

Implementation of Treffinger-Combined Mind Mapping Learning Model on Students' Creativity and Learning Outcomes

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Abstract - Purpose of the research was to improve students' creativity and learning outcomes in Class VIIC of SMPN 2 Sinunukan, North Sumatera by using Treffinger-Combined Mind Mapping learning model. It was a classroom action research. The subject was 21 students in Class VIIC of SMPN 2 Sinunukan; while, the objects were the whole Natural Science (IPA) learning process and outcomes. Data were collected by observation, test and exercise techniques. The instruments were students' creativity observation sheets, tests and mind mapping exercises in every cycle. The obtained data were analyzed in qualitative and qualitative descriptive. From descriptive analysis result, it is known that Treffinger-Combined Mind Mapping can be implemented well in the classroom. It can be seen from: most of students in cycle II are able to produce various answers when they try to solve Natural Science problems, have different points of view in solving problems, students are able to comment their friends' answers, are able to tell phenomena related to the learning materials. In addition, most of students are active and creative to tell their ideas/ opinion, do exercises independently, able to present and communicate their work in front of the class in detail and maximal.

Keywords - Creativity, Natural Science (IPA) Learning Outcome, Treffinger, Mind Mapping.

I. INTRODUCTION

Creativity in Natural Science (IPA) learning should be owned by students because it can influence students' understanding to materials in developing their ability to analyze problems in daily life. Creativity is an individual psychological process which bears ideas, opinion, curiosity, method, and technique imaginatively, effectively, creatively, aesthetically, flexibly in discontinuity and differentiation as problem-solver for various fields (Yeni Rachmawati 2011:14). Indicators of creativity are (1) fluency, (2) flexibility, (3) originality, (4) elaboration, (5) redefinition.

Based on observation done in Class VIIC of SMP 2 Sinunukan in learning Natural Science (IPA) by using scientific method, most of students are still shy to ask and answer questions. In answer Natural Science (IPA) test, they tend to copy it from the learning book. Based on data in the school, minimum criteria of mastery in Class VIIC in

Natural Science subject is 72. Students in Class VIIC SMPN 2 Sinunukan are 21 students, in which 15 students get score above Minimum Criteria of Mastery (KKM) and 6 students get score under Minimum Criteria of Mastery.

To solve problems above, it needs a learning model which can give students opportunity to think creatively. One model than can be used is Treffinger-combined mind mapping learning model. According to Putri (2010), Treffinger model is a learning model which leads students to think creatively in facing daily life problems around them. Meanwhile, according to Buzan, mind mapping is a scientific thinking system which can open and use brain potency and capacity to be creative in specifying memories, facts and information.

Purpose of the research was to improve students' creativity in Class VIIC of SMPN 2 Sinunukan in learning Natural Science (IPA) in Environmental Pollution learning

material so that it can improve their learning outcomes. As consideration, in previous research done by Nurlela (2012) about implementation of Treffinger learning model to improve students' creativity in learning mathematics in V grade of MIS Darul Qalam Senayangin Lingga Regency, it was found that the use of Treffinger learning model can improve students' learning creativity from 70.52% to 94.12%, which means that students' learning outcomes also improve. Learning Application With Mind Mapping Model To Improve Creativity And Learning Outcomes Of Class X Students of AL-RI Modern High School FA'IE Gondanglegi Malang Regency, Sidi (2016), with the application of Mind Mapping learning models can improve creativity and student learning outcomes from 70% to 75% , So increase the increase by 5%.

II. RESEARCH METHOD

It was a classroom action research. The subject was students in Class VIIC of SMPN 2 Sinunukan. The objects were Natural Science (IPA) learning process and outcomes. Data were collected by using observation, test, and exercises techniques. Instruments used in the research were students' creativity observation sheets, test and mind mapping exercises in every cycle as assessment of students' learning in classroom after learning process.

III. FINDINGS AND DISCUSSION

Planning of action in cycle I was developed based on the initial observation result. Planning in cycle I is: (1) Determining learning material, which is soil pollution; (2) Arranging lesson plan; (3) Arranging group worksheets or guided-worksheet with learning material of soil pollution; (4) Making students' creativity and performance observation sheets; (5) Making score list; (6) Arranging test questions for cycle I; (7) Making Mind-Mapping exercises about soil pollution concepts; and (8) Sharing tasks between researcher and observer. Treffinger learning model is started by giving a problem to students. It is done by giving open questions to students and give them opportunity for them to have creativity in solving the problem by using their own ideas or opinion. Problems found during cycle I are (1) most of students are shy in answering teacher's question; (2) most of students cannot comment on their friends' answers; (3) there are some students who cannot solve Natural Science problems provided by teacher; (4) there are some students who do not concentrate in learning process; (5) there are some students who is not brave to present discussion result in front of the classroom; (6) from the test result, there are six students who get score under minimum criteria of mastery (KKM); (7) there are 10 students who get score in

minimum criteria of mastery (KKM); (8) there are five students who get score above minimum criteria of mastery (KKM). From the problems above, activities in cycle I cannot fulfill the determined indicators so that students' creativity and learning outcomes in SMPN 2 Sinunukanis not obvious. Therefore, it was continued to cycle II.

In the cycle II, it was done some improvements to problems found in cycle I, which are: (1) teacher gives many open questions to students during learning process; (2) teacher groups students based on their test result in cycle I, so the group discussion would be balance; (3) teacher gives some open questions in guided-exercise sheets; (4) teacher explains the maximum time to do group discussion by remaining unfocused students in learning process; (5) teacher motivates students who present their discussion result in order to be more confident; (6) teacher chooses learning material in cycle II, which is water pollution; (7) teacher arranges lesson plan; (8) teacher arranges guided-exercise; (9) teacher makes score list; (10) teacher arranges test questions for cycle II and its key answers; (11) teacher shares tasks between researcher and observer. Having treatment of Treffinger-combined Mind Mapping learning model, learning process can be more controlled and students' creativity and learning outcomes improve significantly. It can be seen that in cycle II, most of students are brave to answer the open questions given by teacher, to comment their friends' opinion, and able to complete the task independently. After teacher groups the students based on the result of test in cycle I, the balance in group discussion can be seen in cycle II. In cycle II, students are more serious in doing what teacher asks them to do. Besides that, they can share their opinion to their friends and present the results of their group discussion. However, there is some problem still found in cycle II. The problems are students still use the standard language to ask or answer questions and they cannot develop creative ideas to face the problems given to them so that their ability to think scientific concept in mind-mapping tasks is not really appropriate. Based on the problems above, researcher and teacher agree to continue the research to cycle III.

In cycle III, improvement to problems in cycle II was done by giving reinforcement to students' psychomotor and cognitive competences psychologically to make them more creative and active in sharing their opinions/ideas. It was done through: (1) during learning process, teacher gives many open questions for students; (2) teacher groups students based on the test result in cycle III so that group discussion would be more balance ; (3) teacher gives some open questions in guided exercise sheets; (4) teacher

explains the maximum time to do group discussion by remaining unfocused students in learning process; (5) teacher motivates students who present their discussion result in order to be more confident; (6) teacher chooses learning material in cycle III, which is air pollution; (7) teacher arranges lesson plan; (8) teacher arranges guided-exercise; (9) teacher makes score list; (10) teacher arranges test questions for cycle III and its key answers; (11) teacher shares tasks between researcher and observer. Having treatment of Treffinger-combined Mind Mapping learning model, learning process can be more controlled and students' creativity and learning outcomes improve significantly. It can be seen that in cycle III, most of students are brave to answer the open questions given by teacher, to comment their friends' opinion, able to complete the task independently, able to answer questions by giving some appropriate answers, and able to share information obtained during learning process in form of Mind Mapping. After teacher groups students based on the cycle II test result, group discussion is more balance in cycle III. Besides that, students are more serious to do activity given by teacher so that there is no student who is busy with himself and they are able to share opinions, as well as present their discussion results. Moreover, students' creativity in asking and answering questions, doing exercise on time, and sharing opinion also improves in learning process. Furthermore, students' outcome also improves. Almost all students get score above Minimum Criteria of Mastery (≥ 75), which is 19 students (90,48%) get score ≥ 75 and only 2 students (9,52%) get score below Minimum Criteria of Mastery (< 75).

Improvement in cycle III can also be seen from students' scores of final test and mind map exercise. It is obvious that students have various answers to answer and explain the questions based on their creativity. Besides that, students' ability to make a mind mapping proves that they can pour their creativity and imagination to describe learning materials in form of mapping so that their understanding about learning materials can improve during learning process. So, it can be concluded that implementation of Treffinger-combined Mind Mapping learning model can improve students' creativity and learning outcomes in SMPN 2 Sinunukan.

IV. CONCLUSION AND SUGGESTIONS

From the findings above, it can be concluded that (1) Learning by using Treffinger-Combined Mind Mapping model goes well because the learning stages can be implemented maximally. Treffinger-Combined Mind

Mapping learning is started by teacher provides a problem to students. Then, students are given freedom to have creativity in solving the problem by themselves and using their own strategy. (2) There is an improvement of students' creativity and learning outcomes in Class VIIC of SMPN 2 Sinunukan from one cycle to other cycles, which are from cycle I, II and III.

In order to improve students' creativity and learning outcomes, a learning model which can develop creative thinking skill and create active learning atmosphere needs to be implemented in the classroom. Therefore, researcher gives some suggestions, as follows: (1) Teacher should try to implement Treffinger-Combined Mind Mapping model in large scope of learning materials as an alternative to improve students' creativity; (2) learning by using Treffinger-Combined Mind Mapping model is appropriate to be implemented because it can improve creativity; (3) it is suggested to do similar research in longer time so that the result of research will be more maximal.

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