



Improving Students' Literation Through The Implementation of Mind Mapping-Based Discovery Learning Model

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Abstract: This study aims to apply the discovery learning model based on concept maps to improve student literacy. As many as 25 students of class VIIIIF SMPN 16, were chosen as the research sample. Literacy ability is measured by observation using an observation sheet with regard to student attitudes when discovery through reading activities. Students' responses to learning are also measured through focus group interview (FGI). The results showed that the application of this model could improve the literacy culture of students with a score of 74.67 and the average student learning outcomes obtained a score of 81.53 which included good categories.

Keywords: discovery learning, mind mapping, literacy.

***Abstrak:** Penelitian ini bertujuan untuk menerapkan model pembelajaran penemuan berbasis peta konsep dalam meningkatkan literasi siswa. Sebanyak 25 orang siswa kelas VIIIIF, SMPN 16 dipilih sebagai sampel penelitian. Kemampuan literasi diukur dengan pengamatan menggunakan lembar observasi berkenaan dengan sikap siswa ketika penemuan melalui aktivitas membaca. Respon siswa dalam pembelajaran juga diukur melalui focus group interview (FGI). Hasil penelitian menunjukkan bahwa penerapan model ini dapat meningkatkan budaya literasi siswa dengan skor 74,67 dan rata-rata hasil belajar siswa diperoleh skor 81,53 yang termasuk kategori baik.*

***Kata kunci:** pembelajaran penemuan, peta konsep, literasi.*

▪ INTRODUCTION

The survey results of UNESCO's world organizations (United Nations Educational, Scientific and Cultural Organization) released from 61 countries surveyed showing interest in reading Indonesian society at number 59 with a result of 0.001% meaning that from 1000 Indonesians there was only 1 categorized as diligent reading (Tekno, 2016). Given the low literacy culture of reading in the community, the Indonesian Government since July 2015 through the Ministry of Education and Culture has launched an agenda for the school literacy movement (GLS).

Literacy is often interpreted as literacy ability which includes the routine of reading and writing. Furthermore according to NIFL (National Institute for Literacy) that literacy includes a person's ability to read, write, speak, calculate and solve problems at a certain level of expertise that is beneficial to work, family and society (Keefe & Copeland, 2011; Perry, 2012; Shanahan, & Shanahan, 2012). Illiteracy is one of the major obstacles to the development of a person's quality of life towards a better direction. Therefore literacy culture is not a trivial thing, but it has a multiple effect. In this case it means that literacy can have a very broad influence on the lives of individuals, communities and nations. Through literacy capabilities can help eradicate poverty and ensure the implementation of sustainable development even to the realization of world peace.

At present the term literacy has been widely used in a broader sense such as information literacy, computer literacy and scientific literacy. Science literacy in students needs to be improved, because it can have an impact on the breadth of mastery of science and skills. Science literacy according to the international study of PISA (Program for International Students Assessment) is the ability to use scientific knowledge, identify problems and draw conclusions based on evidence, in order to understand and make decisions about nature and changes that occur in nature as a result of human activities (Bybee, McCrae, & Laurie, 2009). Based on the results of the PISA international study data analysis that in the 2015 mapping, there were still 49 of the 72 participating countries that had the ability to achieve scientific literacy below the international average score, which was below the score of 501. Furthermore the results of the PISA analysis also showed that the ability Science literacy of students in Indonesia is ranked 64th out of 72 countries (OECD, 2016). These data reveal that the scientific literacy achievements of Indonesian students are still relatively low.

Achievement of science literacy in Indonesian students is relatively low because most students do not have a literacy culture that includes reading and writing habits so that it is implicated in the low mastery of science knowledge. To support scientific literacy, a learning stimulus is needed that is able to encourage students to want to do reading and writing activities. One effort that can be done by teachers in the classroom is to apply discovery-based learning models that are combined with the project of making mind mapping. The discovery learning model invites students to find various sources of learning information and find understanding independently through reading activities. While mind mapping learning brings students to re-express ideas as a result of reading activities as a whole picture of a whole scientific concept. Through the implementation of discovery learning models combined with mind mapping making projects, it is hoped that it can be a solution in fostering a culture of literacy so that it affects the mastery of students' scientific knowledge.

▪ METHOD

The discovery learning model combines mind mapping to improve the student literacy culture applied to science subjects of plant motion material. This research was conducted at SMP Negeri 16 Bandar Lampung with research subjects of class VIII F in the academic year 2017/2018. Literacy culture is measured by making observations using a Likert scale observation questionnaire instrument related to student attitudes when discovery through reading activities. In addition, this study also measures student learning outcomes after the learning process is carried out. While the response of students in learning is done through focus group interview (FGI) activities. The overall data of the research results are converted into five criteria of literacy. The application of discovery learning models combined with mind mapping in learning is done in 3 cycles, with the allocation of time for each cycle is 2 x 40 minutes. Related to the learning model used in teaching and learning activities so that the implementation of learning in the classroom is also equipped with discovery learning based materials as well, related to this is the application of student worksheets (students' worksheet) based on discovery learning in learning.

▪ RESULT AND DISCUSSION

After the learning process is carried out applying the discovery learning model using students' worksheet based on discovery learning and combined with making mind mapping then data is obtained as shown in Table 1. Some mind mapping students' work is presented in Figure 1.

Table 1. The average culture of student literacy through the application of a combined discovery learning model to the making of mind mapping

No	Literacy aspects	Group of students					Average	Criteria
		I	II	III	IV	V		
1	Affective (reading activity)	76.67	72.22	78.89	71.11	74.44	74.67	Good
2	Cognitive (learning outcomes)	82.17	80.50	8300	80.33	81.67	81.53	Excellence

Based on Table 2, it can be seen that student literacy culture, especially in the aspect of reading activities, includes criteria "good" while the student learning outcomes are categorized as "very good". The factors predicted to influence the literacy culture of students in this study are the fact that learning when the teacher facilitates the use of students' worksheet based on discovery learning models in the learning process, has actually provided a conducive learning environment for students. Teachers in the discovery learning model act more as facilitators, in the sense that they are able to provide facilities in the learning process and assist students in learning so that a sense of comfort can be created that can bring students the courage to optimally express or discuss subject matter (Alfieri, Brooks, Aldrich, & Tenenbaum, 2011).

The learning process by using students' worksheet focuses more on student learning in groups so that it can create an atmosphere of learning that discuss and collaborate with each other. As according to Choo, Rotgans, Yew, & Schmidt (2011), students' worksheet can be used by teachers to activate students in learning activities, help students in finding and developing mind concepts and as an alternative way of presenting subject matter. Another factor that is thought to influence the culture of literacy is that the discovery learning model is revealed to be able to involve students in the process of finding and investigating themselves from various sources of information, so students feel more challenged to develop understanding of knowledge. This learning climate stimulates students to continue reading. What's more, after reading activities students are led to explore the concept of mind that has been stored in memory into the form of mind mapping. This fact of learning increasingly fosters students' interest in reading activities so that literacy culture can continue to be improved.

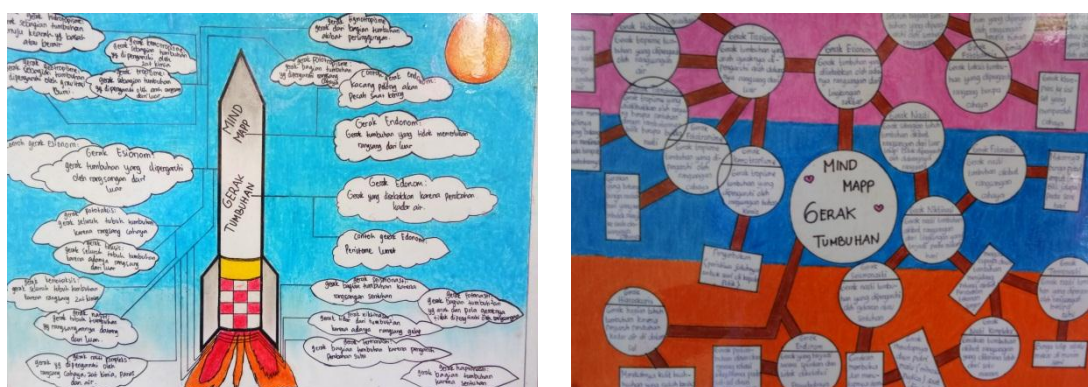


Figure 1. Students' generated-mind mapping

Teaching and learning activities with discovery learning models combined with making mind mapping ensure the involvement of students actively in developing knowledge independently and give birth to good learning attitudes, so that the impact on the level of understanding of students is increasingly deep as a result the quality of the process and student learning outcomes are more maximal. The habit of finding independent learning resources in discovery learning models and creating mind concepts in the form of mind mapping turns out to be able to increase self-confidence (self confidence) and increase self-confidence (self efficacy) so that it increases self motivation for students to do activities read. Basically in this study there is a linear relationship between the application of the discovery learning model combined with mind mapping with the student literacy culture.

▪ CONCLUSION

Based on the exposure to the data from the research and discussion that have been stated above, it can be concluded that the application of discovery learning models combined with mind mapping can be said to improve the literacy culture of junior high school students based on the results of a descriptive analysis of student attitudes when reading activities that show a number of 74.67 with the criteria of "good" and the

average student learning outcomes obtained a figure of 81.53 including the category of "very good". The application of discovery learning models combined with mind mapping is also stated to be proven to improve the literacy culture of junior high school students. This can be seen based on students' qualitative responses to the learning process.

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