THE COMPARISON OF LEARNING AND HIGH LEVEL THINKING ABILITY STUDENTS USING PQ4R STRATEGY WITH CONCEPTS MAPPING IN CLASS XI IPA SMA NEGERI 5 BINJAI

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Abstract

This research aimed to knowing the comparison of learning and high level thinking ability students using pq4r strategy with concepts mapping in class XI IPA SMA Negeri 5 Binjai this research was to do on students SMA Negeri 5 Binjai odd semester on academic year 2017/2018, by doing teaching in two classes to be used as research samples given different treatments, that is with the PQ4R learning strategy for class XI IPA 2 which amounted to 33 people and the concept mapping learning strategy for class XI IPA 3 which amounted to 33 people. this type of research is experimental research with a random sampling data collection technique, in which the population consists of five classes totaling 171 people.

Based on the results of the study, the PQ4R strategy with concept mapping can both improve learning outcomes and level thinking ability of students because both learning strategies can make students master the concept learning so that they can also make thinking activities of students. . This can be seen from the average value of student learning outcomes in the PQ4R class of 82.83, while the concept mapping class is 78.99. There is a comparison of the increase in learning outcomes and level thinking ability of students taught using the PQ4R learning strategy with concept mapping. Comparison of improvement in learning outcomes of students taught using the PQ4R learning strategy with Concept Mapping is equal to 1.07: 1. Meanwhile, the comparison of the increase in level thinking ability of students taught using the PQ4R learning strategy with concept mapping is equal to 1.06: 1.

Keywords: *PQ4R learning strategy, concept mapping, high level thinking ability*

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A. Introduction

The low level of education can be caused by various factors including factors that come from within students and from outside of students. Factors originating from within students include abilities, readiness, attitudes, interests, and intelligence. Factors originating from outside the students are teachers, infrastructure, and environment. These factors can cause low learning outcomes in students.

The low learning outcomes can be caused by learning strategies that are less attractive so students first feel bored before learning it. One indicator of low learning outcomes is if students do not reach the specified KKM in the field of study. From the results of observations conducted by researchers, the learning methods applied by biology teachers are generally in the form of conventional methods such as lectures, discussions, and question and answer. Teachers generally dominate teaching and learning activities in the class room and become the only source of information so that learning activities only prioritize cognitive aspects without regard to affective and psychomotor aspects. As a result, many students have low learning outcomes, ie they do not get satisfactory KKM, on average below 70 (Minimum Completion Criteria (KKM) in SMA Negeri 5 Binjai is 75).

One of the weaknesses of the learning process carried out by teachers today is the lack of effort to grow and improve students' thinking skills. In each learning process on any subject the teacher encourages students to master a number of subject matter (Sanjaya, 2008). Therefore, the use of appropriate learning strategies needs to be applied in learning that can improve students' thinking skills.

PQ4R learning strategy is one part of the elaboration strategy. This strategy is used to help students remember what they read and and can help the teaching and learning process in the classroom carried out by reading books. The activity of reading a book aims to learn to complete chapter by chapter a textbook. The PQ4R strategy contributes to a good affective and cognitive domain (Sudarman, 2007). So that students can get the mastery of learning and a good level of mastery of the subject matter

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and can improve students' ability to think about a problem that exists in a subject matter (Trianto, 2010).

Learning strategies for concept mapping (concept mapping) is one part of organizational strategy which is a schematic picture that emphasizes the main ideas of a concept and reveals meaningful relationships between these concepts (Suparno, 2005). So that this strategy can help students to improve the meaningfulness of new materials carried out by the organizing structures of these materials. According to Trianto (2010) that in science, concept maps make abstract information concrete, very useful for improving the memory of a learning concept. Because the use of appropriate learning strategies has a close relation to the success of learning and students "thinking ability", the authors are interested in comparing learning outcomes and high level thinking ability by using PQ4R learning strategies and concept mapping with the title: "The Comparison Of Learning And High Level Thinking Ability Students Using PQ4R Strategy With Concepts Mapping In Class XI IPA SMA Negeri 5 Binjai T.P 2017/2018. "

B. Method

This research was conducted in the odd semester of 2018 and the research location was in SMA Negeri 5 Binjai, having its address at Jambi Binjai Road. With the population in this study are all students of class XI IPA SMA Negeri 5 Binjai 2017/2018 Learning Year which consists of five classes totaling 171 people. The sample is a portion of the population taken randomly with PQ4R for class XI IPA 2, amounting to 33 people and the concept mapping learning strategy for class XI IPA 3 totaling 33 people.Learning Year which consists of five classes totaling 171 people. The sample is a portion of the population taken randomly with PQ4R for class XI IPA 2, amounting to 33 people and the concept mapping learning strategy for class XI IPA 3 totaling 33 people.

With the instrument used in this study is a test of student learning outcomes in the form of multiple choice tests as many as 30 items. Each question has 5 answer choices (a, b, c, d, e) about cell submersion and each correct answer is given a score of 1 and the wrong number is given a score

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of 0. Data is taken at the beginning (pre-test) and the end of learning (post-test). And the Higher Level Thinking Ability Instrument used in this study is a descriptive test (essay test) of 10 items about cells. Data collection is done at the beginning (pre-test) and the end of learning (post-test). The questions consist of cognitive domain questions which consist of high-order thinking skills, namely C4 (analysis), C5 (evaluation), and C6 (creation) questions.

C. Research Finding

. Based on the results of the above research, it can be concluded that there are comparisons of learning outcomes and high level thinking ability of class XI IPA students of SMA Negeri 5 Binjai Learning Year 2011/2012 who were taught using the PQ4R strategy with Concept Mapping on the subject matter of cells. Before carrying out learning activities using the PQ4R strategy and Concept Mapping, researchers first gave pre-tests to both research classes to see students' initial knowledge of the subject matter of the cell. From the results of the pre-test it is known that the average value of learning outcomes and the high level of thinking ability of students in the two classes are relatively not different even can be said to be the same. Based on the average value of the pre-test, it can be seen that the learning outcomes and high level thinking ability of students before being given treatment with different learning strategies are still relatively low.

While based on the post-test results after the two research classes were treated using different learning strategies, the results showed that both the learning outcomes and high-level thinking abilities of students taught using the PQ4R strategy and the average learning outcomes and high level thinking ability of students those who were taught using the Concept Mapping strategy increased compared to before the two classes were given treatment. Post-test results showed that the average value of learning outcomes of students taught using the PQ4R strategy increased by 38.28 units and the average value of high level thinking ability of students also increased by 72.33 units compared to the average value before being given learning, as well as the value the average learning

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outcomes of students taught using the Concept Mapping strategy also increased by 35.76 units and the average value of students' high level thinking ability also increased by 67.91 units.

Based on these results, it can be seen that the increase in learning outcomes and high-level thinking abilities of students taught using the PQ4R strategy increased more than those taught using the Concept Mapping strategy. Comparison of the increase in the average increase in learning outcomes of students taught using the PQ4R strategy with Concept Mapping is 1.07: 1, while the comparison of the average value of the increase in high level thinking ability of students taught using the PQ4R strategy with Concept Mapping is 1.06: 1. With a large comparison of the increase in the average value of learning outcomes and the ability to exhibit high levels of students in both research classes it can be concluded that the use of the PQ4R strategy is still better used to improve student learning outcomes and higher-order thinking skills in cell subjects compared to using strategies Concept Mapping.

From the monitoring of researchers during conducting research, it appears that enthusiasm and enthusiasm for learning in both classes are relatively the same. However, the class taught using the PQ4R strategy was more creative in raising problems and questions about the subject matter being learned than in the class taught using the Concept Mapping strategy. This can happen because in the PQ4R class students carry out pre-test, question, read, reflect, recite, and review learning steps that keep students active during the learning process.

D. Discussion

Based on the results of the study, the PQ4R strategy with Concept Mapping can both improve learning outcomes and high level thinking ability of students because both learning strategies can make students master the concept of learning so that they can also make students think activities. Because the ability to think requires the ability to remember and understand (Reason in Sanjaya, 2008), so using learning strategies can make students easier to understand and master the concepts of the material being studied.

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The PQ4R strategy helps students remember what they read and can help the teaching and learning process in the classroom carried out by reading books. With these reading skills, every student will be able to enter the scientific world, understand the richness of many wisdoms and reverence, and develop various other skills that are very useful for later achieving success in life.

By looking at the results of the research and discussion above, it can be concluded that the PQ4R learning strategy is more effectively used in teaching the subject matter of the cell to improve student learning outcomes and higher-order thinking skills compared to learning using the Concept Mapping strategy.

This research for teachers in SMA Negeri 5 Binjai especially biology teachers so that they are willingto trying apply biology learning by using the PQ4R strategy and Concept Mapping as one of the alternatives to improve student learning outcomes and high level thinking ability especially in the subject matter of the cell. while For students, the use of PQ4R learning strategies and Concept Mapping can be used as an alternative in learning to get good learning outcomes and thinking skills.

E. Conclusion
The results of the research conducted can be concluded as follows:
1. There are differences in learning outcomes of students who are taught to use the PQ4R learning strategy with Concept Mapping on the subject matter of cells in class XI IPA SMA Negeri 5 Binjai. The average value of student learning outcomes in the PQ4R class is 82.83, while in the Concept Mapping class is 78.99.
2. 2. There is a difference in high level thinking ability of students taught using PQ4R learning strategies with concept mapping in the subject matter of cells in class XI IPA SMA Negeri 5 Binjai. The average value of high-level thinking ability of students in the PQ4R class is 82.27, while in the Concept Mapping class is 76.67.
3. 3. There is a comparison of the increase in learning outcomes and high level thinking ability of students taught using PQ4R learning strategies with Concept Mapping. Comparison of improvement in

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learning outcomes of students taught using the PQ4R learning strategy with Concept Mapping is equal to 1.07: 1. Meanwhile, the comparison of the increase in high level thinking ability of students taught using the PQ4R learning strategy with Concept Mapping is 1.06: 1.

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