Cendikia : Media Jurnal Ilmiah Pendidikan, 13 (2) (2022) pp. 402-407
Published by: IOCSCIENCE
Cendikia : Media Jurnal Ilmiah Pendidikan
Journal homepage: www.iocscience.org/ejournal/index.php/Cendikia

Analysis of Fast and Precise Thinking Skills for Class V Elementary School Students on Mathematics Materials

Linda Feni Haryati[1], Kus Eddy Sartono[2]
[1,2] Program Studi S3 Pendidikan Dasar, Fakultas Ilmu Pendidikan, Universitas Negeri Yogyakarta

ARTICLE INFO

Article history:

Received Nov 03, 2022
Revised Nov 09, 2022
Accepted Nov 30, 2022

Keywords:

Thinking ability
Math learning
Elementary School

ABSTRACT

Mathematics is one of the fields of science that is indispensable in everyday life. Many problems in everyday life require mathematics to solve. Once the importance of mathematics, since elementary school students are introduced to numbers and counting. Solving math problems requires not only accuracy but also speed. This is related to the demands of the times that require everyone to solve all problems quickly. The ability of students to think quickly and accurately is one indicator of students' ability to solve problems related to mathematics in their lives. Therefore, it is important to conduct research related to the ability of elementary school students to think quickly and precisely on mathematical material. This research was designed in the form of survey research with a descriptive approach. The subjects in this study were fifth-grade elementary school students with a total of 40 students. Data collection using tests. The materials tested were integers, measurements, the area of flat shapes, and volumes of cubes and blocks. Data analysis used descriptive statistics. The results showed that student's ability to think quickly and accurately was still low. Students can work on questions well if they are not given a time limit, but if time is limited the student's test results are very bad. This shows that students cannot think quickly and precisely about mathematical material. Based on the results of this study, it is recommended to conduct further research so that students' ability to think quickly and accurately increases.

Corresponding Author:

Linda Feni Haryati,
Program Studi S3 Pendidikan Dasar, Fakultas Ilmu Pendidikan
Universitas Negeri Yogyakarta,
Jl. Colombo No.1 Yogyakarta 55281, Indonesia,
Email: lindafeni.2022@student.uny.ac.id

INTRODUCTION

Mathematics as a field of science has a very large contribution in the development of science. Mathematics is often used by other fields of science as an auxiliary science, especially those related to the development of science and technology (Widiastuti, 2017). Apart from being the foundation for other sciences, mathematics has a practical contribution in solving everyday life (Hidayah,

2018). Many problems require mathematics in the completion process, one of which is the use of arithmetic and measurement operations (Widiani, 2019). Therefore, since elementary school students have been introduced to mathematical concepts. Moreover, at the elementary school level, the most important thing to do is understanding concepts, so that students do not experience difficulties when studying at the next level (Rizki et al., 2020). The mathematical concepts that have been learned are expected to be used when students face math problems (Hayati & Asmara, 2021). Students are required to be able to use concepts appropriately to find answers to the problems presented (Murdiana, 2015). The thought process that was built from the start in an effort to solve a problem should take place intentionally and to the end (Supardi, 2012). Mastery in this case means that students must go through the process so that they have been trained and have the opportunity to empower and function their existing abilities so that they understand and master what they are learning.

The purpose of learning mathematics is not only so that students understand the material being taught, but what is more important is to teach students to be able to think at higher levels of mathematics (Jaenudin et al., 2017). Some of the expected thinking skills are mathematical reasoning, mathematical connections, mathematical communication, and mathematical problem-solving (Nurfitriyanti et al., 2020). Through these thinking skills, students are expected to be able to solve problems related to mathematics. In solving math problems students need thinking skills (Marsitin, 2018). With the thinking skills that students have, they can immediately find the right way to solve the problems they face (Marsitin, 2018). Activities or thought processes that are undertaken so that a person can solve a mathematical problem are related to the ability to remember, recognize the relationship between mathematical concepts, and realize the existence of causal relationships, analogous or different relationships, which can then bring up original ideas, as well as fluently and easily. flexible in making decisions or conclusions quickly and accurately (Fuady, 2017).

The ability to think quickly and precisely is a demand that must be mastered by all students. Students are not only required to complete correctly but must be fast in terms of time (Dores et al., 2020). The ability to think quickly and accurately is an indicator of a student's ability to solve various problems in everyday life (Pandu, 2020). Based on this background, it is necessary to research to determine students' thinking skills in solving mathematical problems.

RESEARCH METHODOLOGY

The type of research used is survey research. Respondents in this study were fifth grade elementary school students. The number of respondents studied were 40 students. Data collection was carried out at two elementary schools in West Lombok district. The main instrument used in this study was a math test question, while the supporting instrument used was an interview guide. The number of questions tested is 20 questions. The scope of the material tested includes material on integers, measurements, area of flat shapes, and volume of cubes and blocks. The stages of the research consisted of compiling instruments, collecting data, analyzing data, presenting data and drawing conclusions. Data collection was carried out in two tests. In the first test the respondents were not given a time limit in working on the respondent's questions, but each respondent was given a special note to find out how long it took each student to do the test. In the second stage the respondents were given a time limit, the maximum time that could be given for the second test was 60 minutes to do 20 questions. Respondents can be categorized as having the ability to think quickly if they can solve the problem in 60 minutes. If it is more than 60 minutes, the respondent can be categorized as a failure or the ability to think quickly is still low. After taking the data, an analysis was carried out using descriptive statistics to determine the accuracy of the answers and how much time students needed to work on the math problems being tested. To determine the category of test results, the researcher adopted the category of learning outcomes from (Arikunto, 2015) as follows:

Table 1.
Kategorisasi hasil tes

Category	Score
Very well	80-100
Well	66-79
Enough	56-65
Not enough	40-55
Fail	30-39

RESULTS AND DISCUSSIONS

To determine the respondent's ability to think quickly and accurately, it is done through two measurements or two tests. Data collection in the first test respondents were not given a time limit, while in the second test respondents were given a time limit. The measurement results on the first test were then compared to be analyzed descriptively. The data analyzed is the accuracy of the answers and the amount of time it takes respondents to solve math problems. The recapitulation of the first test results is presented in figure1.

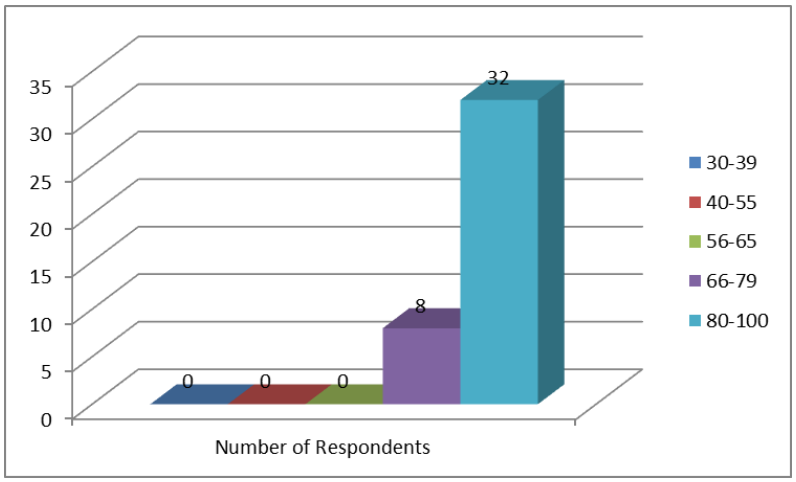

Figure 1. Tabulation of the first test results

Based on the first figure, it can be seen that of the 40 respondents who took the test, 32 respondents got scores between 80-100 on the first test. In this value range, students can be categorized as very good in solving problems. The number of respondents who got scores in the range of 66-79 or in the good category were 8 respondents. In the figure it is also seen that there are no respondents who get a score below 66. If referring to the criteria determined by (Arikunto, 2015) then the respondents who fall into the very good category are 32 respondents, while those who are in the good category are 8 respondents. Based on these data, it can be concluded that most of the respondents can do well on math test questions if there is no time limit.

In addition to the accuracy of the answers in the first test that is analyzed is the time it takes respondents to solve math problems. The following can be seen the results of measuring the time of working on the questions on the first test:

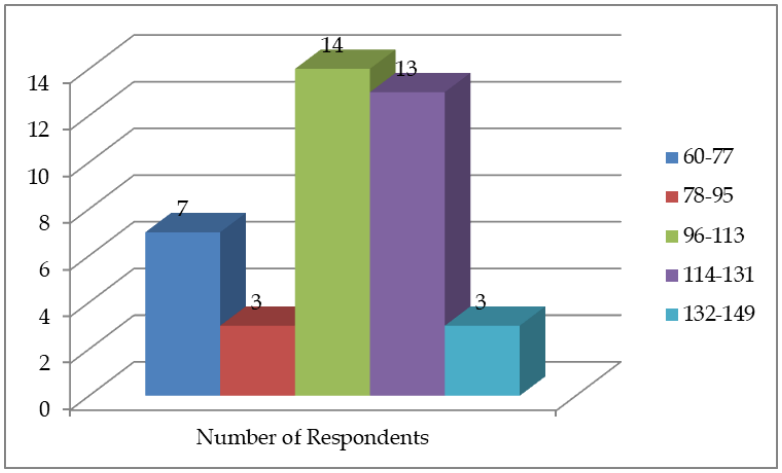

Figure 2: the time it takes to do the test

Based on figure 2, it can be seen that the fastest time to work on the questions is 60 minutes, while the longest time is 149 minutes. The data in figure 2 also presents data which states that as many as 7 respondents took between 60-77 minutes to complete 20 questions, 3 respondents took 78-95 minutes, 14 respondents took 96-113 minutes, 13 respondents took 114-131 minutes and 3 respondents took 132-149 minutes. If accumulated, the average time needed by 40 respondents to complete 20 questions is 105.35 minutes. After obtaining data on the first test, then proceed with data collection on the second test. In the second test, respondents were given a time limit. This second test aims to determine whether the respondent can maintain the test score as in the first test or not. The following can be presented as the results of the respondent's mathematics test when given a time limit:

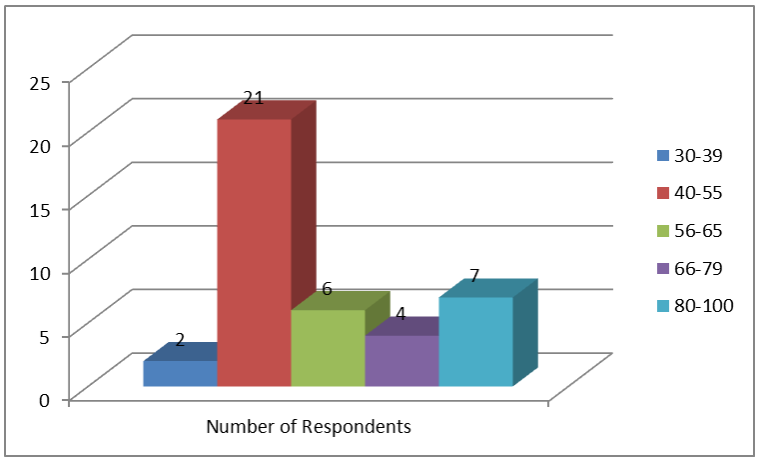

Figure 3. Second test results tabulation

Based on figure 3, it can be seen that there are 2 respondents who get a score between 30-39, 21 respondents in the 40-45 range, 6 respondents in the 56-65 range, 4 respondents in the 66-79 range, and 7 respondents in the 80-100 range. . The data means that there are two respondents in the failed category, 21 respondents in the poor category, 6 respondents in the sufficient category, 4 respondents in the good category and 7 respondents in the very good category. Based on these data, it can be concluded that the respondents' mathematics test results can be categorized as

lacking if given a time limit in working on the questions, because most of the respondents scored 40-55.

Based on the description of the data in the research results section, it can be seen that the results of the first and second tests are different. The results of the first test are better than the results of the second test. This can happen because in the first test there is no time limit, while in the second test the respondent is given a time limit. The decrease in test scores on the second test was reinforced by the results of interviews with respondents who stated that in the second test time was running out so that many answers were filled with guesswork. Respondents had to do this because they felt that the 60 minutes given was not enough to complete 20 questions. Based on the data on the first test, the average time needed to complete 20 questions was 105.35 minutes. When compared with the criteria for the ability to think quickly, which is 60 minutes, it can be concluded that the respondents do not have the ability to think quickly because it takes 105.35 minutes to complete the questions. The standard time specified should not be more than 60 minutes to work on the 20 questions.

The phenomenon of the low ability of students to think quickly needs to get various efforts so that students' abilities can increase. Basically there are many ways that teachers can do to improve students' mathematical thinking skills, one of which is the use of application games. According to (Aprilianti et al., 2014) the use of applications is useful to increase students' interest in learning mathematics. This is in accordance with the opinion (Sulistyowati et al., 2022) that the use of game applications has an effect on training students' speed in mathematical thinking. Through the use of these games students can get used to making decisions quickly and accurately. Based on this statement, the recommendation that can be given to train students' thinking skills correctly and quickly is to use game applications.

CONCLUSION

Based on the description in the results and discussion section, it can be concluded that the ability of the respondents to think quickly and precisely on mathematical material is still very low. Indicators of the low ability to think quickly and accurately can be seen from the small number of respondents who can work on math problems correctly in less than or equal to 60 minutes. The average time it takes respondents to work on the questions is 105.35 minutes. Suggestions that can be given through this research are further research to improve students' ability to think quickly and accurately. This research can contribute to the development of science and as a basis for further research. The limitation of this research is that it has not provided a practical solution to the low ability to think quickly and accurately in elementary school students, therefore it is hoped that further research will be carried out from this research.

References

Aprilianti, Y., Lestari, U., & Iswahyudi, C. (2014). Aplikasi Mobile Game Edukasi Matematika Berbasis Android. *Jurnal SCRIPT*, *2*(1).

Arikunto, S. (2015). *Prosedur Penelitian Suatu Pendekatan Praktik*. Rineka Cipta.

Dores, O. J., Wibowo, D. C., & Susanti, S. (2020). Analisis Kemampuan Berpikir Kritis Siswa Pada Mata Pelajaran Matematika. *J-PiMat*, *2*(2), 242–254.

Fuady, A. (2017). Berfikir Reflektif Dalam Pembelajaran Matematika. *JIPMat*, *1*(2). https://doi.org/10.26877/jipmat.v1i2.1236

Hayati, R., & Asmara, D. N. (2021). Analisis Pemahaman Konsep Matematis Mahasiswa PGSD pada Mata Kuliah Konsep Dasar Matematika. *Jurnal Basicedu*, *5*(5), 3027–3033. https://doi.org/10.31004/basicedu.v5i5.976

Hidayah, I. (2018). Pembelajaran Matematika Berbantuan Alat Peraga Manipulatif Pada Jenjang Pendidikan Dasar dan Gerakan Literasi Sekolah. *Prosiding Seminar Nasional Matematika*. https://doi.org/http://dx.doi.org/10.33387/dpi.v4i1.145

Jaenudin, J., Nindiasari, H., & Pamungkas, A. S. (2017). Analisis kemampuan berpikir reflektif matematis siswa ditinjau dari gaya belajar. *Prima: Jurnal Pendidikan Matematika*, *1*(1), 69–82.

Marsitin, R. (2018). Koneksi Matematis dan Berpikir Kreatif dalam Pembelajaran Matematika dengan Teori APOS. *Al-Khwarizmi: Jurnal Pendidikan Matematika Dan Ilmu Pengetahuan Alam*, *5*(1), 87–100. https://doi.org/10.24256/jpmipa.v5i1.268

Murdiana. (2015). Pembelajaran pemecahan masalah dalam pembelajaran matematika. *Aksioma*, *4*(1), 1–11. https://doi.org/https://doi.org/10.22487/aksioma.v4i1.43

Nurfitriyanti, M., Rita Kusumawardani, R., & Lestari, I. (2020). Kemampuan Representasi Matematis Peserta Didik Ditinjau Penalaran Matematis pada Pembelajaran Berbasis Masalah. *Jurnal Gantang*, *5*(1), 19–28. https://doi.org/10.31629/jg.v5i1.1665

Pandu, G. (2020). *Dongkrak Kinerja Otak Berpikir Lebih Cepat: Beragam Cara Memaksimalkan Kinerja Otak*. DIVA PRESS.

Rizki, N. F., Winata, R., Pradipta, A., Siti Suprihatiningsih, Muhammad Firman Annur, Bernadeta Ritawati, & Iren. (2020). Penguatan Konsep Matematika Dasar Pada Anak Usia Sekolah Dasar. *Jurnal Abdimas Bina Bangsa*, *1*(2), 276–285. https://doi.org/10.46306/jabb.v1i2.55

Sulistyowati, S., Gunawan, E., & Rusdiana, L. (2022). Aplikasi Game Edukasi Matematika Tingkat Dasar Berbasis Android. *Jurnal Teknoinfo*, *16*(1), 107. https://doi.org/10.33365/jti.v16i1.806

Supardi. (2012). Peran Berpikir Kreatif dalam Proses Pembelajaran Matematika. *Formatif: Jurnal Ilmiah Pendidikan MIPA*, *2*(3). https://doi.org/http://dx.doi.org/10.30998/formatif.v2i3.107

Widiani, Y. (2019). Matematika dan lingkungan. *Jurnal Equation: Teori Dan Penelitian Pendidikan Matematika*, *2*(1), 39. https://doi.org/10.29300/equation.v2i1.2309

Widiastuti, N. L. G. K. (2017). *Pendidikan Matematika SD*. Universitas Dwijendra.