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THE EFFECTIVENESS OF THE USE OF TORSO MEDIA ON THE METACOGNITIVE ABILITY OF IPA

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ABSTRACT

This study aims to describe the metacognitive ability of science students before using torso media, determine the metacognitive ability of science students after using torso media, and analyze the effectiveness of using torso media on the metacognitive ability of science students grade V MI Attanmiyatul Sains Makassar. This study used a quantitative research-type experimental design with one group pretest-posttest design. Sampling was carried out using saturated sampling techniques so that the number of samples was obtained which was 14 students. The data collection method is carried out through tests, observations, and questionnaires. The data analysis technique used is descriptive analysis. The results showed that the use of torso media was effective on the metacognitive ability of science students of grade V MI Attanmiyatul Sains Makassar, which is said to be effective because the three indicators referred to in this study met the success criteria. This is shown from the increase in the metacognitive ability of science and students through the calculation of n-gain is in the medium categorization of 0.48, then students are actively involved in learning by 84% and students who give positive responses related to the use of torso media by 80%.

Keywords: Learning media; Torso media; metacognitive

1. INTRODUCTION

The cognitive realm of Bloom's taxonomy and the times undergo changes or revisions. The cognitive processes and knowledge dimensions are revisions of Bloom's taxonomy. According to Anderson and Krathwohl (2018), the dimensions of knowledge

are divided into factual, conceptual, procedural, and metacognitive knowledge. Metacognitive knowledge is among the highest knowledge. According to Siregar and Nara (2019), Metacognitive ability is the ability to realize and control one's mind regarding what is understood and known and what is not, as well as knowledge of one's understanding. Metacognitive knowledge can help students be aware of their cognitive, how cognitive works, and how to organize it. If students are aware of their metacognitive abilities, they can get better learning outcomes, in the learning process they will plan, sequence, and monitor what they do.

Budiati's research (2016) explains that the case that occurs in Indonesia today is education that still focuses on tests to hone factual, conceptual, and procedural knowledge only, not yet fully reaching metacognitive knowledge. Students study only to get good grades, they look less at other aspects of learning. This condition is very unfortunate because self-awareness to study in students in Indonesia, in general, is still very lacking, even including students who have good grades. The lack of awareness to learn and understanding of the importance of learning states that students in Indonesia have less metacognitive abilities. Students in their development often experience disorders caused by several factors, including internal factors owned by children and environmental factors they are in (Rosdiana, et al., 2019: 97).

Based on observations at MI Attanmiyatul Sains Makassar, the teaching and learning process only often uses the lecture method by relying on books, even though not all students have the same audio learning style or learning style. This causes students' awareness to learn, the learning process and learning outcomes are still lacking which causes their metacognitive abilities to be still lacking. It is also shown that students still lack understanding of their abilities and tend to be silent in learning activities. To support the teaching and learning process with good learning outcomes so as to improve metacognitive abilities, media is needed in learning.

Research conducted by Danardono et al (2019). shows that students' metacognition skills and mastery of concepts on acid-base titration material can be effectively improved by learning using media, in this case, e-book media. Research conducted by Hendi et al (2020). also states that students' critical thinking skills can be improved by using metacognitive-based learning media.

Learning media can be interpreted as any tool that can be used as a message distributor to achieve teaching goals (Djamarah &; Zain, 2013: 121). Learning media can increase activeness and establish communication between teachers and students, therefore researchers choose media in the form of torsos. The implementation of the teaching and learning process usually has difficulties in achieving the expected goals, Students usually experience difficulties in learning which causes students to find it

difficult to receive and capture material (Nurjannah, et al., 2022: 126). Torso media can help teachers overcome this, especially when explaining science materials so that the presence of the media greatly supports the process of providing information from teachers to students. Science learning is a field of science in which learning about nature is not only product-oriented or result-oriented but also emphasizes more on the process of how a concept can be formed so that in studying science, students will be related to how to find out about nature systematically (Amal and Basam, 2018: 117). These complex biological processes can be as easily explained to students as they are in the digestive system material in humans.

The torso is a vivid depiction of the parts of the human body. The component parts of human organs can be easily removed, making it easier for teachers to demonstrate the name, location, and function of the organ parts in front of the class. Meanwhile, from the side of students, they can gain extensive knowledge about the name, location, and shape of human organs and their respective functions (Nuryani R, 2012: 46).

Torso media is considered the right media to support science's teaching and learning process because in MI Attanmiyatul Sains Makassar there are torso media but it is rarely used. In addition, based on the results of research conducted by Pratiwi, et al., (2013). That the use of torso media can improve learning activities and learning outcomes. So, researchers chose to use torso media in learning science on the subject of the digestive system as an effort to improve the metacognitive of students.

The above background encourages researchers to try to improve students' metacognitive ability. From the review of existing literature and problems, learning using torso media is considered appropriate and more effective to overcome existing problems, so researchers will examine the effectiveness of using torso media on the metacognitive ability of science students.

2. METHODS

This type of research is quantitative research using experimental methods of pre-experimental design. The research design was one group pretest-posttest design, with a population of all class V students of MI Attanmiyatul Sains Makassar consisting of 14 people. The sampling technique used in this study is a saturated sample technique. The saturated sample technique is a technique that will be carried out in this study to take samples, saturated sampling is a sampling technique if samples are taken from the entire existing population, it is done if the population is relatively small or less than 30 people (Sugiyono, 2017: 124).

The data collection method used in this study was tests, observations, and questionnaires. The research instrument is pretest and posttest questions totaling 5

essay questions, the questions given contain questions at the cognitive level C4 and C5 which aim to determine the metacognitive abilities of students before and after using torso media in the learning process. Researchers use the observation sheet to assess the learning activities of students during the learning process, the learning activity in question contains 4 components, namely activeness, discipline, knowledge, and politeness. while a questionnaire is a method of data collection carried out by giving a number of questions or statements that will be given to respondents to answer (Sugiyono, 2018: 142). The questionnaire sheet used was in the form of a Likert scale containing 11 statements, researchers used the questionnaire sheet to see student responses about the use of torso media in learning.

The data analysis technique used in this study is descriptive statistical analysis, n-gain test analysis. Descriptive analysis is a data analysis technique either made for oneself or in groups that describe data, while descriptive analysis provides meaning or explanation systematically based on accurate facts about the events to be studied (Agus Riyanto, 2019: 105). The descriptive analysis consists of the formula of mean, standard deviation, variance, and range which is used to answer the first and second problem formulations, namely how the metacognitive ability of science students before and after using torso media.

The n-gain test analysis is used to answer the third formulation of the problem, namely how is the effectiveness of the use of torso media on the metacognitive ability of science students of class V MI Attanmiyatul Scientific Makassar. The n-gain formula can be calculated in the following way:

$$N\ Gain = \frac{Skor\ posttest - skor\ pretest}{Skor\ ideal - skor\ pretest}$$

The categorization of the distribution of gain scores is taken according to Melzer's opinion in Syahfitri (2008). The division can be seen in Table 1.

Table 1. Gain score distribution

N-Gain Value	Categorization
g > 0,7	Tall
0,3 ≤ g ≤ 0,7	Keep
g < 0,3	Low

3. RESULTS AND DISCUSSION

Metacognitive Ability of Science Students Before Using Torso Media in Class V MI Attanmiyatul Scientific Makassar

Science metacognitive abilities of class V MI Makassar Scientific Attanmiyatul students before using torso media was obtained from the pretest question instrument answered by 14 students. The data are presented in Table 2.

Table 2. Pretest descriptive analysis

Descriptive Statistics

	N	*Range*	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*	*Variance*
Pretest	14	25	50	75	62.14	9.550	91.209
Valid N (listwise)	14						

Based on Table 2. It can be seen that the metacognitive ability of class V students of MI Attanmiyatul Sains Makassar before using torso media obtained an average value of 62.14 while the standard deviation was 9.550. Obtaining a maximum score of 75 and a minimum score of 50 so that a data range of 25 is obtained with a sample of 14 students.

The categorization of students' metacognitive ability scores before using torso media can be seen in Table 3.

Table 3. Categorization of learners' metacognitive abilities before using torso media

No	Interval	F	Kategori	Presentasi
1	0 – 40	0	Sangat rendah	0%
2	41 – 55	6	Rendah	43%
3	56 – 70	4	Sedang	28,5%
4	71 – 85	4	Tinggi	28,5%
5	86 – 100	0	Sangat tinggi	0%

Table 3 shows that only three categories are achieved out of five categories of choice (very low, low, medium, high, and very high). The three categories obtained were 6 students who were in the low category with a percentage of 43%, 4 students in the medium category with a percentage of 28.5%, and 4 students in the high category with a percentage of 28.5%. Based on the average score of the metacognitive ability test

results of science students of class V MI Attanmiyatul Sains Makassar before using torso media, 43% were in a low category.

Metacognitive Ability of Science Students After Using Torso Media in Class V MI Attanmiyatul Scientific Makassar

The metacognitive ability of science students of class V MI Attanmiyatul Sains Makassar after using torso media was obtained from the posttest question instrument answered by 14 students. Such data are presented in Table 4.

Table 4. Posttest descriptive analysis

Descriptive Statistics

	N	*Range*	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*	*Variance*
Posttest	14	30	65	95	79.64	10.645	113.324
Valid N (listwise)	14						

Based on Table 4, it can be seen that the metacognitive ability of class V students of MI Attanmiyatul Sains Makassar after using torso media obtained an average value of 79.64 while the standard deviation was 10.645. The maximum score is 95 and the minimum score is 65 so a data range of 30 is obtained with a sample of 14 students. This shows that the metacognitive ability of science students after the use of torso media has a higher value than before the use of torso media.

The above statement is in accordance with the results of research conducted by Indriani (2018) his research on "Application of Torso Media Human Body Organ Structure to the Learning Outcomes of Class V Students of Science Subjects SD Negeri No.63 Allu II, Bangkala District, Jeneponto Regency". The study concluded that by using torso media, the structure of human organs influences students' learning outcomes.

The categorization of learners' metacognitive ability scores after using torso media can be seen in Table 5.

Table 5. Category of students' metacognitive ability after using torso media

NO	Interval	Frequency	Category	%
1	0 – 40	0	Very low	0%
2	41 – 55	0	Low	0%
3	56 – 70	4	Keep	28,5%
4	71 – 85	6	Tall	43%

5	86 – 100	4	Very high	28,5%

The data in Table 5 shows that only three categories are achieved from five categories of choice (very low, low, medium, high, and very high). The three categories obtained were 4 students in the medium category with a percentage of 28.5%, 6 in the high category with a percentage of 43%, and 4 in the very high category with a percentage of 28.5%. Based on the average score of the metacognitive science ability test results of class V students of MI Attanmiyatul Sains Makassar after using torso media, 43% were in the high category.

The Effectiveness of Using Torso Media on the Metacognitive Ability of Science Students of Class V MI Attanmiyatul Sains Makassar

Effectiveness comes from the word effective which means there is an effect (consequently, its influence), efficacious or efficacious, that can bring results (Sugono, 2010: 352). According to Mulyasa (2017: 82), effectiveness matches the person carrying out the task and the intended target. Effectiveness is the main element to achieving goals or objectives that have been determined in every organization, activity, or program. Called effective if the goals or objectives are achieved as determined (Roslina, 2012: 3).

The use of torso media on science students' metacognitive ability can be effective if two or more of the three indicators meet the success criteria. The success criteria for the effectiveness in question are (1) if the metacognitive ability test of science students using the n-gain test has increased at least in the medium categorization or the n-gain value ≥ 0.3. (2) When ≥ 75% of students are actively involved in learning. (3) If ≥ 75% of students give a positive response related to the use of torso media.

a. Improvement of metacognitive science abilities of students using torso media

To improve science students' metacognitive ability before and after using media torso, an n-gain test was used. The calculation of n-gain can be seen in Table 6.

Table 6. N-Grain Score Calculation

Pretest Scores	Posttest Scores	Pretest–Posttest	Ideal Score –Pretest	N-Gain
62, 14	79,64	17,50	37,85	0,48

Table 6 above shows that the increase in the metacognitive ability of science students before and after using torso media with n-gain calculation obtained a value of 0.48. To find out the categorization of increasing metacognitive abilities of learners can be seen in the following Table 7.

Table 7. Improved categorization with N-Gain score

N-Gain score	Category	Frequency	(%)
g > 0,7	High	4	28,5
0,3 ≤ g ≤ 0,7	Moderate	6	43
g < 0,3	Low	4	28,5

Suppose the average n-gain value of students of 0.48 is converted in the 3 categorizations above. In that case, the average n-gain value is in the interval 0.3 g 0.7, meaning that the increase in the metacognitive ability of science students using torso media is generally in the medium categorization.

b. The results of observation of student activities during learning

The results of observing student activities using torso media during three meetings are stated in Table 8 below:

Table 8. Results of Observation of Student Activities

No.	Assessment Aspect	*Meetings*			%
		I	II	III	
1	Liveliness	75	80	79	78
2	Discipline	79	82	80	80
3	Knowledge	82	79	75	79
4	Decency	100	98	100	99
	%	84	85	84	84%

Based on the table of observations of student activities above, it can be seen that the percentage of student activity is 78%, the percentage of student discipline is 80%, the percentage of student knowledge is 79%, and the percentage of student politeness is 99%. Based on the 4 activities observed during the three meetings above, the average percentage of student activity is 84%, which means that ≥ 75% of students are actively involved in learning, so it can be concluded that student activities in learning meet the success criteria.

c. Torso media usage response

Data on student responses to learning using torso media was obtained through the distribution of student response questionnaire sheets containing 11 statements. The results of data analysis of student responses to learning using torso media filled in by 14 students are shown in Table 9.

Table 9. Learners' response to torso media

No.	Statement											%
	1	2	3	4	5	6	7	8	9	10	11	
1	4	2	3	4	3	2	4	4	3	4	4	84
2	4	1	4	4	1	1	4	3	3	4	4	73
3	4	2	4	4	4	2	4	4	3	4	4	87
4	4	4	3	4	3	3	4	3	3	4	3	86
5	4	4	4	4	3	4	4	4	4	4	4	98
6	3	3	4	4	4	3	3	4	3	3	4	86
7	3	2	3	3	4	3	3	3	4	3	3	77
8	4	3	3	4	2	1	4	3	1	3	4	73
9	3	3	3	3	1	3	3	3	3	4	3	73
10	4	1	4	4	1	1	4	2	4	2	1	64
11	4	3	3	4	2	2	4	3	1	3	4	75
12	4	2	3	3	3	2	3	3	3	4	3	75
13	4	4	4	4	2	4	4	4	3	4	2	89
14	4	3	4	4	2	1	4	4	3	4	4	84
Presentase												80%

Based on the table above, it can be seen that the average percentage of student responses related to the use of torso media is 80%, which means ≥ 75% of students give positive responses related to the use of torso media, this is in accordance with the definition that torso media serves to facilitate the delivery of material in teaching, providing clearer information to students, increase learning motivation, make it easier to explain something abstract and establish direct communication and treatment between educators and their students (Sudjana and Rivai, 2017: 163). So it can be concluded that the response of students related to the use of torso media meets the success criteria.

Based on the three indicators of the effectiveness of the use of torso media on the metacognitive ability of class V MI Attanmiyatul Scientific students above, the results were obtained that 1) The increase in the metacognitive ability of students towards the use of torso media in the calculation of n-gain obtained a value of 0.48 in the medium categorization. 2) Based on observations, the activity of students who are actively involved in learning is 84%. 3) Based on the results of the questionnaire sheet, students' responses to the use of torso media obtained a value of 80% of students giving positive responses. Based on the statement above, it can be concluded that the use of torso media is effective for the metacognitive ability of science students.

The above is supported by research conducted by Astuti (2017) with the research title "The Effect of the Use of Torso Media on Science Learning Outcomes the Subject of the Human Respiration System in Students in Class V Madrasah Ibtidaiyah As'adiyah Putri No. 1 Belawa Kab. Wajo. His research concluded that by using torso media, learners' learning outcomes can improve.

REFERENCES

Amal, A. & Basam, F. (2019). Pengembangan Perangkat Pembelajaran Berbasis Inkuiri Terbimbing Terhadap Pencapaian Hasil Belajar Siswa Sekolah Dasar," Jurnal Riset Pendidikan Dasar. http://journal.unismuh.ac.id/index.php/jrpd.

Anderson, L.W. & Krathwohl, D.R. (2018). Kerangka Landasan untuk Pembelajaran, Pengajaran, dan Asesmen: Revisi Taksonomi Pendidikan Bloom. (Terjemahan Agung Prihantoro). Yogyakarta: Pustaka Belajar.

Astuti, R.F. (2017) Pengaruh Penggunaan Media Torso Terhadap Hasil Belajar IPA Pokok Bahasab Sistem Respirasi Manusia Pada Peserta Didik di Kelas V Madrasah Ibtidaiyah As'adiyah Putri No.1 Belawa Kab.Wajo," skripsi. Makassar: Universitas Muhammadiyah Makassar.

Budiati, W.D.K. (2016). Peningkatan Hasil Belajar Kognitif dan Keterampilan Metakognitif Menggunakan Problem Based Learning pada Materi Sistem Koordinasi Kelas XI IPA 4 SMAN 3 Salatiga. Skripsi. Salatiga: Fakultas Biologi Universitas Kristen Satya Wacana.

Danardono, A. (2019). Efektivitas Media E-Book untuk Meningkatkan Metakognisi dan Penguasaan Konsep Siswa," Jurnal Pendidikan dan Pembelajaran Kimia: https://jurnal.fkip.unila.ac.id//

Djamarah, S.B & Zain, A. (2013). Strategi Belajar Mengajar. Jakarta: Rineka Cipta.

Hendi, A. dkk. (2020). Pengembangan Media Pembelajaran Interaktif Berbasis Strategi Metakognitif untuk Meningkatkan Kemampuan Berpikir Kritis Siswa," Jurnal Cendekia: Jurnal Pendidikan. J-cup.org.

Indriani. (2018). "Penerapan Media Torso Struktur Organ Tubuh Manusia Terhadap Hasil Belajar Siswa Kelas V Mata Pelajaran IPA SD Negeri No.63 Allu Kecamatan Bangkala Kabupaten Jeneponto," Skripsi (Makassar: Fakultas Keguruandan Ilmu Pendidikan Universitas Muhammadiyah Makassar.

Mulyasa, E. (2017). Manajemen Berbasis Sekolah. Bandung: Remaja Rosdakarya.

Nurjanah, dkk., "Analisis Kesulitan Belajar Mahasiswa Pendidikan Guru Madrasah Ibtidaiyah Pada Pembelajaran PAI," Jurnal Ilmiah Pendidikan Madrasah Ibtidaiyah: http://journal.uin-alauddin.ac.id/index.php/jipmi.

Pratiwi, K.D. dkk (2013). Pemanfaatann Media Torso Untuk Meningkatkan Aktivitas dan Hasil Belajar IPA Siswa Kelas V SD No 2 Paket Agung Singaraja. Jurnal. http://doi.org/10.23887/jjpgsd.v1i1.1463.

Riyanto, A. (2019). Statistik Deskriptif Untuk Kesehatan. Yogyakarta: Nuha Medika.

Rosalina, I. (2012). "Efektivitas Program Nasional Pemberdayaan Masyarakat Mandiri Perkotaan Pada Kelompok Pinjaman Bergulir di Desa Mantren Kec. Karangrejo Kabupaten Madetaan". Jurnal Efektivitas Pemberdayaan Masyarakat.

Rosdiana & Muzakkir. (2019). Fitrah Perspektif Hadis dan Implikasinya terhadap Konsep Pendidikan Islam Mengenai Perkembangan Manusia," Al Musannif: Jurnal Pendidikan Islam dan Keguruan. https://jurnal.mtsddicilellang.sch.id/index.php/al-musannif.

Siregar, E. & Nara, H. (2019). Teori Belajar dan Pembelajaran. Bogor: Ghalia Indonesia.

Sudjana, N & Rivai, A. (2017). Media Pengajaran. Bandung: Sinar Baru Algensindo.

Sugiyono. (2017). Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif dan R & D. Bandung: Alfabeth.

Sugiyono. (2018). Metode Penelitian Kuantitatif, Kualitatif, dan R & D. Bandung: Alfabetah.

Sugono, D. dkk. (2010). Kamus Besar Bahasa Indonesia. Jakarta: Gramedia Pustaka Utama.