

Understanding and quality of minimum competency assessment (AKM) questions made by Integrated Science teachers in junior high schools

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ABSTRACT

The main problem with implementing the minimum competency assessment (*Asesmen Kompetensi Minimum* or AKM) is the teacher's lack of understanding of AKM. The assessment questions made by the teacher are still limited to testing memory. The level of variation and difficulty of the questions presented is also still low (LOTS), contrary to the government's expectation to improve the quality of learning outcomes which are oriented toward students' higher-order thinking stages (HOTS). This research employed a mixed method. An overview of the teacher's understanding was obtained through questionnaires and interviews, while the description of the quality of the AKM of Integrated Science items made by the teacher was analyzed using the item quality rubric based on Bloom's taxonomy. The data source was obtained from 25 Integrated Science teachers for class VIII of junior high school in Bekasi City. The data were collected through three stages. The first stage employed the Google Form survey to see the demographic map of informants and teachers' initial understanding of AKM. In the second stage, five informants were selected from the results of the survey, representing the data source's characteristics. Then, in the third stage, literature analysis was done to develop rubric criteria for assessing the quality of AKM items. This rubric was used by the research team to assess the quality of AKM items made by an Integrated Science teacher at a junior high school in Bekasi City. Questions that meet the criteria for good questions were collected and entered into the AKM question bank.

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INTRODUCTION

The Ministry of Education and Culture (December 2019) socialized a policy that will replace the National Examination (*Ujian Nasional* or UN) format with a Minimum Competency Assessment (*Asesmen Kompetensi Minimum* or AKM) and character surveys starting in 2021. The reason for replacing the UN is because the UN is judged to only measure low-level thinking skills so that it is not in line with current education goals. this. According to [Nurmawati et al. \(2021\)](#), the purpose of education in many countries is centered on developing higher order thinking skills (HOTS), to prepare students to face more complex problems in the future. In addition, [Hartini et al. \(2020\)](#) stated that the UN format was considered less than optimal as a tool to improve the quality of education nationally.

Based on the results of the 2019 National Examination, students' abilities in reasoning, analysis and evaluation are still in the low category. Referring to PISA (Program for International Student Assessment), TIMSS (Trends in International Mathematical and Science Study) and others, one of the international benchmarks in education is mastering literacy and numeracy skills. The ability to apply various kinds of numbers and symbols related to solving problems that exist in everyday life and the ability to analyze information displayed in various forms such

as graphs and tables (Ministry of Education and Culture, 2020b). It is for this reason that the Government introduced the National Assessment. Ahead of this policy, Indonesian future teacher candidates are expected to be able to face these new opportunities and challenges.

According to the Ministry of Education and Culture's Research and Development Agency in 2021, the National Assessment consisting of the Minimum Competency Assessment (AKM), Character Survey and Environmental Survey is an effort to evaluate the learning process and learning outcomes of education units throughout Indonesia. The results of the evaluation are used to improve the quality of the learning process in the education unit, then it can serve to improve the quality of student learning outcomes. This refers to the results of research in various countries which show that Assessment in education is needed to convince the public about the quality, accountability and effectiveness of teaching in schools in general, and learning by teachers in particular (Atjonen, 2014; Chen & Teo, 2020; Fletcher, 2021; Fulmer et al., 2015; Paget et al., 2016).

As in Meriana and Murniarti (2021), it is stated that there are still many questions in teacher assessments that are limited to testing memory and preparing questions that are not based on grids. The level of variation and difficulty of the questions presented is still low (LOTS), due to limited time for preparing questions, due to lack of practice by students to work on questions that require high-level thinking (HOTS). The students' reading skills and reading speed are quite low, evident from the unsatisfactory daily assessment results.

In general, this is contrary to the existing reality, in Indonesia in particular that there are still many teachers in Bekasi City who are not ready for the National Assessment which will affect the educators are expected to be able to maximize in understanding and making AKM questions in accordance with specified standards. Addressing these problems will depend on the current state of the school's quality.

Misconceptions in assessment can lead to low quality of education. According to Hartini et al. (2020), the National Examination format is considered less than optimal as a tool for improving the quality of education nationally. In line with this, Davies and Neitzel (Atjonen, 2014) said that assessment in education is needed to convince the public about the quality, accountability, and effectiveness of teaching in schools in general, and learning by teachers in particular. From the previous statement, the researchers concluded that the implementation of the National Examination so far has not been in accordance with the meaning of the Law on the National Education System and the purpose of the assessment itself, so the government adopted a policy of implementing the National Assessment as a substitute for the National Examination.

From this description, the researchers are interested in knowing how the Integrated Science teacher understands about AKM and how the quality of the Integrated Science AKM questions is made by the teacher. The results of this study will provide information about the description of teachers' understanding of AKM so it is very important to do.

RESEARCH METHOD

This study used a mixed method because it was in accordance with the research objectives, namely to find out how the understanding and quality of the minimum completeness assessment (AKM) items made by teachers teaching at the junior high school (*Sekolah Menengah Pertama* or SMP) unit level. According to Miles et al. (2014), the mixed method is a research method that combines qualitative and quantitative methods where the two methods are used together to obtain data that is more comprehensive, valid, reliable, and objective. For this reason, 25 Integrated Science teachers for class VIII junior high school (SMP) in Bekasi City who were willing to be surveyed using the Google Form, in order to obtain a demographic map of informants and data on teachers' initial understanding of AKM.

After the results of the Google Form survey were obtained, five informants representing the characteristics of the data source (informants) were selected based on educational

background, private or public schools, gender, whether or not they had attended AKM socialization, and teaching experience. For the five selected teachers, semi-structured interviews were conducted to dig deeper information regarding the teacher's understanding of AKM. The results of the interviews were then analyzed using the theory of comprehension ability based on the level of sensitivity and the degree of absorption of the material according to Bloom, which consists of three levels. The first level is being able to transfer meaning from one language to another according to the understanding gained from a concept (translation). The second level is being able to connect past knowledge with other knowledge obtained next (interpretation), and the third level is able to expand perception in terms of time, dimensions, cases, or problems (extrapolation).

Furthermore, a literature analysis was carried out to compile rubric criteria for assessing the quality of the AKM test items. This rubric was used by the research team to assess the quality of the AKM questions made by the SMP Integrated Science teacher in Bekasi City. Questions that meet the criteria for good questions are collected and entered into the AKM question bank.

FINDINGS AND DISCUSSION

Complete demographics of respondents can be seen in Table 1. Based on Table 1, it can be seen that the majority of respondents were female teachers (80%) and the rest were male teachers (20%). The age of the respondents was quite diverse, with the majority aged between 31 and 50 years, which is around 56%. Age under 30 years as much as 32% and age over 50 years as much as 12%. The majority of respondents teach in private schools as much as 72% and the rest teach in public schools as much as 28%. The educational background of respondents who are in accordance with the scientific field (IPA) is 72% and 28% of respondents are not suitable (Non-IPA). The majority of respondents had participated in AKM socialization (84%) and the rest of the respondents had not participated in AKM socialization (16%). Meanwhile, the teacher's initial understanding of the complete AKM was obtained through a questionnaire instrument, with the results presented in Table 2.

Table 1. Demographics of Respondents

No.	Respondent	Total	Percentage (%)
1.	Gender		
	Male	5	20
	Female	20	80
	Total	25	100
2.	Age		
	Under 30	8	32
	31 to 50	14	56
	More than 50	3	12
	Total	25	100
3.	School Status		
	Public	7	28
	Private	18	72
	Total	25	100
4.	Conformity with the Scientific Field		
	IPA	18	72
	Non-IPA	7	28
	Total	25	100
5.	Socialization of AKM		
	Already	21	84
	Non-IPA	4	16
	Total	25	100

Table 2. Teacher's Understanding of AKM

No.	Aspects of Understanding	Total	Percentage (%)
1.	Translation Aspect		
	Do not understand	6	24
	Understand	19	76
	Total	25	100
2.	Interpretation Aspect		
	Do not understand	6	24
	Understand	19	76
	Total	25	100
3.	Extrapolation Aspect		
	Do not understand	9	36
	Understand	16	64
	Total	25	100

The results of the questionnaire showing the integrated science teacher's understanding of AKM various things presented in Table 2 shows that the *translation* aspect shows that 76% of respondents have been able to transfer meaning from one language into another according to the understanding obtained from a concept. However, there are still 24% of respondents who do not have a basic understanding of AKM. In the *interpretation* aspect, identical data was obtained, that 76% of respondents were able to connect past knowledge with other knowledge obtained later. However, there are still 24% of respondents who do not have an intermediate level understanding of AKM. *The extrapolation* aspect shows that 64% of respondents have been able to broaden their perceptions in terms of time, dimensions, cases or problems. However, there are still 36% of respondents who do not have an understanding of the last level of AKM. This is inconsistent with previous research conducted by Fauziah et al. (2021) which said that 100% of teachers know what a minimum competency assessment is 87% of teachers know what components of reading literacy and numeracy are involved will be measured in the minimum competency assessment and as many as 12.5% of teachers do not know, 62.5% who say not only reading literacy and numeracy are measured in the competency assessment questions that answer, with 37.5% saying yes and 25% of teachers answered each of the reading literacy and numeracy questions, that is 36 questions and 75% is 30 questions. In this case, the minimum competency assessment needs to be socialized more towards teachers.

From the findings obtained during interviews with informants, it was revealed that science teachers in Bekasi City had sufficient understanding of the Minimum Competency Assessment (AKM). From the *translation aspect*, four out of five respondents were able to interpret that the AKM is an instrument of the National Assessment which consists of reading literacy and numeracy (Ministry of Education and Culture, 2020a), although there are still informants who have not received socialization from school, as explained in the following excerpt of the interview transcript this:

"There has never been a school, ma'am, special socialization for AKM itself, but once during a meeting with supervisors, we talked about AKM, but I had somewhat forgotten, ma'am. I know about AKM from the news on TV and social media, ma'am, I read information from there." (Informant interview 015, August 2021)

Such conditions do not prevent teachers from exploring their own knowledge related to AKM. It is proven that they are able to describe the meaning and importance of implementing AKM as follows.

"In my opinion, AKM is to measure students' competence in reading literacy and then numeracy." (Informant interview 008, August 2021)

According to the [Ministry of Education and Culture \(2020a\)](#), AKM is an assessment of the basic competencies (literacy and numeracy) that all students need to be able to develop their own capacities and benefit society. From this understanding, the opinion of informant 008 is in accordance with the Ministry of Education and Culture, although it does not fully detail the benefits of AKM, as is the opinion of informant 011 as follows.

"AKM is necessary for the students themselves so that they can increase enthusiasm again in literacy and numeracy to improve cognitive abilities in analyzing questions". (Informant interview 011, August 2021)

"If I'm not mistaken ma'am, I'm sorry if I'm wrong, AKM is a Minimum Competency Assessment, for example, for making comparisons, making data assessments, thinking critically, making conclusions, solving problems and applying student knowledge in real life contexts and in situations that still foreign." (Informant interview 015, August 2021)

Informant 015 was able to mention the long word for AKM, but the meaning mentioned by the informant was more directed to the meaning of HOTS. According to [Nurmawati et al. \(2021\)](#), HOTS equips students to be able to think critically in order to prepare students to face more complex problems in the future. Therefore informant 015 has not been able to interpret the AKM correctly.

"In my opinion, the Minimum Competency Assessment (AKM) is an assessment of the basic competencies needed by all students to be able to develop their own capacity and participate positively in society. There are two basic competencies that are measured by AKM: reading literacy and mathematical literacy (numeration)." (Informant interview 19, August 2021)

The description of AKM by informant 019 has mentioned in detail the functions and competencies of AKM so that it is in accordance with the description of AKM presented by the Ministry of Education and Culture ([Hendri & Kumi, 2020](#)), that AKM can be a more comprehensive assessment to measure students' minimum abilities. AKM contains material which includes tests of students' literacy, numeracy and character education abilities. Meanwhile, informant 018 was able to mention the meaning and importance of implementing AKM, but the informant had not included the literacy and numeracy components of AKM.

"AKM is a tool to measure the extent of the ability of knowledge that has been obtained by students". (Informant interview 018, September 2021)

At the level of understanding, being able to connect past knowledge with other knowledge obtained later (*interpretation*), the informant's understanding is quite good. This is evidenced from the results of the interviews where the informants were able to show the difference between the AKM and the UN. They claim that there are quite a number of differences, mainly in terms of the use and types of questions for each test, as shown in the following interview transcript.

"For National Examination, it's just multiple choice. If AKM has multiple choice, there's complex multiple choice, then there's a brief entry, there's a description, there's matchmaking. The Minimum Competency Assessment does not determine graduation because the AKM is carried out for grades 5, grade 8 and grade 11. So it does not determine graduation because for this matter it is better to be assessed by the school education unit and the teacher while teaching students like that, sir." (Informant interview 008, August 2021)

According to the [Ministry of Education and Culture \(2020a\)](#), the difference between UN and AKM can indeed be seen from the competencies tested, the types of questions, participants, and the level transfer function. Therefore, the difference between UN and AKM can be clearly described by informant 008. The same is true for the opinion of informant 019 as follows.

"It's different ma'am, as far as I know, one of the levels measured is for example if AKM achieves competence in reading literacy and numeracy, student character achievements, while the National Examination of achievements on curriculum competencies based on subjects." (Informant interview 019, August 2021)

A part from being able to mention the AKM competency achievements according to the rules of the Ministry of Education and Culture, at this level the respondents were also able to describe the types of AKM questions. This can be seen from the following interview transcript.

"As far as I know, AKM smells like HOTS, right, ma'am? Is it right? hehehe, so the problem leads to C1, C2, C3, C4, C5 to C6." (Informant interview 011, August 2021)

However, there were findings that teachers at School X were only assigned to teach with a combination of AKM, but these respondents did not make their own test questions when the material being taught was tested. This is because the school has assigned a special team of problem makers. As a result, respondents' knowledge and experience regarding the types and forms of AKM questions was still lacking. Some of the concerns that affect the practice of assessment in the classroom by teachers, one of which is the policy of the school leadership, where several regulations made by school leaders are contrary to the professional values of teachers, besides the involvement of parents in their children's education (Zulaiha et al., 2020). Mausethagen et al. (2021) mention in their article, that there are school leaders who do not want school exams and national exams to be a stamp of quality, or vice versa, even though he admits that the two assessments are of little importance. However, the same article revealed that there are still school leaders who are too focused on results without promoting good practices in the process.

At the level of being able to broaden perceptions in terms of time, dimensions, cases, or problems, the average informant has not been able to prove their understanding of the Minimum Competency Assessment (AKM). It was proven through in-depth interviews that there were several informants who had not been able to answer precisely what the rules for implementing AKM were, such as the following three interview transcripts.

"In my opinion, AKM is necessary, sir, but the preparations might be due to a pandemic like this. For example, at my school, God willing, from the teachers, the learning is systematic. So, isn't it evenly distributed, sir, education in Indonesia, for example, for example, I don't imagine that between public and private learning is like every teacher and every educational unit is different, sir." (Informant interview 008, August 2021)

Analysis of the results of interviews with informant 008 resulted in the finding that the informant had not been able to explore his understanding of AKM. According to Bloom (1956), understanding of *exploration* can be seen when informants are able to explain the problems or impacts of AKM and how to deal with these obstacles during implementation. This has not been seen from the following informants 008 and 018.

"How come I don't understand, ma'am, I was only asked to prepare questions to be tested on children. I don't understand the AKM rules myself. I once got socialization from the school principal, but technically I forgot and didn't understand." (Informant interview 018, September 2021)

The results of the analysis of in-depth interviews with informants, the researchers concluded that the level of understanding of the sensitivity and degree of absorption of science teacher material in Bekasi City about AKM was only limited to understanding *translation* and *interpretation*, not yet at the level of *extrapolation*, so it was still incomplete. In previous studies, teachers often considered student factors as obstacles in cultivating assessments, especially those with higher-order thinking skills, such as lack of motivation, low academic ability, and lack of reading habits (Driana et al., 2021). According to Pitsia et al. (2021), teachers with a more positive attitude towards standardized tests and those who are often involved in some form of pro-

professional development on standardized tests tend to use assessment data to inform their teaching results more frequently and openly, so teachers who attend training more often will more honest in conducting assessments.

From the results of the semi-structured interviews it was also revealed that there was a discrepancy in the items made by the informants with the specified criteria. Respondent 008 made ten items in accordance with the specified basic competencies. However, there were many errors in placing the cognitive level such as item numbers 1, 4, 5, 7, 9, and 10 should be at the L1 cognitive level but were placed at the L2 cognitive level. In item number 3 and 8 it should be at the L2 cognitive level but is placed at the L3 cognitive level. The majority of the items made by the teacher are at the LOTS level (C1/C2) as in item numbers 1, 4, 5, 7, 9, and 10, while the two items at numbers 2 and 6 are at the HOTS level (C4/C5/C6). The other two items in numbers 3 and 8 are at the MOTS level. (C3). There is only one item that has the concept of numerical numeration in item number 6. The ten items contain the concept of literacy in the form of informational texts and fictional texts. The informant only made one form of question out of five variations of the AKM question form, namely multiple choice.

Informant 011 made ten items in accordance with the specified basic competencies. The placement of the cognitive level and domain is appropriate, there are no mistakes from the ten questions made by the respondent. Items in questions 1, 2, 5, 6, and 8 are at the HOTS level (C4/C5/C6) according to the AKM question criteria. However, there are still items at the MOTS level (C3) such as in item numbers 3, 4, 7, and 9 and LOTS level items (C1/C2) as in item number 10. Out of ten only one item has the concept numeration numbers in item number 8. There are literacy concepts such as informational text or fictional text in item numbers 1, 2, and 10. Informant only made one question form out of the five variations of the AKM question form, namely multiple choice. Informant 015 only made two question items, should make ten items of questions that have been determined and not in accordance with the specified basic competencies. There is a misplacement at the cognitive level and cognitive domain. Item number 1 should be at cognitive level C4, but placed at cognitive level C1, and item number 2 should be at cognitive level 1 but placed at cognitive level 3. Item number 1 is at HOTS level (C4/C5/C6), while item number 2 is at the LOTS level (C1/C2). In item number 1, there are numeration concepts such as numbers, measurements or geometry and also literacy concepts, such as informational texts or fictional texts. In item number 2, there is no concept of numeracy or literacy. Informant made two forms of questions from five variations of the AKM question form, namely multiple choice and matchmaking.

Informant 018 made ten items in accordance with the specified basic competencies. However, there was an error in placing the cognitive level in item number 1 which should be at cognitive level 1 but placed at cognitive level 2, and item number 10 should be at cognitive level 3 but placed at cognitive level 2. Items 2, 3, 7, 9, and 10 are at the HOTS level (C4/C5/C6), item numbers 4, 5, and 8 are at the MOTS level (C3), and item questions 1 and 6 are at the LOTS level (C1/C2). There were no numeracy concepts or literacy concepts in the ten items made by the informants. The informant only made one form of question out of five variations of the AKM question form, namely multiple choice.

Informant 019 made ten items according to the specified basic competencies. However, in item numbers 3 and 4, there is a misplacement of the cognitive level which should be at level 3 but is placed at level 2. Items numbered 1, 5, 8, 9, and 10 are already at the HOTS level (C4/C5/C6), while item numbers 2, 6, and 7 are still at the MOTS level (C3). There is no concept of numeracy in the ten items made by respondents such as numbers, measurements or geometry. There are literacy concepts such as informational texts in item numbers 8, 9, and 10. The ten items made by respondents have four of five variations of AKM questions such as multiple choice, complex multiple choice, matchmaking, and description.

CONCLUSION

Based on the data analysis and discussion, it can be concluded as follows. (1) The level of understanding of the sensitivity and degree of absorption of material by science teachers in Bekasi City regarding AKM is only limited to translation and interpretation, not yet extrapolation, so it is still incomplete. Their understanding at the level of being able to transfer meaning from one language to another according to the understanding obtained from a concept is very good, likewise with the second level, namely being able to connect past knowledge with other existing knowledge obtained next. Informants already understand enough about AKM at this level. At the level of being able to broaden perceptions in terms of time, dimensions, cases, or problems, the teacher's understanding is still lacking. (2) The teacher's lack of understanding at the level of extrapolation is influenced by yet factors get AKM socialization. (3) The quality of the items made by the science teacher for class VIII was not good. This means that informants havenot been able to make AKM questions with good material suitability, cognitive level, and cognitive domains, there is still a lack of numeracy and literacy concepts in the questions, and they do not yet have variations in the type of questions that are appropriate for AKM.

Suggestions that can be given based on the results of this study are as follows. (1) The teacher must always complete the understanding so that misunderstandings do not occur. (2) There needs to be more intensive outreach, assistance, and training about AKM though during a pandemic.

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