



SNAP TO READ

## HOTS-BASED ASSESSMENT: THE STORY OF ENGLISH TEACHER'S KNOWLEDGE, BELIEFS, AND PRACTICES

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### **Abstract:**

*High-Order Thinking skills have been a trend in recent years. Researchers studied on aspects of HOTS. Some studied on how to teach it to students while some are on how to assess it. However, the implementation of HOTS is strongly affected by the teacher's beliefs –including knowledge, beliefs, and practices (Borg, 2001). The present study analyzes the teacher's beliefs on HOTS-based assessment. It uses narrative inquiry as the research method. The data are gotten from the participant's interview and document analysis –test items constructed by the participant. The data are then analyzed using short story analysis. The results show that the participants occupied the knowledge of HOTS-based assessment mainly through independent study. She believes that HOTS-based assessment can be applied in High School level. Furthermore, it gives benefits for the students. She practices HOTS-based assessment in her class by constructing HOTS items. However, some English teachers have not implemented it in their class.*

**Keywords:** *HOTS-based assessment, Teacher's knowledge, Teacher's beliefs, Teacher's practices*

Researchers have taken teacher's beliefs as their research interest over years. It is an important aspect in teaching and learning process. It may influence how the teacher conducts the teaching learning process such as the teaching method, media, and so on (Birello, 2013). It is what the teacher holds and beliefs as true which guide his thought and behavior in the class (Borg, 2001). The wrong belief the teacher holds make the class goes into the wrong direction.

Teacher's beliefs may be about many aspects of teaching and learning process. Richards and Lockhart (1996) mention that there are four kinds of teacher's beliefs namely beliefs about English, learning, teaching, program and curriculum, and also teaching English as profession. Belief about assessment is an important aspect in teaching English. It influences how the teacher conducting the assessment which decides the outcomes of learning process.

In recent years, researchers studied on teacher's beliefs. Schulz & Fitzpatrick (2016) studied the teacher's understanding on critical thinking in their teaching and assessment. In the same year, Crusan, Plakans, & Gebril studied teacher's knowledge, beliefs, and practices of writing assessment literacy. They found that the teachers achieve knowledge of writing assessment literacy from training. However, some teachers are confused in creating and using scoring rubric for writing assessment. It means that teachers did not master how to conduct assessment correctly. In (, 2017, Tuzlukova & Al-busaidi studied teacher's beliefs and methods in implementing critical thinking in language classroom. It reported that the teachers were aware of the importance of critical thinking. However, they were lack of critical insights, so they still need more exposure on this matter. In 2018, Hasni, Hani, Ramli, & Rafek studied teacher's beliefs on critical thinking and their practices. However, their study focused on critical in English language in general.

Concerning the previous studies, there were very few researches focusing on assessment, specifically HOTS-based assessment which has

been a trend in Indonesia, in which this study takes place. Furthermore, Widana (2017) reported that teachers are still confused on how to conduct HOTS-based assessment. They often think that they conduct HOTS-based assessment when they do not. Thus, it is essential to study the teacher's knowledge, beliefs, and practices on HOTS-based assessment. The research questions of this study are as follows:

1. How have English teachers obtained HOTS-based assessment knowledge?
2. How are English teachers' beliefs about HOTS-based assessment?
3. How are the practices of HOTS-based assessment done by English teachers?

### **Teacher's beliefs in language teaching**

Beliefs is a proposition which someone holds consciously or unconsciously, which he considers it as true, so that it guides his thought and behaviors (Borg, 2001). Teacher's beliefs may change gradually and come from some sources namely: (1) the teacher's experience as language learners, (2) experience of what works best, (3) established practices, (4) the teacher's personality, (5) the teacher's educationally-based or research-based principles, and (6) principles derived from an approach or method (Richards & Lockhart, 1994). The teacher's beliefs play important roles in teaching learning process. It may decide how teachers view English, how they decide the teaching methods, and so on.

Richards and Lockhart (1996) show that there are several teacher's beliefs in language teaching. The first one is beliefs about English. It is beliefs about the importance of English, how difficult English is learnt compared to other languages, the pronunciation system, and so on. The second one is beliefs about learning. It influences on how the teacher defines learning, what learning styles he encourages the students to have, the students' roles in his class, and so on. The third one is beliefs about teaching. It concerns on how teachers view effective teaching is. It influences their decision on the teaching method, their role in class, teaching resources they use and make, and so on.

The fourth one is beliefs about program and curriculum. Every institution has different rules which influence the teacher's beliefs about the program and curriculum used by the institution. These beliefs can be on the teachers view textbook, their opinions about institutional objectives, their attitude towards assessment, and so on. The last one is beliefs about teaching English as a profession. It concerns on how teachers views teachers' professionalism, their opinions on how language teachers should evaluated, and so on.

### **HOTS-based assessment**

Assessment is an ongoing process in which the students respond to questions, offer comments, or try out a new word or structure (Brown, 2004). This process may be formally or informally. The informal one can be in the form of observation while the formal one is more systematic. Formal test can be formative test, summative test, placement test, and so on. The kind of assessment can be determined based on the topic and the level of students' cognition.

High-order thinking skills can be defined as three things, namely as a transfer, critical thinking, and problem solving (Brookhart, 2010). In term of transfer, he believes that teaching learning process should make the students able to remember, make sense of, and use what they have learned. In term of critical thinking, (Barahal, 2008) defines critical thinking as "artful thinking" which includes reasoning, questioning and investigating, observing and describing, comparing and connecting, finding complexity, and exploring viewpoints. Last, in term of problem solving, teaching learning process should give opportunity for the students to solve a problem in order to achieve the desired goals.

High-order thinking skill is closely related to Bloom's taxonomy, the level of cognitive. Anderson & Krathwohl (2001) revised the previous taxonomy. They categorized the level of cognitive into six dimensions namely remember, understand, apply, analyze, evaluate, and create. The dimensions are structured from the lower level to the highest level of cognitive (see figure 1). First, remember means retrieving knowledge from long-term memory.

It can be recognizing or recalling something. Second, understand means constructing meaning from instructional messages. It can be interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining something. Third, apply means carrying out a procedure in a given situation. It can be executing and implementing. Fourth, analyze means breaking material into parts and relate those parts based on instructional purpose. It can be differentiating, organizing, and attributing. Fifth, evaluate means making judgments based on specific criteria and standards. It can be checking and critiquing. Last, create means putting elements together to form a coherent or functional whole or reorganizing elements to form new structure. In its implementation, this taxonomy has several action verbs for each level of cognitive which is e

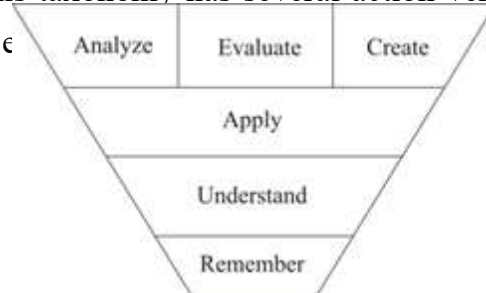


Figure 1. The categories of cognitive dimensions (Anderson & Krathwohl, 2001)

Table 1. Revised Bloom's Taxonomy action verbs

Remember	Understand	Apply	Analyze	Evaluate	Create
Choose	Classify	Apply	Analyze	Agree	Adapt
Define	Compare	Build	Assume	Appraise	Build
Find	Contrast	Choose	Categorize	Assess	Change
How	Demonstrate	Construct	Classify	Award	Choose
Label	Explain	Develop	Compare	Choose	Combine
List	Extend	Experiment	Conclusion	Compare	Compile
Match	Illustrate	with	Contrast	Conclude	Compose
Name	Infer	Identify	Discover	Criteria	Construct
Omit	Interpret	Interview	Dissect	Criticize	Create
Recall	Outline	Make use of	Distinguish	Decide	Delete
Relate	Relate	Model	Divide	Deduct	Design
Select	Rephrase	Organize	Examine	Defend	Develop
Show	Show	Plan	Function	Determine	Discuss
Spell	Summarize	Select	Inference	Disprove	Elaborate
Tell	Translate	Solve	Inspect	Estimate	Estimate
What		Utilize	List	Evaluate	Formulate
When			Motive	Explain	Happen
Where			Relationships	Importance	Imagine
Which			Simplify	Influence	Improve
Who			Survey	Interpret	Invent
Why			Take part in	Judge	Make up
			Test for	Justify	Maximize
			Theme	Mark	Minimize
				Measure	Modify
				Opinion	Original
				Perceive	Originate
				Prioritize	Plan
				Prove	Predict
				Rate	Propose
				Recommend	Solution
				Rule on	Solve
				Select	Suppose
				Support	Test
				Value	Theory

There are some principles of constructing an assessment showed by Brookhart (2010) namely: (1) specifying clearly and exactly what to be assed, (2) designing tasks or test items that require students to demonstrate the knowledge or skills, and (3) deciding what will be taken as evidence of the degree to which students shown the knowledge or skills. He shows

that assessing High Order Thinking Skills involves three more additional principles. First, the assessment presents something for the student to think about. It can be in the form of introductory text, visuals, scenarios, resource material, or problems of some sort. Second, the assessment uses novel material which is new and not covered in class and thus subject to recall. Last, the assessment distinguishes between level of difficulty (easy vs. difficult) and level of thinking (Lower-order thinking or recall vs. higher-order thinking), and control for each separately.

HOTS-based assessment has characteristics namely being able to assess students' abilities to analyze, evaluate, and create based on contextual issues, and are not familiar (Widana, 2017). Furthermore, the assessment can be constructed through several steps namely (1) analyzing the KD which can be created HOTS items, (2) arranging the blueprint, (3) writing down the items on the card matter, (4) determining the answer key or scoring rubric, (5) performing qualitative analysis, and (6) performing quantitative analysis.

HOTS-based assessment has several effects on the students' cognition, achievement, and attitudes Butterworth, Higgins, & Moseley (2005). First, it may increase students' cognition. The students are able to give more logical reasons for their statements. Second, it also increases students' achievement. Their achievements in many subjects become better than before conducting the HOTS assessment. Last, it increases students' motivation. They are engaged in the teaching learning process since thinking is more fun than memorizing. Furthermore, Widana, (2017) shows that it also improves the competitiveness among the students in teaching learning process.

## **METHOD**

### **Research design**

This study is a narrative inquiry. This study wants to reveal teacher's knowledge, beliefs, and practices of HOTS-based assessment. Thus, the appropriate method used is narrative inquiry in which it enables the researcher to interpret their perceptions from their stories. It is a research methodology

which brings stories as a means of collecting the data –analysis of narrative, or as a means of analyzing data and presenting the findings –narrative analysis (Barkhuizen, Benson, & Chik, 2014). This study will use analysis of narrative. Furthermore, this is oral narrative. The approach used in the study is biographical case studies in which the participant tells stories and the researcher writes them up as narratives for further analysis.

### **Participants**

The participant of the study is an in-service English teacher, a female one. She is 38 years old. She graduated from an Indonesian private university in 2005. She taught in an informal English course for 3 years old. She has been teaching English in her current school for about 14 years. She is known as a teacher who seeks for challenges and new experiences. She is a teacher who is able to find suitable methods for teaching her students.

### **Data Collection and Analysis**

The data of this research are collected using semi-structured interview and document analysis. Semi-structured interview is an interview in which the interviewer gives several questions as the guide but the interviewee is free to elaborate his answers (Barkhuizen et al., 2014). This is one-on-one interview. Then, the document analyzed for this study is the participant's assessment tools. It is a written test consisting of 40 items of multiples choice items and 5 items of essay which is constructed by the participant. The document analysis will be used to support the data of the teacher's practices on conducting HOTS-based assessment.

The data are analyzed using short story analysis. This data analysis method is suitable to analyze stories gotten from conversations, interviews, written narratives, and multimodal digital stories (Barkhuizen, 2016). It allows the researchers to analyze the stories based on content and context. The analysis of each story is divided into three intersecting dimensions of content namely who –the characters in the story, their relationships and their positions with each other, where –the places and sequences of places in which the story happens, and when –the time the story happens. There are also



three dimensions of context namely story –personal and embodies the inner thoughts, emotions, ideas, and theories of the participants, Story –wider than psychological and interpersonal context of the participants (e.g. a school’s language-in-education policy), STORY –broader sociopolitical context (e.g. national language policies).

## **FINDINGS AND DISCUSSION**

### **Findings**

In this part, three short stories of the participant are analyzed. Those stories are selected based on the research questions posed before. During the interview, the participant actively shared her stories regarding the way she obtained her knowledge about HOTS-based assessment, her belief, and her practice about HOTS-based assessment.

To gain better understanding, we present the findings under three research questions. Also, we provide an illustrative analysis of each short story, using the content dimensions of who, where and when to structure the discussion. We then include commentary on the three story scales of context.

***Research question 1: How have English teachers obtained HOTS-based assessment knowledge?***

#### ***Story 1***

***The story of how the participant obtained knowledge about HOTS-based assessment***

*“For me, this concept is not something new. I had informally known about a few concept of HOTS and its assessment before the school launched this kind of concept to the teachers. It was when I taught in one of English language courses in Surakarta. I often applied the HOTS-based assessment. And then, for the complete concept I obtained from the in-house training conducted at my school. From that time, I continuously and independently learned about it.”*

**Who.** It is the characters in the story, their relationships and their positions vis-à-vis each other. The participant (Mrs.R) is the main figure of this story. She also involved other characters, students and other colleague teachers. By

asserting that this concept was not something new, actually she deliberately described that she was familiar with the concept. From the last sentence, thus the scale of context is personal and contains the inner thoughts, motivations, and ideas of the teachers.

**Where.** It is the places and sequences of places in which the story action takes place. The central action took place in an English language course (at the beginning) and in the school where she taught until now. She told the story of how and where she obtained knowledge about HOTS-based assessment.

**When.** It is the time in which the action unfolds, past, present and future. The participant knew about the concept of HOTS-based assessment in the past (when she first taught in an English language course). At present, she continuously and independently learned about it. The process of obtaining the concept takes place over a quite long period of time. The story thus covers a fairly long time scale, and will continue in the future as well.

This story deals with how she obtained knowledge about HOTS-based assessment, tells the way she gained it. In this story, she delivered that before she taught at high school she had informally known about a few concept of HOTS and its assessment. She had applied this concept in one of English language courses in Surakarta where she taught. Formally, she then got the idea of HOTS-based assessment from the in-house training conducted at her school. From that time, she continuously and independently learned about it.

***Research question 2: How are English teachers' beliefs about HOTS-based assessment?***

***Short story 2:***

***The story of what she believed about HOTS-based assessment***

*"In my opinion, the concept can be applied in high school level because the students' level of cognition is considered to be able to engage in HOTS - based assessment. The strength is that students feel challenged to think from various cognitive domain, not only understanding and memorizing but also applying, analyzing, and being critical to the topics discussed. The weakness is seen from teachers' point of view who are not ready yet to apply the concept. Some*

*teachers tend to assess cognitive domain in the level of remembering. The teachers do not give much exposure to the application level to the students. If they do not involve the students in HOTS – based instruction, it is going to be very difficult for the students to engage in HOTS – based assessment. For my classes, I do not always apply the concept in assessing my students. Some of materials needs to be adjusted to the students' level. In the beginning of teaching learning process, I encourage them to be confident and I prefer to employ traditional approach/method (remembering, memorizing, drilling) to build knowledge of the field and to give model. Once the students are ready and confident, I ask them to accomplish some HOTS – based assignment/task.*

**Who.** It is the characters in the story, their relationships and their positions vis-à-vis each other. The central character is the participant as English teacher in a high school. She involved other character, her students who are involved in teaching learning process. The participant strongly associates with the students and notices that her students feel challenged in analyzing, applying theory, and being critical. Other characters that she mentioned are other teachers who are not ready yet to apply the concept of HOTS. The participant give emphasis that teachers' readiness is as the weakness of HOTS – based assessment if it is not prepared well.

**Where.** It is the places and sequences of places in which the story action takes place. The action took place at school where she taught when she conducted teaching learning process. The participant mentioned high school showing broader context of HOTS – based assessment application and then focused on her classroom instruction showing that it is more specific context.

**When.** It is the time in which the action unfolds, past, present and future. The story focused on the continuous time of applying the concept to the students. There was a time when the participant/the teacher mentioned that she preferred to employ traditional method of teaching rather than HOTS – based approach. When the teacher saw the students' readiness and confidence so she would hold HOTS – based assessment in delivering materials and distributing task/assignment.

This second story reveals what she believed about HOTS-based assessment. This story explains whether or not this kind of assessment can be applied in high school level, the strengths and weaknesses, consideration of employing this concept to the assessment process, some strategies that is proposed by the participant related to this concept of assessment. She is aware of the importance of HOTS-based assessment. However, she should consider her students' ability. She explains that she prefers using traditional assessment (MOTS-based or LOTS-based assessments) in the beginning of the teaching learning process. She uses HOTS-based assessment when she sees that their students' ability is ready to accept it.

***Research question 3: How are the practices of HOTS-based assessment done by English teachers?***

***Short story 3:***

***The story of the participant's practice of HOTS-based assessment.***

*"These are some items of questions I employ to assess my students' high order thinking skills (showing to the researcher while interview session). As you can see, there are some items. Some of them are HOTS and some are not. By conducting this kind of assessment I do hope that my students finally master in HOTS. They need much exposure to it. My job is to make sure that they get appropriate and step by step exposure. Giving them assignment, task, and homework which encourage them being critical, analytical, and creative is what I have done so far. HOTS – based assessment will run smoothly if it is preceded by HOTS- based instruction. There are still teachers being in their comfort zone, doing teaching routines by drilling and memorizing. They do not supply appropriate opportunities for students to explore something beyond the lesson. In terms of practice, I suggest my self and all English teachers to improve individual skills as professional teachers so that teachers – as facilitators- are able to help students to achieve the learning outcomes."*

**Who.** It is the characters in the story, their relationships and their positions vis-à-vis each other. The central character is the participant as English teacher in a high school. The other participants are the other English teachers in

her current school. Based on her story, it seems that she believes that she implemented HOTS-based assessment in her class. However, she also said that other English teachers have not implemented it yet in their English class. She wished that they would immediately improve their professional skills, especially in assessing HOTS. From the word choices she used, it can be seen that the scale of context is personal and contains the inner thoughts, motivations, and ideas of the teachers.

**Where.** It is the places and sequences of places in which the story action takes place. The action took place at school where she taught when she conducted teaching learning process. The first thing she mentioned was about her and then it moved onto her surroundings, the other English teacher's circumstances.

**When.** It is the time in which the action unfolds, past, present and future. The story happens in the past, present, and future. She told about her beliefs on the HOTS-based assessment she has done. Furthermore, she mentioned that other English teachers have not done HOTS-based assessment. They still used Lower-order thinking skills such as remembering. In the end of her story, she had a wish that all English teachers will be more concerned on HOTS, especially on its assessment.

The third story depicts the participant's practice of HOTS-based assessment. The participant showed some questions items consisting of higher order thinking skill. She also mentioned some ideas of ideal teaching practice of higher order thinking skills. Besides, she proposed some suggestions to English teachers to improve individual skills as professional teachers so that teachers – as facilitators- are able to help students to achieve the learning outcomes.

To support the data of short story 3, document analysis of the test items constructed by the participant was conducted. The results show that the items contain several HOTS items. However, some items of lower-order thinking skills are still found. The elaboration is presented in table 2.

Table 2. The analysis of the test items constructed by the participant

No.	Criteria	Items	Total items	Percentage (%)
1.	Remember	19, 30, 38	3	6.67
2.	Understand	11, 12, 13, 14, 23, 24, 33, 36, 37, 44	10	22.22
3.	Apply	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	10	22.22
4.	Analyze	15, 16, 17, 18, 20, 21, 22, 26, 27, 28, 29, 34, 35, 39, 43, 45	16	35.56
5.	Evaluate	25, 31, 32, 40, 42	5	11.11
6.	Create	41	1	2.22
Total	45	100		

The HOTS items are analyze, evaluate, and create dimensions of cognitive (Widana, 2017). The table shows that the percentage of HOTS items is 48.89% of the total items the participant constructed. The other 51.11% are LOTS (Lower-Order Thinking Skills) items. The participant mentioned that some KDs cannot be constructed into HOTS items.

## Discussion

The results of the present study are quite different from the previous studies conducted by Schulz and Fitzpatrick (2016) and Tuzlukova and Albusaidi (2017). Their studies found the participants did not have adequate knowledge on HOTS and its assessment. Sasson, Yehuda, & Malkinson (2018) also reported that teachers did not have knowledge and experience to implement assessment tool. However, in present study, it was found that the participant has good knowledge on HOTS and its assessment. It may happen since the present study's participant has more willingness to learn more independently while the previous studies' participants do not. The participants said that she gained her knowledge from in-house professional trainings. Furthermore, English teachers should develop their knowledge and skills, specifically on assessment, for the improvement of their teaching and learning process since students' needs always changed. This willingness should be followed by providing facilities for teachers to gain more

knowledge. Teachers wish to have professional trainings to be able to better and more effective assessment (Lan & Fan, 2019).

This study reported that the participants believe that implementing HOTS in assessment is important. This finding is in line with the previous studies conducted by Schulz and Fitzpatrick (2016) and Tuzlukova and Albusaidi (2017). However, she noted that she did not implement it in every aspect. She believed that the students need more exposure of HOTS first before receiving HOTS-based assessment. It supports the finding of a study conducted by El & See (2019) that students need more exposure of HOTS and that it can be done through various teaching strategies. Zohar & Cohen (2016) reported that policy on HOTS did cause several changes, but the implementation was still the teachers' rights.

The practice of HOTS-based assessment was in line with the teacher's beliefs. Furthermore, the results of HOTS-based assessment practices have similarity with the study conducted by Hasni, Hani, Ramli, and Rafek (2018). The participant in the present study and those in the previous study has strong connection with their classroom practices. The participants do practice HOTS-based assessment in their classroom. However, as the participants reported, HOTS could not be implemented in all aspects of assessment. In the test items constructed by the participants, there was higher number of the items belong to MOTS and LOTS. This finding support the study conducted by Fensham & Bellocchia (2013) that test items constructed by teachers were mostly still in the category of lower-order thinking skills.

## **CONCLUSION**

The findings revealed that the participant obtained the idea of HOT-based assessment from the in-house training conducted at her school from which she continuously and independently learned about it. She was aware of the importance of HOTS in assessment. Besides, she thought that HOTS – based assessment can be applied in high school level by considering some strength and weaknessess. The participants implement HOTS in assessing the

students in only some aspects. She claims that HOTS cannot be implemented to some aspects. Thus, how to implement all aspects of HOTS in assessment may be further researched.

This study implies that more professional trainings in English learning may be useful for English teachers since they may be aware of the importance of HOTS but they do not have insight to implement it in the teaching learning process. Also, periodic supervision on the test items made by teachers should be done in order to avoid neglecting the aspects should be included. The active role of all educational contributors is highly needed to meet the success of implementing HOTS in teaching learning process, specifically in assessing students' ability.

Considering the limited participant of this study, it might be worthwhile to study similar topic with more participants or from different disciplines. Also, the future researches might focus the studies on one aspect of HOTS. Furthermore, analyzing HOTS in other area in English is suggested to conduct further.



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