EFFECT PICTURE AND PICTURE MODELS ASSISTED BY PUZZLE ON COGNITIVE LEARNING OUTCOMES STUDENT KINGDOM ANIMALIA MATERIAL AT SMPN 20 BENGKULU

Tyas Yuliani Putri *[1], Irwan Satria [2], Erik Perdana Putra [3]
[1,2,3] Science Study Program, Faculty of Tarbiyah and Tadris,
UIN Fatmawati Sukarno Bengkulu
email: tiyast3@gmail.com[1], satriairwan1974@gmail.com[2],
erik.perdana@iainbengkulu.ac.id[3]
* Corresponding author

ABSTRACT

The purpose of this research is to ascertain whether or not puzzle media may improve students' cognitive learning results when used in conjunction with the image and picture model. A quasi-experimental study with a pre- and post-test control group design was conducted. Twenty-nine pupils made up the study's sample. They engaged in systematic stumbling in order to sample properly. The 15 multiple-choice questions on the pretest and posttest provided the raw material for this study. The SPSS 26.0 application was used to conduct a t-test analysis in the two groups. The data analysis revealed that the average value of class VII students' cognitive learning outcomes using the picture and picture model assisted by puzzle media was higher than the average value of students' cognitive learning outcomes using the conventional model, coming in at 84 > 77.34. When the t-test is performed at the 5% level of significance, a result of Sig. (2-tailed) 0.05 or 0.030 0.05 indicates that H0 is rejected and Ha is accepted. This demonstrates that the cognitive learning results of class VII pupils in the kingdom animalia content at SMPN 20 Bengkulu City are significantly influenced by the use of the image and picture models supplemented by media puzzles.

Keywords: *picture and picture model; media puzzle; cognitive learning outcomes*

INTRODUCTION

Science and technology, particularly communication technology, are evolving extremely fast in the 21st century, which is being called the Era of Human Capital (Pratiwi, et al. 2019).

The goal of science education in the twenty-first century is to provide students with the knowledge and skills they need to scientifically investigate and make sense of the world around them. The goal of science instruction is to provide students with the knowledge and skills they need to better navigate the natural world. Students in Indonesia are expected to be problem solvers in the 21st century, thanks to a scientific approach to education.

Science is one area where people have a high level of scientific literacy. Understanding the ideas and facts based on the natural principles that often occur is what IPA is all about. The pursuit of information by scientists makes scientific education vital to a well-rounded education (Munajah, 2020). A vehicle for transferring communications, such as learning media, is required in scientific education for pupils to receive the teacher's words or resources. Well-designed learning materials may prompt the development of student processes or internal discourse. To rephrase, there is interaction between students and the media, and by extension,

between students and the messenger (the educator).

To encourage students to actively engage in the learning process as a whole and to contribute significantly to it, learning media acts as a go-between for the information supplier, the instructor, and the information receiver, the students. (Hasan et al. 2021). Puzzle media is one kind of content that can be used for educational purposes. Disassembling the frame (in which the puzzle pieces are played) and setting it on a tabletop is all there is to playing media puzzles. (Masrokhah, 2021). Students are more engaged and enthusiastic about learning when they use puzzle media. Students who regularly engage in puzzle-solving activities have heightened levels of creativity, perseverance, and motor skill development, among other advantages. (Al-Mubarok & Amini 2020). When utilized effectively, learning media may compensate for instructors' deficiencies in content knowledge and teaching approach. (Ramli 2012).

According to Nurpratiwiningih and Mumpuni (2019) claims that students' cognitive learning results may be improved by the use of puzzle media, suggesting that puzzle media might be a viable option when selecting an appropriate learning medium. It is often believed that using puzzle media is beneficial for education since it is reasonably priced..

Students in a cooperative learning environment share knowledge and work together to solve problems in small, often randomly assigned groups. (Nurdyansyah & Fahyuni 2016). There are many different kinds of cooperative learning models, and one of them is the "picture and picture" approach. Learning models such as images and pictures of cooperative learning models pair or arrange photos into a logical sequence to facilitate learning. The grammar of the model for learning from pictures is:

1) The teacher describes the competencies to be achieved.
2) The teacher presents introductory material before learning activities.
3) The teacher shows or shows pictures related to the material.
4) The teacher points or calls on students to alternately pair or sort the pictures into a logical sequence.
5) The teacher asks the reason or rationale for the sequence of the pictures to the students.
6) From the reasons or sequence of pictures, the teacher starts instilling concepts or material according to the competencies to be achieved.
7) Conclusion or summary (Husniatun 2020)

According to Rofik Khalim and Oktapiani (2020), the image and the kind of image Images are paired or arranged into a sequential order to facilitate active learning in the cooperative learning paradigm, which includes activities including displaying images, describing images, and explaining images..

The goal of the image and picture model of cooperative learning is to pique students' interest so that they can relax and pay attention throughout class. The learning approach is meant to boost academic performance. Changes in the learner that occur as a result of the process of education, including but not limited to gains in knowledge, proficiency, and confidence. Students may grow into unique people with a desire for continuous improvement thanks to learning outcomes, leading to new ways of thinking and improved work habits.

The purpose of this research is to ascertain whether or not SMPN 20 Bengkulu City seventh graders' cognitive learning outcomes improve when they are exposed to puzzle media as an aid to the image and picture model for learning about the animal world..

METHOD

This study employs a Quasi Experimental approach. This research used a pretest-posttest-control group design. SMPN 20 in Bengkulu City was the site of the study. There were 29 participants from the experimental class and 29 from the control class in this research. Purposive sampling was utilized for the data collection. This research used observation, interviews, testing, and documentation to gather data. Validity and reliability analyzes were performed on the assessment tools. The 15 multiple-choice questions on the pretest and posttest provided the raw material for this study. Both classes' data were analyzed using SPSS Version 26.0 and two tests: a normality and homogeneity check, and a t-test (Independent Samples Test) to evaluate hypotheses..

RESULTS AND DISCUSSION

1. Validity Test Results and Reliability Tests

Testing research instruments aims to determine whether the instruments to be used in research are valid and reliable. This test uses the SPSS Version 26.0 program.

Based on the results of the instrument validity test on 30 students with 20 items that were tried out, the results were obtained where r count > r table and Sig. (2-tailed) < 0.05. There were 15 items that were declared valid and there were 5 items that were declared invalid. The questions are invalid because r count < r table and Sig. (2-tailed) > 0.05.

Based on the results of the reliability test using the Cronbach's Alpha test, the results obtained a reliability value of 0.737. This value is categorized as high. So it can be concluded that the question instrument is feasible to use.

2. Results of Variable Descriptive Analysis

a. Experiment Class (Model Picture and Picture)

The experimental class included 29 students, and we know that the range of scores on the Pretest was from 27 to 94, and that the range on the Posttest was from 60 to 100. The mean scores increased from 60.62 to 84.00 from the Pretest to the Posttest ..

b. Control Class (Conventional Model)

The Pretest and Posttest scores for the 29-person control group are known to range from a low of 27 to a high of 87 on the Pretest and from a low of 60 to a high of 94 on the Posttest, respectively. With a mean of 63.28 on the pretest and a mean of 77.34 on the posttest.

3. Prerequisite Test

a. Normality test

Experimental pre- and post-test findings using the Kolmogorov-Smirnov test yielded significance levels of 0.152 and 0.097, respectively. The Kolmogorov-Smirnov test significance values were 0.066 and 0.096, matching those of the pre- and post-test controls, respectively. Since the significance value is greater than 0.05, it is clear that the data is normally distributed, as shown by the Pretest and Posttest scores of both the experimental and control groups.

b. Homogeneity Test

According to the statistics, the mean (average) or significant value of the homogeneity test is 0.057, while the median value is 0.095. Since the significance level for both the pre- and post-tests is more than 0.05, we may conclude that the data is consistent across the experimental and control groups..

4. Hypothesis testing

The tests for normality and homogeneity indicate that the data follows a normal distribution and is consistent throughout. Therefore, the SPSS 26.0 application will be used to conduct a Parametric test..

a. Pretest t-test

Ho is accepted and Ha is refused based on the results of the pretest in the experimental and control classes at the 0.05 level of significance, meeting the requirements of Sig. (2 tailed) > 0.05, precisely 0.513 > 0.05. There is not much of a difference between the mean of the experimental group and the mean of the control group. There was no statistically significant difference between the pretest scores of the experimental group and those of the control group..

b. Posttest t-test

Tcount > ttable, or 2.227 > 2.052, as shown by the posttest findings between the experimental and control groups (t=2.227, df=29-2=27, ttable=2.052). In the meantime, it satisfies the requirements of Sig. (2 tailed) 0.05, namely 0.030 > 0.05, at a significance level of 5% (0.05). The Posttest findings in the experimental class and the control class have a substantial impact, thus Ho is rejected and Ha is approved based on the calculated values of tcount > ttable and Sig.(2-tailed) 0.05. The picture-and-picture approach in puzzle

media, it follows, significantly affects students' educational achievements..

DISCUSSION

Pretest mean scores were 60.62 for the experimental group and 63.62 for the control group. Using a t-test with a 5% (0.05) threshold of significance, we find that Sig.(2-tailed) > 0.05 equals 0.513 > 0.05. There was no statistically significant difference between the experimental and control groups on the pretest. It was also derived from two groups with normally distributed populations, where the significance level was more than 0.05 and the variances were similar in both groups..

After receiving different treatments, the experimental group found that the learning process with the picture and picture model assisted by the media puzzle yielded better results than the control group, with a mean value of 84>77.34. The disparity in learning results between the two courses may be attributable to the varied approaches used by the teacher. There is a normal distribution with a p-value greater than 0.05 and a constant variance across both groups..

Posttest hypothesis testing in the experimental class and control class using the t-test yielded a value of Sig. (2-tailed) 0.05, or 0.030 0.05, with a t-test significance level of 5% (0.05). Posttest results comparing the experimental group's students with those of the control group revealed a statistically significant relationship between the two groups. It may be deduced that the cognitive learning results of class VII students at SMP Negeri 20 Bengkulu City on content from the kingdom Animalia are positively affected by the employment of the image and picture model supplemented by puzzle media..

Similar to the research conducted by Marniati, et al (2020) who concluded that the use of the picture and picture model assisted by puzzle media had an effect on science learning outcomes in fifth grade students at SDN 3 Beleka, Gerung District, in the 2018/2019 academic year. With the average learning outcomes using the picture and picture model assisted by puzzle media better than students using the conventional model ($X1 = 64.39 > X2 = 51.59$, with an experimental Post-Test value of 95 and a control Post-Test value of 90).

Likewise research conducted by Lokat, et al (2022) who concluded that the use of the picture and picture type cooperative model affected student learning outcomes with the average learning outcomes using the picture and picture model being better than students using the conventional model ($X1 = 81.25 > X2 = 72.50$).

Based on the results of research that has been carried out by relevant research or previous research, it is concluded that the results are the same, in which the picture and picture model assisted by puzzle media has a good influence on student learning outcomes.

According to Hera Hindriawati (2020) learning using the picture and picture model is learning that always emphasizes the activeness of students in every learning process. This means that learning involves direct student interaction, so that students will concentrate more fully during the learning process.

Picture and picture models can also increase student learning interest. Because in the learning process, this picture and picture model uses images that are paired or sorted into a logical and systematic sequence. The use of pictures can help and make it easier for students to understand material whose objects are difficult to imagine so that in the learning process students become active and their interest in learning increases. With this picture and picture model, learning becomes more centered on students (student center), while the teacher is only a facilitator in the learning process.

Learning with this picture and picture model can be combined with an innovative teaching media. One of the teaching media that is innovative, has economic value and does not require large costs to use is puzzle media. Puzzles are educational game tools that resemble objects or artificial models that can stimulate students' motor skills. According to Pangastuti (2019) The puzzle is an educational game tool in the form of puzzles or disassembly toys that can develop cognitive abilities, motor skills, train concentration and train students' social-emotional skills. Learning by using puzzle media can create fun, active learning and mutually form cooperative attitudes among students.

In this study, the average cognitive learning outcomes of students increased after using the picture and picture model combined with the help of puzzle media. This happens because there is a match between the model and the selected media. It can be seen in the learning process using images that are applied to puzzle pieces that are arranged into a complete picture. The use of pictures is an effort to overcome students' difficulties in understanding and remembering the material being taught and helping students train their cognitive abilities. Therefore, the picture and picture model with the help of this puzzle media can create active and fun learning. Students get clearer knowledge, easy to understand

and not easily forgotten, so that learning outcomes will also increase.

REFERENCES

Al-Mubarok, A. A. S. A., & Amini. 2020. Kemampuan Kognitif Dalam Mengurutkan Angka Melalui Metode Bermain Puzzle Angka. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, 4(1): 77–89.

Hasan, M., dkk. 2021. *Media Pembelajaran*. Klaten: Tahta Media Group.

Hindriawati, H. 2020. *Model Pembelajaran Picture and Picture untuk Pembelajaran IPS di SMP*. Jawa Barat: ADAB.

Husniatun. 2020. Penerapan Model Pembelajaran Picture and Picture Untuk Meningkatkan Hasil Belajar Pada Muatan Pembelajaran Bahasa Indonesia Di Kelas 1. A SDN 03/IX Senaung. *Jurnal Literasiologi*, 3(2): 69–81.

Lokat, Y. T., Bano, V. O., & Enda, R. R. H. 2022. Pengaruh Model Pembelajaran Kooperatif Tipe Picture and Picture Terhadap Hasil Belajar Siswa. *Jurnal Binomial*, 5(2): 126–135.

Marniati, Harjono, A., & Ermiana, I. 2020. Pengaruh Model Picture and Picture Berbantuan Media Puzzle Terhadap Hasil Belajar IPA Siswa Kelas V SDN 3 Beleka Tahun 2018/2019. *Jurnal Ilmiah Widya Pustaka Pendidikan*, 8(1): 35–41.

Masrokhah. 2021. Penerapan Metode Eksperimen Berbantu Puzzle Picture Untuk Meningkatkan Hasil Belajar Siswa Materi Organ Pernapasan Manusia. *WASIS : Jurnal Ilmiah Pendidikan*, 2(2): 103–109.

Munajah, R. 2020. Penerapan Media Belajar Puzzle Untuk Penggolongan Makhluk Hidup Siswa Kelas III Sekolah Dasar Negeri Mandalasari 2 Pandeglang. *Jurnal Ilmiah Pendidikan Guru Sekolah Dasar*, 4(1): 45–56.

Nurdyansyah, & Fahyuni, E. F. 2016. *Inovasi Model Pembelajaran Sesuai Kurikulum 2013*. Sidoarjo: Nizamia Learning Center.

Nurpratiwiningsih, L., & Mumpuni, A. 2019. Pengaruh Media Puzzle Terhadap Hasil Belajar Pada Pembelajaran IPS Di Sekolah Dasar. *Jurnal Ilmiah Kontekstual*, 1(1): 1–6.

Pangastuti, R. 2019. Media Puzzle Untuk Mengenal Bentuk Geometri. *JECED Journal Of Early Childhood and Development*, 1(1): 50–59.

Pratiwi, S. N., Cari, C., & Aminah, N. S. 2019. Pembelajaran IPA Abad 21 Dengan Literasi Sains Siswa. *Jurnal Materi dan Pembelajaran Fisika (JMPF)*, 9(1): 34–42.

Ramli, M. 2012. *Media Dan Teknologi Pembelajaran*. Banjarmasin: IAIN Antasari Press.

Khalim, A. R., & Oktapiani, M. 2020. Pengaruh Penggunaan Model Pembelajaran Kooperatif Tipe Picture and Picture Terhadap Hasil Belajar Pendidikan Agama Islam. *Akademika*, 9(1): 109–126.