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Development of AKM Class: Analysis Correlation of AKM Value on Students Logical Thinking Skills of 8 Grade Junior High School

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ABSTRAK

Permasalahan pendidikan di Indonesia yang saat ini belum terselesaikan antara lain lemahnya kemampuan literasi dan kemampuan berhitung yang terjadi pada siswa. Salah satu cara untuk mengukur kemampuan literasi dan numerasi adalah melalui penilaian. Salah satu bentuk penilaiannya adalah melalui Penilaian Kompetensi Minimum (AKM) yang dilaksanakan di kelas. Penelitian ini bertujuan untuk menganalisis hubungan antara kelas AKM dengan kemampuan berpikir logis. Metode penelitian menggunakan metode campuran. Penelitian ini dilakukan di 3 SMP kelas VIII dengan letak geografis yang berbeda. Total ada 60 responden. Teknik pengumpulan data yang digunakan peneliti menggunakan tes tertulis berupa soal AKM kelas, dan untuk data sekunder adalah wawancara. Analisis data kuantitatif dilakukan melalui uji prasyarat berupa uji validitas, reliabilitas, dan daya pembeda, tingkat kesukaran, uji normalitas, uji homogenitas, dan uji one way ANOVA. Hasil analisis skor AKM literasi dan numerasi AKM menunjukkan bahwa kemampuan membaca dan berhitung siswa termasuk dalam kategori rendah. Hal ini berarti bahwa siswa masih berada pada tingkat tahu dan mengerti. Untuk itu sangat penting meningkatkan penalaran siswa pada tingkat yang lebih tinggi guna mewujudkan implementasi kurikulum 2013.

ABSTRACT

The current unresolved problems in education in Indonesia include the weak literacy skills and numeracy skills that occur in students. One way to measure literacy and numeracy skills is through assessment. One form of assessment is through the Minimum Competency Assessment (AKM) which is carried out in class. This study aims to analyze the correlation between AKM classes with logical thinking skills. The research method uses mixed methods. This research was conducted in 3 junior high schools in eighth grade with different geographic locations. There are 60 respondents in total. The data collection technique used by the researcher used a written test in the form of AKM class questions, and for secondary data was an interview. Quantitative data analysis was carried out through prerequisite tests such as validity, reliability, and discriminatory power, level of difficulty, normality test, homogeneity test, and one way ANOVA test. The results of the analysis of the AKM literacy and numeracy AKM scores show that students' reading skills and numeracy skills are categorized as being in the low category. This means that students are still at the level of knowing and understanding. For this reason, it is very important to increase students' reasoning at a higher level in order to realize the implementation of curriculum 2013.

1. INTRODUCTION

Education is one of the most important things to create a generation of intelligent and noble human beings. Currently the development of education in Indonesia has not reached the desired target. One of the problems in education in Indonesia that is currently unresolved is the weak reading and numeracy skills that occur in students (Kivunja, 2014; McLeod et al., 2019; Skwarchuk et al., 2014). Many of them do not dig up information and even ignore important information that can add insight and knowledge. This is evidenced by Indonesia's PISA ranking in 64th position out of 72 countries participating in PISA activities. As for 2018, Indonesia's PISA ranking position was ranked 74th out of 79 PISA participating countries (Hewi & Shaleh, 2020; L A Megawati & Sutarto, 2021; Saefurohman et al., 2021). The government's efforts to make improvements to the results of the PISA assessment continue to be carried out, one of which is by increasing the quality of the assessment. Among the renewal programs in the assessment launched by the government is the existence of a Assessment National (AN) which was developed into a Assessment Competency Minimum (AKM) and a character survey (Ekawati et al., 2020;

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Marhaeni et al., 2018; Luthfiana Aristia Megawati & Sutarto, 2021). The Assessment Competency Minimum can measure basic skills, namely literacy and numeracy. Both are minimum competencies for students to learn for life & be able to contribute to society (Hidayah et al., 2021; Rohim, 2021). The presence of AKM questions has two components that are measured, namely reading ability and math ability. In both literacy and numeracy skills, the abilities assessed include logical-systematic thinking skills, reasoning skills using learned concepts and knowledge, as well as skills in sorting and processing information (Cahyanovianty & Wahidin, 2021; Purpura et al., 2011). The benchmark for the Minimum Competency Assessment is the measurement of literacy and numeracy. Both were chosen because they are basic abilities or competencies and are needed by all students regardless of profession and future aspirations (Awofala & Blessing, 2014; Hidayah et al., 2021). The AKM questions developed in class aim to diagnose each student's learning outcomes, so that a teacher can design learning that adapts to the student's competency level. The questions developed in the AKM Class focus on measuring students' reasoning when reading texts and also focus on mathematical knowledge abilities (Handayani et al., 2021; Nasution et al., 2021; Yamtinah et al., 2022). With the development of AKM Class questions it is hoped that it can improve students' reasoning abilities. This reasoning is very important for students to have, because it can measure competencies ranging from basic competencies to high-level competencies possessed by students (Hanurani, 2020; Hidayah et al., 2021).

Thus the researcher is very interested in studying further about the learning assessment in the form of developing AKM questions with the aim of analyzing the correlation of AKM scores on the logical thinking skills of Class VIII students of junior high school in region III Cirebon. The development of the AKM questions presented by the researcher is connected with indicators of logical thinking so that it will be more complete to know students' reading and calculating abilities. The questions developed in the AKM class focus on measuring students' reasoning when reading texts and focusing on mathematical knowledge abilities. This reasoning is very important for students to have, because it can measure competencies from basic to high-level competencies they have. So that students are expected to have logical thinking skills in activities both when making decisions, drawing conclusions, and doing problem solving. This research is very unique, because so far in the development of questions in the class in the form of written tests such as tests and exercises there are still many that use multiple choice and essays, while in the AKM Class the form of the questions is very complex. The forms of AKM questions, both literacy and numeracy, which are developed consist of multiple choice, complex multiple choice, matchmaking, short entries, and descriptions so that students can find out the variations in the types of questions being worked on. So that it will reduce the work on questions by guessing. Several forms of these questions can be raised by referring to the same stimulus, so that one stimulus can be made into several questions with various forms of questions. This is intended so that students can easily develop reading or calculating abilities towards the contents of the reading text. This study aims to analyze the correlation between AKM class with logical thinking skills.

2. METHODS

This research used mixed methods with a concurrent embedded strategy. Quantitative methods used as primary methods and qualitative methods as secondary methods. In this strategy, mixing quantitative data and qualitative data were carried out in the research discussion. The populations were all eighth grade students of SMPN 2 Majalengka, SMPN 7 Cirebon City, and SMP IT Al-Muqoddas. The sampling technique used was purposive sampling, namely class VIII D SMPN 2 Majalengka, class VIII A SMPN 7 Cirebon City, class VIII B SMP IT Al-Muqoddas of 60 respondents. The data collection technique used by the researcher used a written test in the form of AKM class questions with the category of literacy and numeracy which were connected with indicators of logical thinking skills. AKM class questions were used as primary data in the study. The AKM class questions were developed serve to map the literacy and numeracy abilitied of students. The mapping was obtained from the results of the AKM score of students with 4 competency obtained, namely the need for special intervention, basic, proficient, and advanced. Secondary data which was supporting data form of interview guidelines and questionnaires. Secondary data was taken after the written test was carried out. Interviews were conducted to obtain secondary data that support the effectiveness of AKM questions and mapping of AKM questions. While the questionnaire used one of them in the analysis of AKM mapping and correlation with logical thinking skills.

Quantitative data analysis was carried out through prerequisite tests such as validity, reliability, discriminatory power, level of difficulty, normality test, homogeneity test, and one way ANOVA test. AKM reports were obtained from the results of the AKM score obtained. The AKM score was correlated with the TOLT score of logical thinking skills using SPSS version 25. While qualitative data analysis was through expert validation (teacher and lecturer), interview results and questionnaires.

3. RESULT AND DISCUSSION

Results

AKM questions both in the literacy and numeracy categories, are one way to map students literacy and numeracy skills. AKM literacy questions that have been tested for validity and reliability with a validity value of AKM literacy of 0.91 and AKM numeracy questions of 0.89 while the reliability value of AKM literacy of 0.95 and AKM numeracy questions of 0.94 indicate the quality of the questions has fulfilled conditions for use. The results of the percentage reporting of AKM literacy and numeracy obtained in mapping students reading and counting abilities is show in Figure 1.

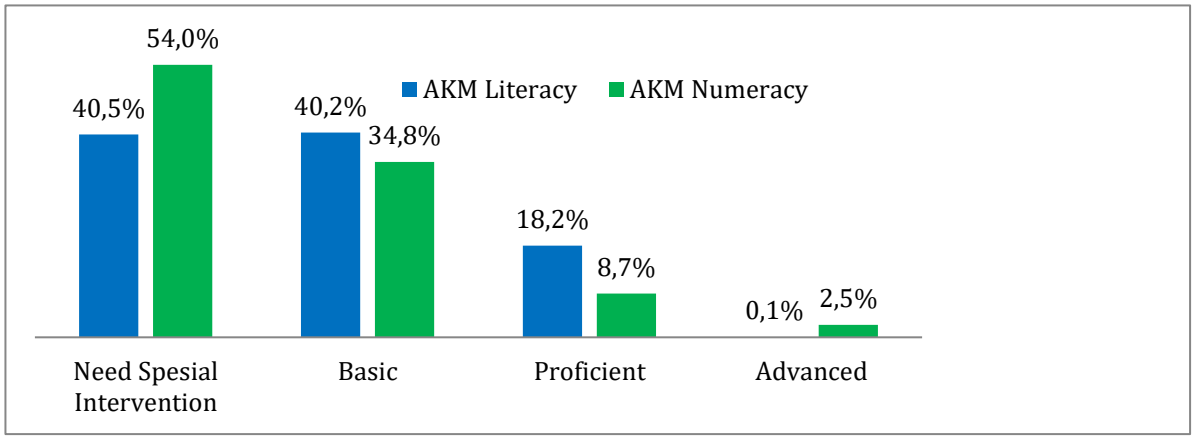

Figure 1. Results reporting students AKM

Base on Figure 1, the results of the report mapped out that students reading and counting skills were at a low level, precisely in the "need special intervention" category. Meanwhile, in the numerical AKM "needs special intervention" it is explained that students only have limited knowledge of mathematics. The questions developed in the AKM class focused on measuring students' reasoning when reading texts and focused on mathematical knowledge abilities. Reasoning is closely related to logical thinking. To describe logical thinking skills, scoring is done using the TOLT (Test of Logical Thinking). TOLT score results for AKM questions is show in Figure 2.

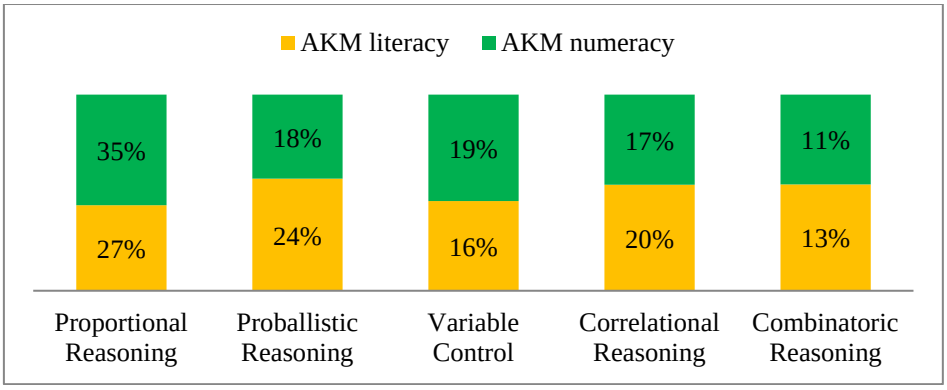

Figure 2. TOLT score results for AKM questions

Base on Figure 2, Proportional reasoning is mostly owned by students. This reasoning is basic reasoning. This shows the ability of students in reasoning is still low. The AKM value with the TOLT score is correlated, and obtain data as show in Table 1.

Table 1. The Correlation AKM value with the TOLT score

No	AKM type	Sig.	Predikat
1	AKM Literacy	0.993	Very strong correlation
2	AKM Numeracy	0.982	Very strong correlation

Base on Table 1 show the result of correlation AKM value with the TOLT score regarding to AKM Literacy is show very strong correlation. Then for AKM numeracy is show very strong correlation also.

Discussion

The effectiveness of the AKM class questions referred to in the research is that the questions are said to be effective if they are able to map students reading and counting abilities. The effective indicators measured in this study were the results of answer sheets and students responses as well as teacher responses (Hasiru et al., 2021; Kusuma et al., 2017; Narimo et al., 2019). There are four indicators in determining the effectiveness of a product, namely the reactions of students and teachers, learning obtained by students and teachers, students and teachers using new knowledge and skills, and student learning outcomes (Fuadati & Wilujeng, 2019; Hasan et al., 2015; Januarisman & Ghufron, 2016). The effectiveness of AKM questions can be seen from the analysis of the answer sheets in the form of AKM reporting obtained.

The results of the report mapped out that students reading and counting skills were at a low level, precisely in the ***"need special intervention"*** category. This category shows that students have not been able to find and retrieve explicit information contained in literacy AKM texts (Hidayah et al., 2021; Yamtinah et al., 2022). Many students are not used to reading information in the form of longer texts, so reading comprehension is still weak. Literacy has not yet become a culture that is considered a necessity (Fadillah & Munandar, 2021; Priyambodo & Maryati, 2019; Santoso et al., 2021). So that minimal information is obtained from what is read. Even though reading activities are part of a literacy culture that has many benefits. AKM numeracy results in the category ***"need special intervention"*** explained that students only have limited knowledge of mathematics. Students' mathematical ability is at a low level as evidenced by student achievement showing the higher the level of questions, the lower the percentage of student achievement in working on PISA type math problems (Fiangga et al., 2019; Mevarech & Fan, 2018). Students only have limited knowledge of mathematics, have not been able to apply and even solve mathematical problems in everyday life. Student responses and teacher responses support the results of student answer sheets in determining the effectiveness of AKM questions. The results of the interviews showed that 100% agreed that AKM could map reading and numeracy skills. All respondents as many as 20 students stated that they were in the less category of these two abilities. Students honestly reveal their weaknesses in finding, understanding and reflecting on information in texts. It is even more difficult for students to solve math problems in everyday life (Sriwahyuni & Maryati, 2022; Wang et al., 2018).

Analysis of the answer sheets for literacy and numeracy AKM questions showed that students reading and counting skills were in the low category. The ability to read and count is one of the abilities of students that must be considered. The existence of literacy does not just know and understanding the information obtained in reading. But students can use, evaluate and reflect on the contents of the reading. Likewise with the ability to count, the existence of calculations is not just to count numbers, but is more developed to solve mathematical problems in everyday life (Asyhari, 2015; Fatmawati & Safitri, 2020; Junika et al., 2020). The questions developed in the AKM class focused on measuring students reasoning when reading texts and focused on mathematical knowledge abilities. Reading ability and counting skills are closely related to logical thinking (Changwong et al., 2018; Rahman, 2019). The results showed that proportional reasoning indicators had the most number compared to other types of reasoning. Proportional reasoning is one type of reasoning that is easily owned by students. This is due to the focus on proportional reasoning related to students understanding of various text contents developed in literacy and numeracy AKM questions (Hilton et al., 2016; Sawatzki et al., 2019). AKM scores are correlated with scores on students logical skills (TOLT scores). This is done to determine the strength of the relationship between the AKM score and the logical skills possessed by students. The research results obtained a correlation value of 0.993 for the literacy category and 0.982 for the numeracy category. This shows that there is a very strong relationship between the AKM score and the TOLT score. Correlation values with intervals of 0.81–1.00 are a perfect type of correlation. By looking at the high correlation, it can be stated that the higher the AKM value obtained, the higher the ability to think logically. Likewise, if the AKM score is low, it shows that logical thinking skills are also low. This happens because the AKM questions have the characteristics of questions with a stimulus that can improve reasoning so that it will be directly proportional to the ability to think logically which demands the ability to read and count students. The correlation value for literacy AKM and numeracy AKM has a very strong correlation. These results are also supported by the results of interviews with 20 students. All students stated that AKM correlated with logical thinking skills. Other data that corroborates are the results of a questionnaire of 40 student respondents and 10 teacher respondents who stated that literacy and numeracy scores correlated with students logical thinking skills. Students AKM scores are in the low category, so that the ability to think logically is not yet in the high category.

Students reasoning abilities are very important to be improved. With the development of AKM class questions, it is hoped that students will be able to find concepts independently so that students logical thinking abilities can be seen. The ability of information literacy in students through the learning process can improve students abilities in terms of compiling written works, completing assignments, and also ways of thinking. One way of thinking that is applied is logical thinking too solve weak reasoning abilities of junior high school students, especially mathematical reasoning (Dole et al., 2015; Hilton & Hilton, 2018). Students experience difficulties in solving problem situations by following logical arguments and difficulties in drawing logical conclusions from the solutions obtained.

The implication of this study are contribute to the existing body of knowledge about the effectiveness of integrating AKM values in the classroom setting in promoting students' logical thinking skills.This study can be used as a basis for improving the curriculum and instructional practices in junior high schools by incorporating AKM values into the teaching approach. The findings can also inform policymakers about the importance of promoting AKM values in the school setting as a way of developing students' cognitive and moral skills. The limitation of this study may not be generalizable to other grade levels or different cultural contexts, as the study only focuses on 8th grade junior high school students. The study also faces limitations in terms of measuring the effectiveness of the AKM class in promoting logical thinking skills. Therefore for future study hopefully can conducted similar research with consider other factors such as prior knowledge, motivation, and teacher effectiveness may also influence students' performance.

4. CONCLUSION

Literacy and numeracy AKM questions are very effective in mapping students reading and counting skills. By mapping the ability to read and count students are in the ***"low"*** category indicating the need for special interventions to improve these two abilities. So there is a very significant correlation between the AKM score and students logical thinking skills, which shows that the AKM is directly proportional to the reasoning ability in students reading competence and counting competence.

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