Indonesian Journal of Educational Development (IJED)
Volume 4, Issue 2, 2023, pp. 158-165
ISSN 2722-1059 (Online); ISSN 2722-3671 (Print)
DOI: 10.59672/ijed.v4i2.2836

IMPLEMENTATION OF MIND MAPPING LEARNING STRATEGIES TO IMPROVE THE CREATIVITY OF STUDENTS SMA NEGERI 1 KUTA UTARA

Ni Kadek Rini Purwati*)[1], Ni Kadek Mesy Wulandari[2]
[1]PGRI Mahadewa Universyty of Indonesia, Denpasar; rinipurwati@mahadewa.ac.id
[2]PGRI Mahadewa Universyty of Indonesia, Denpasar; wulandarimesy@gmail.com

ARTICLE INFO

Article history:
Received June 20, 2023
Revised July 03, 2023
Accepted August 12, 2023
Available online August 20, 2023

Keywords: Mind Mapping, Learning Creativiy, Active Learning, Biology

Abstract. Creativity is one of the 4C skills that is required to be increased in learning cycle in this 21st century. However, the improvement of students' creativity in learning cycle has been not completely implemented which is causing lowered creativity of the students. This fact is supported by the average value of creativity obtained by students in class XI MIPA 6 in the pre-cycle, which is 40% (less creative). Based on these problems, the implementation of strategy that is suitable to overcome this problem is mind mapping learning strategies. The type of research used is PTK, which has four stages, namely planning, action, observation, and reflection. Based on the results of the study, it was found that there was an increase in students' learning creativity after the mind mapping has been implemented as seen from the results of the analysis of the observation sheet which initially was only 40% to 64%, and finally reached 84% in cycle II. The improvement in students' learning creativity was also seen from the increasing to the average value of mind mapping results made by students, which is 78 in cycle I, increasing to 98 in cycle II. Thus, the implementation of mind mapping method was fulfilled and the research hypothesis was proven since the application of mind mapping learning strategies was able to increase the learning creativity of students in class XI MIPA 6 SMA Negeri 1 Kuta.

INTRODUCTION

The quality of a country can be seen from how the quality of education is carried out. A country will have good quality in the eyes of the world when the resources produced through quality education can compete in a global world. Education has an important role in determining the quality and progress of a country (Sumandya et al., 2022). Education is used as a medium in developing abilities and forming dignified national character and civilization. The purpose of national education is to develop capabilities and form dignified national character and civilization in order to educate the nation's life by developing the potential of students to become human beings who believe and fear God Almighty, have noble character, healthy, knowledgeable, capable, creative, independent, and become a democratic and responsible citizen (Yanuarti, 2017). However, in educational practice encountered in the

field, learning activities to develop the various potentials and creativity of students which are an important part of the educational process have not been carried out much.

Based on the results of observations in biology learning activities in class XI MIPA 6 SMA Negeri 1 Kuta Utara, it is known that activities for developing the potential and creativity of students have not been carried out much. This has an impact on the low learning creativity possessed by students. The characteristics of individuals who have creativity are showing extraordinary curiosity, often submitting unique and clever responses, and being able to create various kinds and numbers of ideas to solve problems (Nurhayati, 2011). The low creativity of XI MIPA 6 students at SMA Negeri 1 Kuta Utara can be seen from the minimal number of students who want to ask questions independently and the number of students who express their ideas. Students tend to only listen to the teacher's explanation and some of them take notes on what the teacher explains. In the practice of learning in the classroom the teacher has facilitated students in discussion and collaboration activities to solve the questions provided by the teacher (Widodo et al., 2021). However, these activities are still not effective in stimulating or training students' creativity. The lack of integration of activities carried out in biology learning and in accordance with the interests and learning styles of students is one of the factors for their low creativity. If you look at the results of filling in the interest and learning style questionnaire, as many as 47% of students tend to have a kinesthetic learning style, 45% have a visual learning style and the rest are audio.

Creativity is an important skill and needs to be developed and trained in students as their provision to face life challenges in this 21st century. The creativity can be formulated as an ability that reflects fluency, flexibility (flexibility), and originality in thinking, as well as the ability to elaborate (develop, enrich, and detail) an idea. Creativity is a skill to discover new things that have not existed before, are original, develop new solutions for each problem, and involve the ability to generate new, varied, and unique ideas (Leen et al., 2014). Creativity can be trained and obtained in the learning process through various interactions and learning experiences.

One of the learning experiences that can provide space for the development of student creativity is by making mind maps (Fauziah, 2017). By looking at the characteristics of learning biology which is quite dense and lots of scientific terms and pictures. Mind mapping is one of the recording strategies that is effectively used in biology learning and is a medium for training students' creativity. Mind mapping provides space and experience for students to explore their creative ideas. Mind mapping is a creative way for individual students to generate ideas, record lessons, or plan new research. The application of mind mapping has the aim of making the learning process more interesting and fun and increasing the creativity of students in the learning process, especially in biology subjects (Widana & Umam, 2023).

Based on this explanation, the mind mapping learning strategy is applied in the biology learning process, especially in excretion system learning material as an alternative solution to be able to increase student learning creativity in class XI MIPA 6 SMA Negeri 1 Kuta Utara. The expected goal of this classroom action research is to find out whether mind mapping learning strategies can increase the creativity in learning biology for students in class XI MIPA 6 SMA Negeri 1 Kuta Utara.

METHOD

Place and Time of the Research

This classroom action research was conducted at SMA Negeri 1 Kuta Utara which is located at Jl. I Made Bulet No. 19, Dalung, North Kuta District, Badung Regency, Bali in February for the 2022/2023 school year. The subjects in this classroom action research was students in class XI MIPA 6, with a total of 44 students, with a gender composition consisting of 19 males and 25 females with socio-economic backgrounds and ability/achievement levels various. While the object in this class action research is the learning creativity of students which is expected to increase with the action of applying the Mind Mapping strategy in biology learning, especially in the material of the human excretory system.

Type of the Research

The type of research used is classroom action research (Action Research Classrom) which is a type of research carried out in a classroom in which there is an action to solve a problem related to the learning process, and is carried out by students and teachers. The PTK model used in this study is the Kemmis & Mc spiral model. Taggart (1988). This model divides one cycle of classroom action research procedures into four stages, namely planning, acting, observing, and reflecting (Trianto, 2011). The PTK stages use the Kemmis & Mc model. Taggart in detail includes 1) problem diagnosis, 2) action planning/planning, 3) action implementation and incident observation, 4) evaluation and 5) reflection. The stages described are a series of stages for one research cycle. The cycles contained in the PTK are mutually continuous activities and if the research results meet the success criteria for a certain cycle, the research can be stopped.

Data Source

The data source is the subject from which the data can be obtained. In this research, the data sources used by researchers are primary and secondary data sources. Primary data is data obtained from direct sources or research objects. In this study, the researcher obtained primary data from the results of observations/observations on the creativity of students which were seen through the learning activities carried out by students in class as well as the assessment of mind mapping products made by students in groups. While secondary data is data that has been published or used by other parties. In this study, researchers obtained secondary data from the results of interviews with biology teachers at SMA Negeri 1 Kuta Utara regarding the creativity of students before carrying out the action.

Data Collection Technique

Data collection techniques used in this classroom action research include: 1) Observation, carried out during the learning process takes place using observation sheets that have been made, 2) Interviews, carried out during the learning process takes place in class and after the learning process is completed with colleagues, and 3) Documentation, carried out to obtain documents that will be used as supporting data for research results such as photos of learning activities in class.

Data Analysis Technique

The data analysis technique used in this study is descriptive comparative, in which activities are carried out to compare the results of observations on the value of students' creativity in pre-cycle, cycle 1 and so on which are then followed by reflection. The data that has been obtained and collected through observation activities is then analyzed. The results of data analysis are presented in the form of tables and graphs.

Student learning creativity is obtained from creativity observation sheets that have been filled in by observers, then the results of the assessment are analyzed based on the following formula.

$$\text{Creativity Value} = \frac{\text{Total score obtained}}{\text{Maximum total score}} \times 100\%$$

(Adapted from Trianto, 2011)

Furthermore, researchers assessed the creativity of students using the category of assessment criteria which can be seen in the following table:

Table 1. Criteria for Assessment of Student Creativity

Nilai	**Kriteria**
80,1 - 100	Very creative
60,1 – 80	Creative
40,1 – 60	Enough creative
20,1 – 40	Less creative
0 - 20	Very less creative

(Kartika, 2019)

The success criteria in this study were seen from the increase in students learning creativity in biology subjects (human excretory system) with the application of Mind Mapping learning strategies. The research is said to be successful if students get a score for their creativity ability, namely > 75, with creative and very creative criteria.

RESULTS AND DISCUSSION

Based on the results of the research, the application of mind mapping strategies in learning biology, especially in the material of the human excretory system, has a positive influence on increasing students' learning creativity. This is indicated by an increase in the average value of students' learning creativity both through observation sheets and mind mapping assessments in cycles I and II, which can be seen through the following tables and graphs.

Table 2. Comparison of Student Creativity Assessment Results

Criteria	**Early Condition**	**Cycle I**	**Cycle II**
Mind Mapping Value	-	78	98
Percentage of Learning Creativity	40%	64%	84%
Creativity Criteria	Less creative	Creative	Very creative

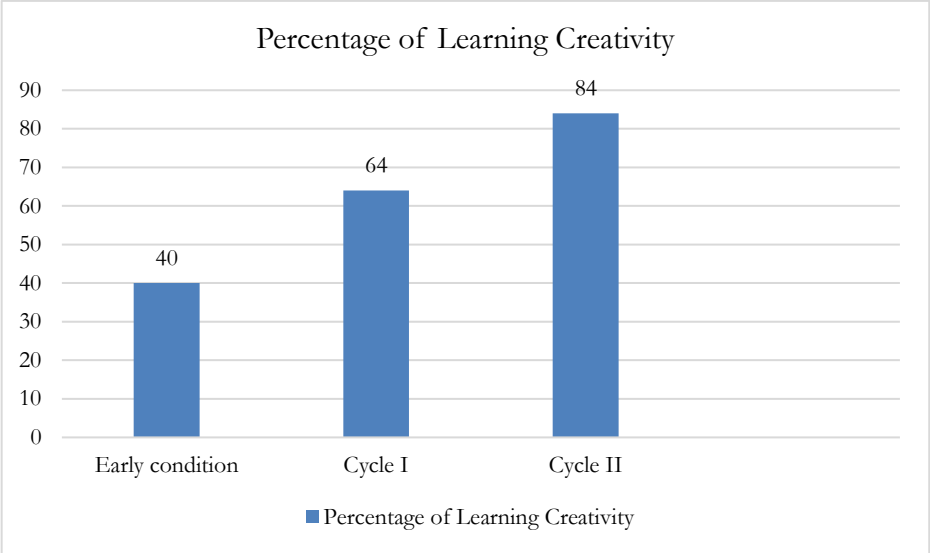

Figure 1. Graph of Average Learning Outcomes in Biology (Excretory System)

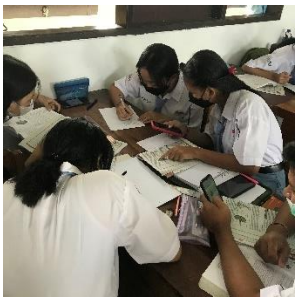

Figure 2. Work activities of LKPD

Figure 3. Student make the Mind Mapping

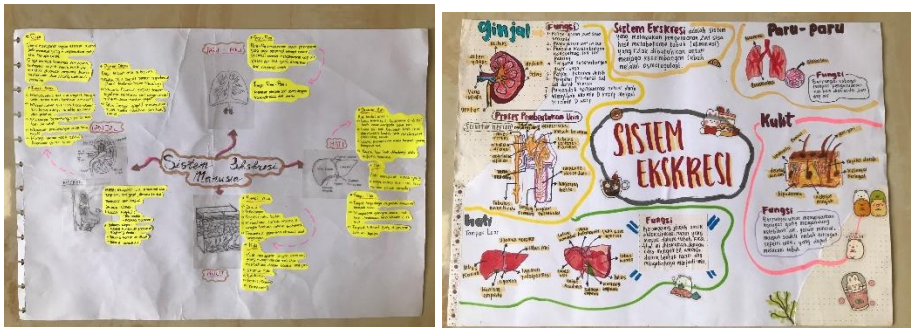

Figure 4. Mind Mapping made by students

Based on a comparison of the results of students learning creativity both seen through observation sheets and the results of mind mapping assessments that have been made by students, there is a change in the percentage of students' learning creativity, from initially only 40 to 64, and finally reached 84 in cycle II. The value of students' creativity as seen from their ability to make mind mapping also increased, from cycle I which obtained an average score of 78, increasing to 98 in cycle II. Thus, the implementation of mind mapping method was fulfilled and the research hypothesis was proven since the application of mind mapping

learning strategies was able to increase the learning creativity of students in class XI MIPA 6 SMA Negeri 1 Kuta Utara, especially in the subject of the human excretory system.

Observations on student creativity were carried out on student activities during learning related to aspects of creativity namely 1) fluency, 2) flexibility, 3) originality in thinking and 4) elaboration (develop, enrich, detail) an idea. In addition, the creativity of students can also be seen from the results of mind mapping products that have been made by students and their groups. There is an increase in students' learning creativity as contained in table 7 after the implementation of the action, namely the application of the mind mapping strategy, because students are given a safe space to be able to develop their creativity. This is in line with the opinion of Rahmawati & Asri (2014), who say that learning with mind mapping can provide opportunities for students to be creative according to their own interests and desires in understanding concepts by using pictures, symbols, colors, and other key points. The application of mind mapping in the learning process can stimulate creativity in students. This is because mind mapping allows students to organize various kinds of information and generate new ideas due to its open and orderly nature. In line with the opinion of Deporter and Hernacki (2011), the use of mind mapping is effectively used to bring up hidden ideas that students have and make associations between these ideas. Integration of mind mapping in the learning process can also maximize the potential of the minds possessed by students because in its manufacture the functions of both hemispheres of the brain are used simultaneously (Adhiyasa, 2022).

Creativity which is a thinking skill to be able to find various alternative solutions to problem solving and integrated with abilities such as fluency, flexibility, originality and being able to elaborate (develop, enrich and detail) an idea, can be shaped and developed through various learning activities and conditioning of a learning environment that safe and conducive (Widana & Laksitasari, 2023). The increased learning creativity of students in cycles I and II, apart from being due to the teacher facilitating the development of learning creativity by applying a mind mapping strategy, is also due to the conditioning of a safe and comfortable learning environment. Efforts made by the teacher in providing a safe and comfortable learning environment are by using the help of digital teaching media and the integration of several learning methods such as image and video observations, question and answer, group discussions, and presentations. The application of the mind mapping strategy creates enjoyable learning conditions because it involves a lot of colors and images, which contributes to the provision of a safe and comfortable learning environment for students (Sulfemi, 2018). The application of mind mapping as a learning strategy gives students the freedom to express their thoughts and imagination regarding the material obtained (Sholihah, 2015). Feelings of pleasure and freedom in expressing ideas and freedom to make mind maps according to their thoughts and imagination can provide space for students to be able to develop the creativity that is within them.

CONCLUSION

Based on the results of the classroom action research that has been carried out, it can be concluded that the application of mind mapping learning strategies is effectively used to improving the learning creativity of students in class XI MIPA 6 SMA Negeri 1 Kuta Utara for the 2022/2023 academic year, especially in learning biology material on the human excretory system. The increase in students' learning creativity can be seen through the results of the analysis of observation sheets and the results of mind mapping assessments that have been made by students, where it is known that there is a change in the percentage of students'

learning creativity, from initially only 40 in the initial conditions to 64 in cycle I, and finally reached number 84 in cycle II. The value of students' creativity as seen from their ability to make mind mapping in groups also increased, from 78 in cycle I to 98 in cycle II.

As for some suggestions that can be given by remembering the effectiveness of using mind mapping strategies in increasing student learning creativity are 1) mind mapping can be integrated into other subjects that have solid teaching material as a creative recording method, 2) directions in making mind mapping can used for each student, and 3) mind mapping learning strategies should be integrated with other learning methods and the help of interactive digital learning media in order to create safe and comfortable learning conditions for students to develop their creativity.

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