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Metacognitive and creative thinking skills through multisensory learning in art courses

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ABSTRACT

Learners experience a phase called formal operations, as stated by Jean Piaget in his theory of children's cognitive development. Where at this stage the learner begins to study as a whole by involving all the five senses, and in the learning process the learner needs creativity in building his cognitive, which of course is very closely related to metacognitive skills, in this case learning arts and skills, requires these two things as strengthening the foundation of ability and also increasing the creativity of the learner. Learning fine arts and skills is learning that focuses on and maximizes the five senses of students, which of course is very much in line with the concept of multisensory learning. Study this focus on the use of multisensory learning method used in learning eye studying art likeness, for knowing level creativity and skill metacognitive seen from in terms of multisensory learning.

1. Introduction

The learning process is a process that involves educators and participants in students who carry out academic activities that lead to learning objectives. In the learning process, several components cannot be separated, namely educators and participants students, these two components must exist in order for knowledge transfer to occur between educators and students participant educate. One of the goals of learning is a broad understanding of the material being taught, and this is an important educational value (Reigeluth, 1983). Broad understanding requires several actions taken by educators, one of which is by designing learning as attractive as possible, making it easier for students to understand the material holistically, but it cannot be denied that understanding also depends on increasing previous conceptions to a higher level. awareness and new in-depth analysis of previous knowledge or understanding (Ronau et al., 2012). Knowledge is primarily concerned with the ability to recall and recall facts fact certain. understanding involves the ability for interpret and show understanding to participants basis educate about ideas (Huang et al., 2019) .The cognitive domain explains that knowledge about how much cognitive ability a participant educates not enough Becomes a base for developing learning The ideal. A much higher cognitive study is needed to find out the extent to which students are learning, namely by examining the ability of students to regulate their cognitive processes. This ability is better known as metacognition (Wicaksono, 2016). Metacognitive is ability use knowledge for arrange and control cognition. Control cognitiveintended for awareness of understanding and learning performance (Schraw & Moshman, 1995) .Metacognitive ability is knowledge that includes (beliefs, ideas, theories) about various cognitive functions, such as memory or thinking, about what can be done and how to do something, for example, metamemory, meta attention, and others.

This too includes knowledge of the criteria for the validity of knowledge, which is called 'epistemic cognition. One thing that can be used as an argument is that theoretical thinking is also anenhancement of knowledge metacognitive (Jannah, 2018). Metacognitive abilities are important for students to have, there are several reasons, including if students have metacognitive abilities in the learning process, students can have the ability to control the learning process. Participant educate who have high metacognitive abilities will also show the ability to think critically which is tall. Participants educate which have the ability metacognitive will could control and regulate their learning activities (Covaci et al., 2018) Efforts to increase the metacognitive abilities of students can be done with several strategies, one of them using multisensory learning strategies. Multisensory learning is a learning theory that uses neuroscience to reach learners. Involving various senses in your lessons, such as touch or sound, may be more likely learnersfor understanding and retain information

2. Method

This research is descriptive qualitative research. The instrument in this research is the researchers themselves, the meticulous subjects used were 4th and 6th-semester students of the PGMI Study Program with 40 students, with 3 subjects thorough in class taking into account the metacognitive aspects of high ability, moderate ability, and ability low. The validity data in a study uses triangulation techniques. Observation on activity students use checklist using metacognitive indicators, and documentation, in the documentation the researchers took datapictures on the implementation of exams, and interviews conducted on 3 students in the program studies PGMI which represent 3 aspects of metacognitive) (Zubaidah, 2017) University Muhammadiyah Ponorogo, As for technique analysis custom in study this use model *Flow* Miles and Huberman which includes *data reduction, data display, and conclusion drawing/verification* (Moelong, 2007) . data which analyzed and processed is the result of observation, interview, as well as documentation.

3. Results and Discussion

The results of the research can be explained as follows: The research subjects were PGMI semester 4 and semester 6 students who get a Fine Arts and skills course with a total of 40 students by taking 3 samples based on categories, students are first grouped based on their metacognitive abilities, namely high, medium, and low using the MAI (*Metacognitive Awareness Inventory*) questionnaire (Pramusinta et al., 2019). The results of grouping metacognitive skills can be seen in the following Table 1.

Table 1. Subject division based on early-stage metacognitive results.

Category	Total
High	18
Moderate	15
Low	7

This aims to determine the initial results of students' metacognitive skills. As for the level of creativity, it will be seen based on the test results using the *Multisensory Learning method* by prioritizing the *visual* (sight), *auditory* (hearing), *kinesthetic* (movement), and *tactile* (touch) aspects (İDawati et al., 2020) . Furthermore, from the results of the following distribution, the researcher gave assignments to all students with the same type of assignments for all categories with reference to 4 aspects of *Multisensory Learning.* After that, the results of the treatment will be seen. The explanation of the 4 aspects (several examples) is as follows.

- Visual Aspect; in this aspect, the researcher gives assignments to all students using the visual aspect, namely by giving examples of visual images to imitate and create as creatively as possible. Based on the examples of student work, Fig 1, it shows that student creativity still has not shown an increase, this can be seen from the results of the work which are still similar and there are no additional ornaments or decorations.

Fig. 1. The examples of student work of visual aspect

- Auditory Aspect; in this aspect students are again given the same task for each category, while the task is for the researcher to prepare several voices for students to listen to, then proceed to make works in the form of images according to what they hear. Fig 2, one example. From the picture above it can be seen that students with high metacognitive abilities make cat pictures as if they look alive by adding real-looking color gradation accents. whereas for the duck image drawn by students with moderate metacognitive skills, there is an added effect of moving water (Wati, 2020). At this stage, the imagination has started to play because of the stimulation in the form of sound.

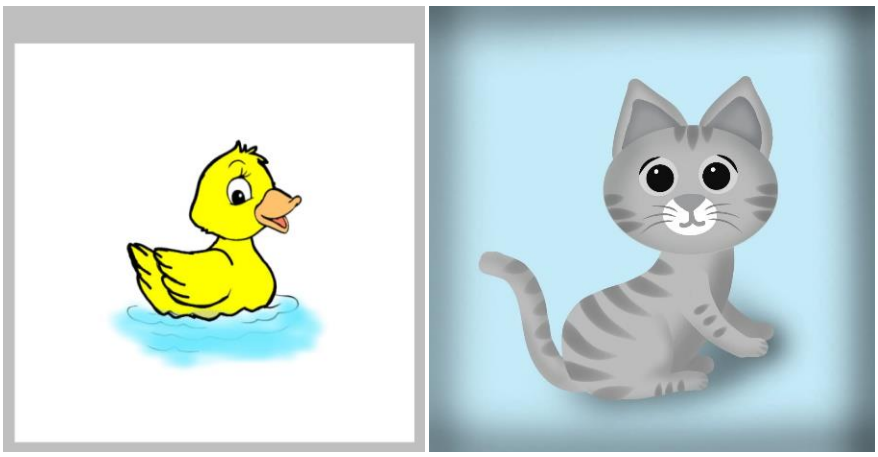

Fig. 2. The examples of student work of auditory aspect

- Kinesthetic Aspect; in this aspect, students are again given the same task for each category, while the task is for the researcher to prepare a moving image (video) students are then asked to record one of the movements on the video and then visualize it in the form of an image with the creativity of each student. Adaun sample image results as follows. Based on the results of student drawings in the third stage, students have started to show their creativity, namely making pictures of moving fish with the addition of attractive color accents and patterns.

Fig. 3. The examples of student work of kinesthetic aspect

- Tactical Aspect; the last stage is the *Tactical aspect*, here again students get the task from the researcher to make pictures based on what they have felt and felt, then put it in the form of pictures. The example image as Fig 4. At this stage, students are getting used to some drawing patterns, you can see decorative pictures from the results of touching or what they touch. This shows an increase in the quality and creativity of drawing, although it is still found that some students still have difficulty developing, especially for students with low metacognitive category.

Fig. 4. The examples of student work of tactical aspect

Multisensory consists of two words, namely multisensory. The word "multi" means a lot or more than one, and "senses" means the five senses. Two senses more than one of the five senses. A multisensory approach can be applied early on children, children with special needs, children with special needs dyslexia or children with mental disabilities, and also for elementary school age children. The multisensory learning approach uses several sensory devices owned by students, including visual, hearing, kinesthetic (movement), smell, taste (taste), tactile (touch). Multisensory learning This approach holds that children learn best when they are children using multiple senses (five senses). That feeling is which is often used is kinesthetic stimulation (movement), and touch (touch) caused by the visual sense (vision) and the sense of hearing (hearing) (Suryaratri et al., 2019). Several principles of using multisensory learning in the classroom include: (1) The atmosphere in the class is fun and comfortable. If students feel happy and enjoy, they will easily accept learning from the teacher, (2) individual principles, meaning that each child is a unique individual so that each child has different intelligence and acceptance of the subject matter. (3) The principle of continuity, which means that the application of the multisensory approach is continuous. Through the principle of continuity, children will become familiar with the lessons that have been taught. The principle of sustainability means that if the child has mastered the material that has been taught, students will learn the material at a later stage (Juliane Krueger Fister, Ryan A. Stevenson, Aaron R. Nidiffer & Wallace, 2016) .

Based on the results of the research that has been done, there are several principles that can be seen in this study, namely the principle of a pleasant and comfortable class atmosphere and individual

principles, where each student has uniqueness and different intelligence differences, the data obtained by children who have high metacognitive tend to be more can develop the materials or materials provided so that they become images that are more aesthetic and have high artistic value, but for students who have low metacognitive, they are more likely to experience difficulties in exploring creative ideas in the drawing. The flow of the relationship between *multisensory learning* and metacognitive skills can be seen in the following Fig 5.

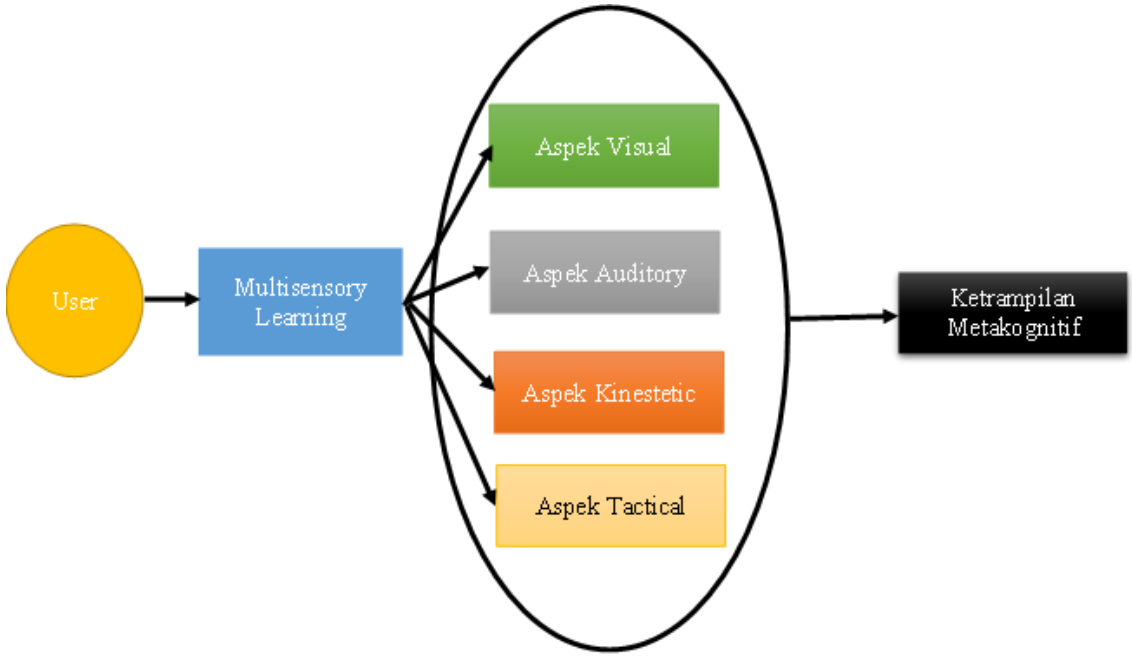

Fig. 5. The relationship between *multisensory learning* and metacognitive skills

4. Conclusion

Based on the results of the research that has been done, it was found that the use of the multisensory learning method can foster a sense of creativity in students, and in terms of metacognitive skills, or looking at the way students capture information related to the material, it can be observed that students who have high metacognitive skills can adjust the multisensory method quickly compared to medium or low criteria. This gives the conclusion that the use of this method is very effective.

References

Covaci, A., Ghinea, G., Lin, C.-H., Huang, S.-H., & Shih, J.-L. (2018). Multisensory games-based learning - lessons learnt from olfactory enhancement of a digital board game. *Multimed Tools Appl*, *77*(16), 21245–21263. https://doi.org/10.1007/s11042-017-5459-2

Huang, R., Spector, J. M., & Yang, J. (2019). *Educational Technology: Primer for the 21st Century*. Springer Singapore. https://doi.org/10.1007/978-981-13-6643-7

İDawati, İ., Setyosari, P., Kuswandi, D., & Ulfa, S. (2020). The Effects of Problem Solving Method and Cognitive Flexibility in Improving University Students' Metacognitive Skills. *Journal for the Education of Gifted Young Scientists*, 657–680. https://doi.org/10.17478/jegys.652212

Jannah, W. N. (2018). *Pentingnya kemampuan metakognitif siswa sekolah dasar sebagai generasi emas*. 8.

Juliane Krueger Fister, Ryan A. Stevenson, Aaron R. Nidiffer, Z. P. B., & Wallace, M. T. (2016). Stimulus intensity modulates multisensory temporal processing. *Neuropsychologia*.

Moelong. (2007). *Metodologi Penelitian Kualitatif*. PT Remaja Rosdakarya.

Pramusinta, Y., Setyosari, P., Widiati, U., & Kuswandi, D. (2019). Exploration of Metacognitive Skills And Student Critical Thinking Through Discovery Learning Method and Cognitive Style. *Journal for the Education of Gifted Young Scientists*, 999–1017. https://doi.org/10.17478/jegys.614028

Schraw, G., & Moshman, D. (1995). Metacognitive theories. *Educational Psychology Review*, *7*(4), 351–371. https://doi.org/10.1007/BF02212307

Suryaratri, R. D., Prayitno, E. H., & Wuryani, W. (2019). The Implementation of Multi-sensory Learning at Elementary Schools in Jakarta. *Jpud*, *13*(1), 100–113. https://doi.org/10.21009/10.21009/JPUD.131.08

Wati, T. L. (2020). Analisis Metakognitif Melalui Media Pada Matakuliah Seni Rupa Mahasiswa Pendidikan Guru Sekolah Dasar. *Pedagogia : Jurnal Pendidikan*, *9*(1), 35–42. https://doi.org/10.21070/pedagogia.v9i1.214

Wicaksono, A. G. C. (2016). Perbandingan Kemampuan Kognitif dan Metakognitif Mahasiswa Dengan Gaya Belajar Yang Berbeda. *Media Penelitian Indonesia*, *10*(2), 142–153.

Zubaidah, A. (2017). Strategi metakognitif dalam pembelajaran matematika. *JPPM (Jurnal Penelitian Dan Pembelajaran Matematika)*, *10*(1). https://doi.org/10.30870/JPPM.V10I1.1198