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CRITICAL AND CREATIVE THINKING SKILLS IN ELEMENTARY SCHOOL MINIMUM COMPETENCY ASSESSMENT: LITERACY AND NUMERACY

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Abstract
The purpose of this research was to identifying the occurence of critical thinking and crrative thinking skills indicators in the instruments of AKM (Minimum Performance Assessment). This research used qualitative descriptive method using documentary study. The research results showed that the content of AKM instrument in both literacy and numeracy questions were dominated by critical thinking skills appearance, with the major indicators of making deductions and considerations toward deduction, which belonged to the aspect of making inference. This indicator is the ability to make conclusions. The distribution of critical thinking skills indicators on literacy questions was 42% and 67% on numeracy questions. Meanwhile, the emergence of creative thinking aspects in literacy questions reached 3% and 5% in numeracy questions.
Keywords: *critical thinking skills; creative thinking skills; literacy and numeracy; national assessment*

Abstrak
Tujuan dari penelitian ini untuk mengidentifikasi kemunculan indikator ketarampilan critical thinking dan creativef dalam soal Asesmen Kinerja Minimum (AKM). Penelitian ini menggunakan metode penelitian kualitatif dengan tipe yang diterapkan adalah studi deskriptif (studi dokumen). Hasil penelitian menunjukkan bahwa soal AKM literasi dan numerasi lebih didominasi oleh kemunculan keterampilan critical thinking dengan kategori soal lebih banyak masuk ke dalam kategori indikator mendeduksi dan mempertimbangkan hasil deduksi. Indikator tersebut merupakan kemampuan pada aspek membuat kesimpulan. Sebaran kemunculan indikator kekampuan berpirikir kiritis pada soal literasi adalah 42% dan pada soal numerasi sebesar 67%. Sedangkan kemunculan aspek berpikir kreatif pada soal literasi mencapai 3% dan pada soal numerasi sebesar 5%.
Kata Kunci: keterampilan berpikir kritis; keterampilan berpikir kreatif; literasi; numerasi; asesmen nasional

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Introduction

The increasingly rapid development of the times requires individuals to have special skills in order to compete globally. With advances in science and technology, the rapid flow of globalization is characteristic. This refers to the necessity of improving the quality of education in Indonesia. Schools, with their position as official educational institutions, are the main target

for developing qualified skills. One thing that every individual must master is literacy skills. Especially at the elementary school level, these literacy skills must be applied in every learning practice. Education in the 21st century must ensure that students can develop their skills in learning and innovation, as well as skills in using information technology in their social life. Education in this century covers the domains of skills and understanding, but also focuses on the domains of creativity, collaboration and communication skills. So, in line with the above, there are several aspects that must be mastered by students as social creatures who will continue to follow developments with the times, starting from skills in thinking, acting, to mastering knowledge such as literacy to mastery of technology and being able to bring a positive attitude to their lives. (Kasse & Atmojo, 2022; Kumalasani, Fitri, Aini, & Kusumaningtyas, 2022; Suarni, Taufina, & Zikri, 2019).

Minimum Competency Assessment (AKM), is a new breakthrough in the education evaluation system which is a form of national assessment. In its implementation AKM uses computer media. AKM is an embodiment of new innovation from the world of Indonesian education in improving students' literacy and numeracy skills so they can compete globally. AKM is an important focus in curriculum and learning development in the modern education era. This is because educational institutions are a determinant in the readiness of human resources, the quality of individuals who possess not only knowledge but also skills in accordance with the needs of the 21st century *(learning and innovation skills).* (Zubaidah, 2018; Muflikhah et al., 2021). By implementing AKM, this focuses on the aim of the independent curriculum, namely to be an implementation in liberating students. This is in accordance with its focus on developing the competency and character of students. It was further stated that the Minimum Competency Assessment (AKM) is specifically applied to measure the level of competency in thinking and reasoning when students read data and text (literacy) and work on questions about mathematical knowledge (numeracy). This is useful in knowing the classification of competencies that will be followed up leading to improved learning and student learning outcomes. AKM contains various problems with various contexts that are expected to be solved. This test is not only for mastery of content but can also measure competence in depth. With this, teachers can build a framework for appropriate learning strategies with differentiated problems. The implementation of this AKM aims to build sustainable education with measurable problem solving, as well as providing information regarding the level of skills in the competency aspects of students(Akhsan, Wiyono, Ariska, & Melvany, 2020; Meriana, Murniarti, & Dasar Kanaan, 2021; Sani, 2021; Zahrudin, Ismail, Yuliati Zakiah, Program Doktoral Pendidikan Islam, & Sunan Gunung Djati Bandung, 2021). However, despite the potential benefits of AKM, there remains a gap in understanding its effectiveness in addressing the broader objectives of enhancing critical and creative thinking skills among students. Therefore, further research is warranted to evaluate the impact of AKM implementation on students' overall skill development and educational outcomes. Such investigations can provide valuable insights for educational practitioners, policymakers, and researchers seeking to optimize educational assessment practices and promote holistic student development.

In this case, the 21st century skills referred to are the 4C skills (*Critical Thinking, Communication, Collaboration, and Creativity)* , 21st century skills which are very vital in preparing students to face challenges in the era of the Industrial Revolution 4.0. Therefore, an in-depth understanding of the content of 4C skills in AKM is very important to study and apply in the current educational context. Every educational institution must be able to face the challenges of modern progress and provide educational services to students and make them superior

individuals who are able to adapt to compete globally (Suwardana, 2018, hlm. 113). In line with this statement contained in the law of the Republic of Indonesia no. 23 of 2003 relating to the national education system in article 3, explains that the aim of national education is to develop abilities and shape the personality and civilization of a dignified nation in order to educate the life of the nation by developing the potential of students to become human beings who believe and are devoted to God Almighty. , have noble character, be healthy, knowledgeable, capable, creative, independent, and be a democratic and responsible citizen. As an AKM activity that focuses on literacy and numeracy skills, students without realizing it use thinking skills, especially at a difficult level *(high order thinking skills)* . The types of thinking used are creative, critical, reflective logical and metacognitive. This was also explained by (Hariani, 2021, hlm. 12), stating that there are two thinking abilities that children must have, namely creative and critical thinking skills which are useful for solving the problems they face. In creative thinking, this thinking activity is found in 21st century skills, which means that the ability to think is the main key for students in living an advanced life.

Students' critical thinking skills will refer to various ways students can solve problems, by thinking to the root. Individuals who think critically will start by examining or observing a problem, this is done so that the solution obtained will be in accordance with the reality that occurs. In line with this, *Halpern's Critical Thinking Assessment* puts (Hatcher, 2013)forward indicators that assess individuals when thinking critically on four main components: reasoning, decision making, problem solving, and understanding concepts. Meanwhile, critical thinking skills are certainly different from creative thinking skills. In creative thinking, it is said that (Uloli et al., 2016),the ability to think creatively emphasizes the quantity of opportunities for solutions to a problem as well as efficiency and multiple answers. It can be concluded that the ability to think creatively emphasizes students to discover new things with many possibilities according to the information provided.

These two thinking abilities are a starting point for literacy and numeracy tests. In this case, according to (Abidin et al., 2018),there are 3 abilities that are echoed in assessing or evaluating literacy and numeracy abilities, namely aspects of critical thinking, creative thinking and problem understanding. Therefore, the research team will examine the content of these 2 thinking abilities in the AKM test in elementary schools.

This research represents a novelty as it explores the analysis of critical and creative thinking skills within the Minimum Competency Assessment (AKM) at the elementary school level, with a focus on literacy and numeracy. This study expands our understanding of how AKM can be an effective evaluation tool in measuring not only content mastery but also students' abilities in critical and creative thinking. By considering these two aspects, this research delves deeper into the effectiveness of AKM as a tool for measuring critical thinking skills, which are crucial in developing students' skills to face future global challenges. This research contributes anew to the field of education by linking the concepts of critical and creative thinking skills with the implementation of AKM in elementary schools. Therefore, this research is expected to provide valuable insights for education practitioners, researchers, and policymakers to enhance a more holistic and comprehensive evaluation approach in supporting the development of students' skills for a better future.

Research methods

This research uses qualitative research methods with the type applied being descriptive study (document study). Several descriptions are used to emerge principles and explanations that lead to conclusions. The data obtained used data collection techniques through a document

analysis process regarding literacy and numeracy on the AKM assessment instrument. Then, the data collection was analyzed using a checklist that was in accordance with the indicators of 21st Century skills. Nasution (dalam Sugiyono, 2012)stated that the analysis had started since formulating and explaining the problem, before going into the field and continued until the writing of the research results. Data analysis becomes a guideline for further research until, if possible, *grounded theory* is in line with this (Sukmadinata, 2021), descriptive research using both quantitative and qualitative methods, aimed at explaining real events without data engineering. In this research, researchers used a sample of 74 questions consisting of 38 AKM literacy questions and 36 AKM numeracy questions.

The limitation of the problem in this research is that the researcher tries to analyze the questions referring to 21st century skills, such as 4C (*Critical Thinking, Creative Thinking, Communication, and Collaboration*). However, for this analysis the researcher focused on *critical thinking and creative thinking* , because the research results obtained showed that the questions referred to these skills. This also aims to describe whether indicators of 21st century skills appear in the AKM literacy and numeracy assessment instruments and which ones appear most dominantly in the AKM assessment instruments.

The data analysis process is carried out carefully to ensure the validity and reliability of the data. The validity of the documents analyzed is maintained by ensuring that the document sources used are reliable and relevant to the research objectives. The selection of appropriate criteria for analyzing data also becomes a primary concern, ensuring that the criteria align with the predetermined analytical framework. The use of valid and reliable checklists is also a crucial step in ensuring that the data is analyzed consistently and accurately according to the research objectives. With this approach, the validity and reliability of the data in this study can be effectively maintained.

Results and Discussion

The results of this research are to provide a theoretical view of the results obtained in this research. The following is an overview of the results of data analysis in the form of a checklist that has been prepared and filled in according to 21st Century skills.

All of these questions were analyzed and distributed in one pie chart as follows :

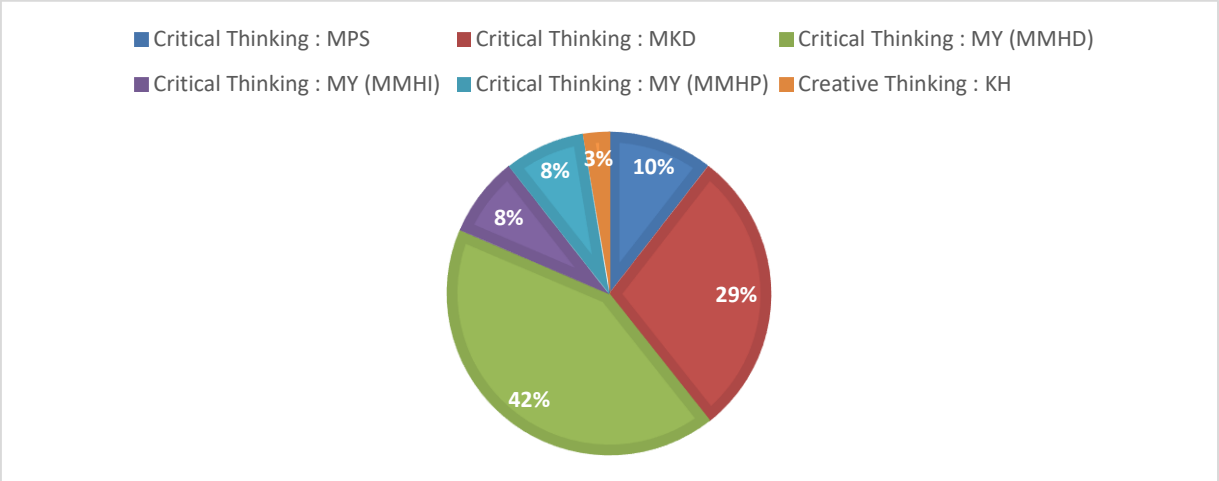

Figure 1 Circle Diagram of Analysis of AKM Literacy Questions

Information:
Critical Thinking

1. Give Explanation Simple : MPS
a. Focus Question : MP
b. Analyze Argument : MA
c. Ask and answer Question : BMP
2. Build Skills base : MKD
a. Consider is source Trusted or no : MASTT
b. Observe and consider report observation : MMLO
3. Conclusion : MY
a. Deduct and consider results deduction : MMHD
b. Induce and consider results induction : MMHI
c. Create and determine results consideration : MMHP
4. Give explanation continued : MPL
a. Defining terms and consider something definition : MIMSD
b. Identify assumptions : MAA _
5. Set strategy and tactics : MSTick
a. Determine something action MSTin
b. Interact with other people : BOL

Figure 1 circle diagram of the analysis of AKM literacy questions shows the results of the analysis as follows, namely:

In *critical thinking skills* , namely a) Indicators of analyzing arguments are included in the group of providing simple explanations. The occurrence of this indicator is 10%, namely in questions number 5, 6, 11, and 16. Argumentation has a significant contribution in developing *critical thinking skills* with unique characteristics, namely assessing sources of information, evaluating arguments and producing arguments and presenting them (Roviati, Widodo, Purwianingsih, & Riandi, 2019, hlm. 77).

b) The indicator of observing and considering observation reports is included in the group of building basic skills. The occurrence of this indicator is 29%, namely in questions number 4a, 4b, 4c, 8, 10, 12, 18, 19, 22, 23 and 28. This skill is intended so that students can provide correct evidence based on the results of observations or data from observations or observation of a particular case (Sulthan Ontowijoyo et al., 2022). In this AKM literacy question, students asked to do observation to the pictures presented , either on the questions or choice the answer .

c) Indicators deduce and consider results deduction including into groups concluded . The occurrence of this indicator is 42%, namely in questions number 1a, 1b, 2a, 2c, 3a, 3b, 3c, 7, 15, 17, 20, 24, 25, 26, 27, and 30. Muafatun, S (2018, p. 7) states that deductive reasoning is a framework or way of thinking that starts from general assumptions or statements in order to arrive at a certain conclusion. Deductive reasoning is often referred to as *little logic* because it examines the mind's adaptation to certain laws, rules and standards.

d) Indicators of inducing and considering the results of induction are included in the concluding group. The occurrence of this indicator is 8%, namely in questions number 1c, 2b, and 14. Muafatun, S (2018, p. 6) states that inductive reasoning, also called *primal logic* , is a way of thinking that draws conclusions about general or universal phenomena from observations of certain things.

e) Indicator creates and determine the results of the considerations included in the concluding group. The occurrence of this indicator is 8%, namely in questions number 9, 13, and 21. (Ennis, 1985)It states that there are 5 sub-indicators, namely background facts,

consequences, application of principles, considering alternatives, and considering and determining. This is in line with Muslim (2015) who (Sa'adah, Suryaningsih, & Muslim, 2020, hlm. 188)states that the purpose of indicators for creating and determining consideration results is to consider and decide on the results of considerations based on facts.

Meanwhile, *creative thinking skills,* namely indicators of generating ideas, are included in the flexibility/flexibility group. (Mursidik, Samsiyah, & Rudyanto, 2015)states that generating ideas is part of an indicator of critical thinking, where generating new ideas is a combination of several previously existing elements that are useful for solving the problems faced. The appearance of this indicator is 3%, namely in question number 29. This means that AKM literacy questions are more likely to fall into the category of deducting indicators and considering the results of the group's deduction, they concluded that the achievement was 42% for 16 questions.

All questions are analyzed and distributed in one pie chart as follows :

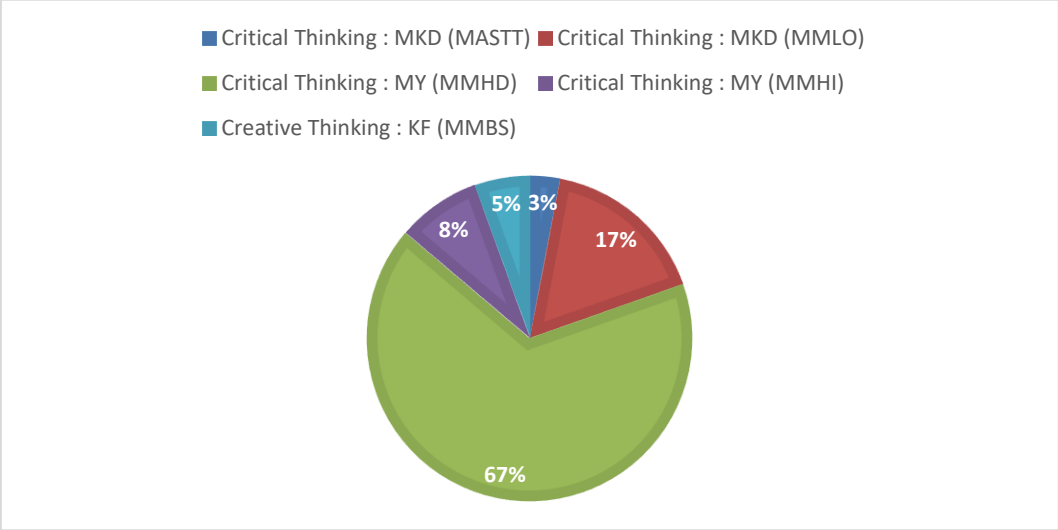

Figure 2 Pie Diagram Analysis of AKM Numeracy Questions

Information:
Creative Thinking

1. Smoothness thinking / fluency : KBK
   a. Trigger Lots idea: MBI
   b. Give Lots method or suggestions for do various subject : MBCS
   c. Think about more from One answer : MLSJ
2. Flexibility / flexibility : KF
   a. Produce ideas , answers : MGJ
   b. See problem from various corner view : MMBS
   c. Look for Lots alternative : MBA
   d. Capable of change method thoughts : MMCP
3. EL's elaboration
   a. Capable of enriching idea : MPG
   b. Add something object become more interesting : MSO
4. Authenticity : KE
   a. Capable of giving birth expression new and unique : MMU

b. Think about no way _ common : MCL

Able to make a combination that doesn't common : MML

Figure 2 pie charts analysis of AKM numeracy questions show results analysis as follows , namely:

In *critical thinking skills* , namely a) Indicators consider whether or not trusted sources are included in the group building basic skills. The occurrence of this indicator is 3%, namely in question number 13. Building basic skills (*basic support*) is related to the individual's ability to consider the reliability of information sources and carry out reflective observations (Maolidah, Ruhimat & Dewi, 2017; Bahri, 2017; Khoiriyah, 2018) in (Suciono, W et al., 2018).

b) The indicator of observing and considering observation reports is included in the group of building basic skills. The occurrence of this indicator is 17%, namely in questions number 7, 8, 10, 16, 24, and 30. This skill is intended so that students can provide correct evidence based on the results of observations or data from observations or observations of a particular case (Sulthan Ontowijoyo et al., 2022, hlm 154). In this AKM literacy question, students are asked to observe the pictures presented, both in the question and in the answer choices.

c) Indicators of deducing and considering the results of the deduction are included in the concluding group. The occurrence of this indicator is 67%, namely in questions number 1a, 1b, 1c, 2a, 2b, 2c, 3c, 4, 9, 11, 12, 14, 15, 17, 18, 19, 20, 21, 22, 23 , 26, 27, 28, and 29. Muafatun, S (2018, p. 7) states that deductive reasoning is a framework or way of thinking that starts from general assumptions or statements in order to arrive at a certain conclusion. Deductive reasoning is often referred to as *little logic* because it examines the mind's adaptation to certain laws, rules and standards.

d) Indicators of inducing and considering the results of induction are included in the concluding group. The occurrence of this indicator is 8%, namely in questions number 3a, 3b, and 25. Muafatun, S (2018, p. 6) states that inductive reasoning, also called *primal logic* , is a way of thinking that draws conclusions about general or universal phenomena from observations of certain things.

creative thinking skills , namely indicators of seeing problems from various points of view, are included in the flexibility/flexibility group. This is in line with Firdaus et al., (2021) that students with creative imagination start by asking questions, identifying various possibilities, and discovering new concepts by looking at problems from different points of view. The occurrence of this indicator is 5%, namely in questions number 5 and 6. This means that the AKM numeracy questions are more likely to fall into the category of deducting indicators and considering the results of the group's deduction, they concluded with an achievement of 67% on 24 questions.

Conclusion

Based on the results of the analysis and discussion, it was concluded that the AKM literacy and numeracy questions refer to 21st Century skills, namely *critical thinking* and *creative thinking skills. The most dominant skill that appears on the AKM assessment instrument is critical thinking* skills with more questions falling into the indicator category of deducing and considering the results of the group's deduction. Concluding with the appearance of literacy questions at 42% on 16 questions and the appearance of numeracy questions at 67% on 24 questions. .These findings provide an insight into the need to more consciously integrate these skills into the educational framework. With critical thinking skills being the most dominant, forming a significant part of these questions, it emphasizes the importance of fostering these skills among students. These

findings underscore the necessity for educators and policymakers to reassess current curricula and teaching methodologies to ensure they sufficiently develop critical and creative thinking abilities. By integrating these findings into educational practices, educators can better prepare students for the demands of the future workforce and global challenges, ultimately contributing to the enhancement of educational quality and student success.

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