. HOTS questions generally measure the skill on analyzing-C4, evaluating-C5, and creating-C6. (Anderson et al, 2010) This discussion aims to create many types of HOTS questions from various learning subjects, and therefore it can encourage the students' HOTS in completing questions

while teachers can also make an assessment model with syntheses characters fitted to the theme of the subjects.

In making question based on HOTS characteristics, there are things needed to pay attention to such as question characteristics, the steps of questions' arrangement and questions' indicator. Question characteristics comprise of (1) measuring Higher Order Thinking Skills, (2) based on contextual problems with characteristics such as students making their own responses and a big amount answer of given tasks, (3) various questions, (4) cognitive level taking form in all kind of analysis and evaluation knowledge of students. (Moh. Zainal Fanani, 2018, p. 63)

The steps of HOTS questions arrangement are (1) analyzing the basic competencies in making HOTS questions, (2) composing a questions' prediction, (3) choosing an interesting and contextual stimulus, (4) writing every question based on the questions' prediction, (5) making a question answer guidance. (Agus Budiman, 2014, p. 45) Question indicators of Higher Order Thinking Skills (HOTS) are: (1) analyzing current information and able to know related factors of complex problems; and ended by identification process, (2) the evaluating processes including giving score for solution, idea, and methodology by using standardized criteria. Furthermore, the next step comes into hypothesis process while ended at statements that are based on fixed criteria, (3) creating leads to make a generalization on ideas, design a solution afterwards, and arrange well. (Nur Salam, 2019, p. 45).

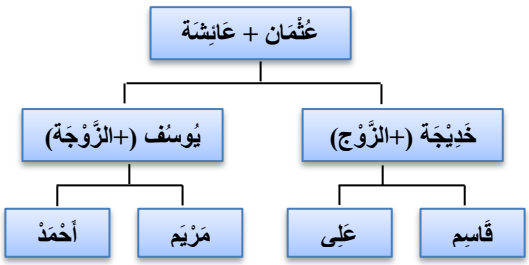
The Examples of Question based on Higher Order Thinking Skills in Arabic Learning

One of many HOTS question characteristics demands student to think critically. According to Watson and Glaser, needed general knowledge that leads to critical thinking skills are (1) making inference, (2) knowing assumption, (3) doing deduction (4) making interpretation, (5) evaluating argument. (Ridwan Abdullah Sani, 2019, p. 7). Not only that, Brookhart also classify the assessment based on higher order thinking skills into three categories: (1) hots in terms of transfer. Among others are the ability to transfer concept to another concept. (2) hots in terms of critical thinking, is the ability to understand the problem of logic, reflective thinking skills, the ability to argue that can be focused to take a decision or other. (3) hots in terms problem solving, is the skill wich is considered as skill owned by a student, the ability to find a new way, a solution that is not common, defining the problem creatively.

There are questions in the assessment of Arabic Learning based on higher order thinking skills.

Examples of questions in multiple choice form:

لاَحِظْ هَذَا الرَّسْمَ الْبَيَان !



الْعِبَارَةُ الْمُنَاسَبَة هِيَ ...

أ. أَحْمَد خَالُ عَلِي
ب. عُثْمَان أَبُو عَائِشَة
ج. خَدِيْجَة عَمَّة مَرْيَم
د. عَلِي اِبْنُ يُوْسُف

الإجابة: **ج**

This question is a matter of the Higher Order Thinking Skills (HOTS) category because to answer this question, students must go through the stages of associating different information and associating this information.

البَائِعُ : مَرْحَبًا, أَيُّ خِدْمَة ؟
فِطْرِي: أُرِيْدُ لَحْمًا وَ سَمَكًا
البَائِعُ: تَفَضَّلِي اللَّحْمَ وَالسَّمَكَ. الآخَرُ؟
فِطْرِي: أُرِيْدُ طَمَاطِمًا وَ ثَوْمًا وَ فِلْفِلاً وَ ثُوْمًا وَمِلْحًا

أَيْنَ يَجْرِي الْحِوَارُ؟
أ. فِي الْمَكْتَبَةِ
ب. فِي السُّوْقِ
ج. فِي المَقْصَفِ
د. فِي الْمَقْهَى

الإجابة: **ب**

This question is a matter of the Higher Order Thinking Skills (HOTS) category because students must critically examine ideas and information in several stages.

Examples of questions in essay form:

اِقْرَأْ هَذِهِ الْفَقْرَةَ !

يَذْهَبُ السَّيِّدُ تَوْفِيْقُ إِلَى مَعْمَلِهِ كُلَّ يَوْمٍ. وَهُوَ يَلْبَسُ الثِّيَابَ الأَبْيَضَ وَتُسَاعِدُهُ الْمُمَرِّضَةُ فِي مُعَالَجَةِ الْمَرْضَى.
مَا مِهْنَةُ السَّيِّدُ تَوْفِيْق ؟

This question is a matter of the Higher Order Thinking Skills (HOTS) category because students must examine ideas from existing information critically.

أُكْتُبْ الْجُمْلَةُ المُفِيْدَة فِيْهَا الكَلِمَات المَرْفُوْعَة وَ المَنْصُوْب !

This question is a matter of the Higher Order Thinking Skills (HOTS) category because, apart from remembering and understanding, students must look for other information and demand to be creative in constructing a sentence.

CONCLUSION

HOTS (Higher Order Thinking Skills) is a way to solve educational problems in facing the challenge and change of 21st century. Hence, students need to be taught sufficient and effective knowledge, attitude, and skills to handle the challenge. Nowadays, students have to be able to find information by themselves, identify and formulate problems, study effectively in group and connect each other; and have a high creativity. Besides, teachers have to be able to train their students to increase higher order thinking skill and practice critical thinking skills to be more innovative and creative; and able to solve problems.

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