Innovative Journal of Curriculum and Educational Technology
8 (1) (2019) : 41 – 50

https://journal.unnes.ac.id/sju/index.php/ujet/article/view/31337

The Effect of Mind Mapping Based Imindmap Application on The Creativity and Concept Understanding of Students

Darpia Taadi[1]✉, Tri Joko Raharjo[2] & Sri Maryati Deliana[2]

[1] Universitas PGRI Madiun, Jawa Timur, Indonesia
[2] Universitas Negeri Semarang, Indonesia

Article Info

History Articles
Received:
May 2019
Accepted:
June 2019
Published:
June 2019

Keywords:
creativity,
imindmap,
mind mapping

DOI
https://doi.org/10.15294/ijcet.v8i1.31337

Abstract

This study was conducted by considering several problems appear in the field of study, such as the low creativity of the learning of IPS subject at Muhammadiyah Integrated Elementary School Ponorogo, the unavailability of the appropriate learning methods to improve the creativity and understanding concepts of the students at the school, teachers at the school are more often apply the lecture method in the teaching and learning IPS. This study has the purpose of determining the effect of the application of the Mind mapping method based Imindmap application on the creativity and conceptual understanding of students. This study was conducted at Muhammadiyah Integrated Elementary School Ponorogo, grade VA, and VB. This study applied the experimental method with random cluster sampling. The variables used in this study are the creativity and the understanding concept of students. The data collection method used was a questionnaire to obtain data on student creativity and tests to obtain the results of the understanding concepts of students. The technical analysis of the data used was Manova and t-test. The results of the study through the t-test of student creativity in the experimental group were obtained ($t = -7.795$; $p < 0.01$) significantly. Therefore, it can be concluded that the method of mind mapping based Imindmap application affects the creativity of students. The results of the study through the t-test of students' conceptual understanding in the experimental group were obtained ($t = -6.807$; $p < 0.01$) significantly. Therefore, it can be concluded that the method of mind mapping based Imindmap application affects the understanding concepts of students. Manova test results obtained from the Tests of Between-Subjects Effects of student creativity was ($F_{(3.46)} = 34{,}104$; $p < 0.01$), conceptual understanding was ($F_{(3.46)} = 5{,}727$; $p < 0.01$). The effect of the Mind mapping method based Imindmap application in increasing creativity is 69% ($\eta_\rho^2 = 0.690$), and the conceptual understanding is 27% ($\eta_\rho^2 = 0.272$). This study can be a useful input for teachers and prospective teachers in improving oneself about teaching in the digital era that is increasingly developing to achieve more creative, innovative, and easy to understand material and science and technology insight learning goals.

✉ Correspondence address:
Setiabudi No.85, Kanigoro, Kartoharjo,
Madiun, Jawa Timur, 63118
E-mail: ponoreggae@gmail.com

p-ISSN 2252-7125
e-ISSN 2502-4558

INTRODUCTION

Education has a very important role in developing students' knowledge. In other words, education is a process to create someone qualified and characterized by being able to adapt quickly and precisely in various environments. Therefore, education is one of the needs of every human being. According to Ihsan (2010) education can be interpreted as a result of national civilization developed based on the nation's life view (values and norms of society) that function as the philosophy of education or as ideals and statements of educational goals.

Education is very important in laying the foundations of knowledge and skills. The formation of knowledge and skills cannot be separated from the role of the teacher in developing students' thinking skills. According to Daryanto (2010), education is the maturation of students to develop talents, potentials, and skills possessed in living life.

Education should be designed to provide the understanding and improve student achievement. With the right education can provide knowledge and train students to interact with their social environment. Education in elementary school plays a major role in laying the foundations of knowledge and skills. With the provision of appropriate and future-oriented education since they were children both formally and informally, the faster the absorption of knowledge, information, and skills received by the child is faster. According to Sopiani (2012) education is the process of inheriting the culture and character of the nation for the younger generation as well as the process of developing the culture and character of the nation to improve the quality of life of the people and the nation in the future. That is, the success or failure of achieving educational goals depends a lot on how the learning process is experienced by students as students.

Changes and renewal influence the success of education in all components of education. The components that influence the implementation of education include the curriculum, facilities, infrastructure, teachers, students, and appropriate teaching models (Sukmawati, Utami, and Mulyani, 2014). All these components are interrelated in supporting the achievement of the desired educational goals.

In the implementation of Curriculum 2013, the creativity of teachers as those who conduct the learning process is very needed. Many parties, especially those who conduct the learning, acknowledged that the implementation of Curriculum 2013 seemed forced. Although public awareness and testing have been carried out, the mastery of the teachers on the basic concepts and contents of the curriculum is still not complete, so many teachers experience confusion in implementing the curriculum. One of the main objectives of Curriculum 2013 is to develop skills value; this is related to student creativity. According to Anggraini (2016), teachers have an important role in creating a classroom environment that stimulates the creativity of students to learn creative thinking.

It is very important in the learning process to foster the desire of each to have motivation in the learning.

Creativity or creativity enables discoveries in the fields of science and technology, as well as in all other fields of human endeavor. According to Syahidah (2015) the teacher as the educator must master the material to be delivered, clever at creating interesting teaching conditions and conditions, and be creative in delivering learning material, one of which is by using learning methods that can stimulate students to be more creative. The teacher must also be able to create a varied learning process as well as fun to enhance students' creativity. Therefore, the teacher should be able to stimulate students to involve themselves in creative activities by helping to make the necessary facilities and infrastructure.

The learning process that is currently being applied is still based on the teacher's book guide while students are only told to work on the practice questions in the student book, students often use conventional learning that is without the use of learning methods, even students are given less opportunity to develop their creative ideas especially in social studies learning. This results in less meaningful learning.

Currently, social studies or IPS learning has a very important role in life; therefore, through social studies learning, students need to be equipped with several knowledge, attitudes, values, and skills (Sapriya, 2009). Social studies (IPS) is very important to be given in the world of education; this is done to be integrated with the knowledge they learn in school. IPS learning activities are held in an interactive, inspiring, enjoyable, and challenging way for students. One of the goals of social studies is to develop the ability of citizens.

Based on the above description, there are many problems that appear in social studies (IPS) learning in elementary schools. Most elementary students, especially grade V, are still largely not involved in the learning. According to Nurhadi (2012) social sciences (IPS) as an integral part of the learning curriculum in schools should be delivered in an interesting and meaningful way by integrating all components of learning effectively and creatively.

Interesting learning and sharpening students 'creativity in hopes of increasing students' understanding of the material. Understanding the concept of student learning begins with knowledge of concepts. If students have not been maximal to achieve the initial knowledge, which is the understanding concept of students, then the understanding concepts cannot be achieved by students. Every individual has different thinking abilities. Students as learners have the potential to remember longer by empowering their right and left brains, which will produce the understanding concept of learning of the students.

Tiharita, and Anix (2017) stated that understanding concepts develop along with individual growth because insight and experience can increase as people age. Conceptual knowledge is the basis for achieving learning goals in understanding student learning concepts. In other words, in the learning process, students are expected not only to achieve conceptual understanding but also to be able to achieve emotional abilities that can lead them to either good or bad things that will have an impact on attitudes and actions that reflect their character.

The lack of understanding of concepts in the learning of social science (IPS) has resulted in the competencies or indicators to be achieved becoming imperfect, whereas cognitive behavior itself is the beginning and core of overall individual behavior (Surya, 2015) and this explanation is supported by the theory stated by Herman Ebbinghaus (Surya, 2015) that a material that is not understood by its meaning will be difficult to remember compared to the material understood by its meaning. Therefore, a student needs to understand good material concepts to be able to remember them for a long time or long term memory.

The results of observations conducted by the researcher in Muhammadiyah Integrated Elementary School Ponorogo in October showed that teachers at the school still do not understand in carrying out learning following Curriculum 2013. The lack of understanding of the teacher to this learning method causes teachers to teach less creatively. This is reflected in the existence of several problems in social studies (IPS) learning. The problems that arise include the low creativity and understanding of concepts in the learning process. The low creativity of these students and the understanding of concepts, especially in the content of social studies in grade V students, which becomes one of the serious matter since Curriculum 2013 emphasizes on both aspects of skills and knowledge.

Also, some teachers still use old learning patterns, namely conventional learning that is teacher-centered and learning activities that do not explore students' creativity and understanding. Learning is dominated by the lecture method, which makes students tend to be passive. Learning activities students sit more and record material that are assigned to memorize. This makes students less able to develop creativity and understand material concepts in the learning process. These factors cause low creativity and understanding of the concepts students have in the learning process, which has implications for the value of learning outcomes.

The teacher has a very important role in learning activities. Teachers should use methods and learning media that involve students to be

active in learning. According to Suprijono (2011) the learning method is a pattern that is used as a guide in planning classroom learning and tutorials. According to Arsyad (2011) learning methods are tools that convey or deliver learning messages. By using learning methods, the delivery of information or material will be more easily accepted by students. Therefore, in carrying out learning activities, teachers must choose various methods or models that are following the material to make the learning process more active, innovative, and fun.

One of the methods that can be used by teachers to create attractive learning conditions for students is by applying the right learning methods to optimize student learning outcomes. In this case, instead of increasing the creativity of students, students will have a better understanding of the material being studied.

Based on the above description of problems, one of the learning methods that is relevant to the concept of learning innovation and student-centered or student center learning (SCL) and can be used to enhance the creativity and understanding of the IPS concept of grade V students in Muhammadiyah Integrated Elementary School Ponorogo is a Mind Mapping learning method based Imindmap application.

Supriadi (2016) stated that mind mapping is a learning method that can improve student understanding. According to Vitulli, and Giles (2016), mind mapping is a tool for teaching that can help teachers to introduce or unite several words related to a topic or theme. Buzan (Darmayoga, Lasmawan, and Marhaeni, 2013) states that mind mapping is the most important idea, and the main paths that spread from the center represent the main thoughts in our thought processes. This means that mind mapping is a concept of mind maps that has main ideas and explanatory ideas that are applied attractively and pictorially in branches according to the main ideas in the material.

Mind mapping or mind map is a creative, effective way of recording and literally "mapping" our thoughts. Sari, Ridlo, and Utami (2016) stated that use of the Mind mapping method is a technique of recording (summarizing) the material creatively, effectively, and literally will map our thoughts. Imindmap is an application of developing Mind Mapping or Mind Map learning methods that are packaged in the form of programs or software. This application is a supporting application for students in making mind mapping so that students are easier to develop thought ideas and artistic creativity that has been thought of. Therefore, students are more creative, understand the concepts with their skills, and also have technological insight. According to Septiaji (2015) Imindmap is a software (software) from the Mind Map learning model (mind map) that helps prepare students to be able to understand in a fun way comprehensively. Also, Syam, Djangi, and Danial (2018) stated that activities and learning outcomes after learning using iMindMap media on cooperative learning models STAD grade XI IPA 1 MAN 2 Model Makassar have increased.

The mind mapping learning method presents an interesting and memorable method. Therefore, this method can improve the long-term memory of the material taught, namely by writing, pouring thoughts from the brain after recognizing the information given Tiharita, and Anix (2017). The teacher who expects students to understand the material learned is by reading; however, by reading, only a small portion survives in mind, the rest will be forgotten. Thus, the teacher must strive to minimize the occurrence of short-term memory. Based on these explanations, the mind mapping learning method can help the students to remember information easier and more reliable.

Considering the importance of learning activities, as an innovative learning alternative and can develop creativity and understanding of students' concepts. It is expected that the mind mapping learning method based Imindmap application can enhance the creativity and understanding of students' concepts of social studies (IPS).

Previous research used to support the current research such as research by Septiaji (2015) iMindMap is a software (software) from the Mind Map learning model (mind map) that helps prepare students to be able to

comprehensively understand the learning in a fun way. Also, the results of the study of Agustin, Syahbana, and Paradesa (2018) showed that there was an effect of the mind mapping method on the ability to understand mathematical concepts and mind mapping methods affects the learning motivation of students of SMA Negeri 5 Prabumulih 5.

Furthermore, previous studies conducted by Permatasari (2016) show that the results of this study indicate the influence of the mind mapping method on the understanding of the concepts of the fourth-grade students at Elementary School Purwomartani. Furthermore, research that is almost on the focus of the problem, the study conducted by Fauziah (2017) showed that the application of the Mind map model could enhance students' creativity and understanding in the material history of the Islamic kingdom in Indonesia.

However, it is interesting that in this study, the researcher will examine the material and problems that have never been done previously, the effect of the method of Mind Mapping based Imindmap application on the students' creativity and understanding of concepts in social studies in grade V Elementary School.

Based on the above explanation, this study is expected to support the effect of the use of the Mind Mapping method based Imindmap application mapping on the students' creativity and understanding concept of in social studies (IPS) learning of grade V of elementary school.

METHODS

The subjects involved in this study were 25 students of grade V Muhammadiyah Integrated Elementary School Ponorogo. The data collection technique of this study was pre-test – post-test control group design (pre-post treatment). There were two groups involved in this technique; they were the experimental group and the control group. The experimental group was given intervention in the form of the Mind Mapping method based mindmap application, whereas, the control group was a group which plays a role to control the experiment (placebo). Validity and reliability testing is done by using factor analysis test techniques. The results of the validity test on the creativity variable showed 15 valid items at a significant level of 5%, Cronbach's alpha on the reliability of the instrument 0.941 so that it included very strong. Whereas the concept understanding variable shows 25 valid items at a significant level of 5%, Cronbach's alpha on the reliability of the concept understanding instrument which is 0.911, therefore, it included in the very strong category. The 25 valid items in the self-efficacy instrument will be used to measure the level of creativity and understanding of the concept of grade V students of Muhammadiyah Integrated Elementary School Ponorogo.

This study was an experimental study with cluster random sampling technique. The variables analyzed in this study were the creativity and understanding of the concepts of students. The data collection methods used were questionnaires to obtain data on student creativity and tests to obtain the results of understanding the concepts of students on the material that has been studied. The technical analysis of the data used was Manova and t-test. The procedure in this study was carried out in several stages. First, implementing the pre-test in the control class and the experimental class to determine the students' initial abilities in the aspects of creativity and conceptual understanding to determine the initial data before conducting the treatment. Second, analyzing the results of the pre-test that students have done to determine the level of creativity and concepts understanding of the students. Third, conducting learning by using the Mind mapping method based Imindmap application in the experimental class and the direct learning model in the control class. Fourth, after giving the treatment, each student in the experimental class and the control class was given a questionnaire to determine the student creativity and post-test questions to determine the level of student understanding after the learning process. And finally, analyzing the post-test results that students have done to find out the level of creativity and concepts understanding of students.

RESULTS AND DISCUSSION

In the pre-test data, there were 25 students taken from grade VA and VB Muhammadiyah Integrated Elementary School Ponorogo. From this data, the experimental class was the grade VA, and the control class was grade VB.

Table 1. Mean, SD, Result of Manova Test and Paired Sample t-test

Variable	Group	T_1		T_2		T
		M	SD	M	SD	
Creativity	Mind mapping	68.28	5.906	82.76	7.184	-7.795
	Control	65.32	5.807	66.56	6.138	-1.681
	$F_{(3.46)}$				34.104	
	η_ρ^2				0.690	
Concept understanding	Mind mapping	75.20	9.381	84.88	8.408	-6.807
	Control	74.24	10.525	75.52	9.887	-0.435
	$F_{(3.46)}$				5.727	
	η_ρ^2				0.272	

Information:
* = $p < 0.05$ (significant)
η_ρ^2 = partial eta squared

Creativity of Students

The above table shows that the results of the Paired Sample test t-test on the creativity variable in the experimental group by ($t = -7.795$; $p < 0.05$). The magnitude of the value shows that there is a significant increase in creativity after the method of Mind mapping based Imindmap application. Therefore, it can be concluded that the hypothesis that stated the Mind Mapping method based on Imindmap's application in increasing creativity is accepted. Whereas, in the control group obtained a value of ($t = -1.681$; $p > 0.05$). It can be inferred from this value that the increase in the creativity experienced is not significant. Therefore, it can be concluded that the hypothesis that stated that Mind Mapping method based on Imindmap's application in increasing creativity is rejected.

Investigation conducted in the experimental group, which given the method of Mind Mapping based Imindmap application experienced a significant increase in the creativity and the understanding of the concept of the student. Meanwhile, in the untreated control group did not experience a significant increase.

Research on creativity, Cropley, and Cropley (Aziz, 2009) stated that there are three types of creativity tests, namely "tests that measure the aspects of the creative process, tests that measure the creative personality characteristics, and tests that measure the aspects of creative products."

Previous research related to the Mind mapping method based on Imindmap's application on the creativity and conceptual understanding was carried out by Fauziah (2017). The results of this study explained that the Mind Mapping method based on Imindmap's application on creativity could increase the creativity in the science subjects.

Based on the results of Mind Mapping products, it can be seen that students can have a better understanding of the material since Mind Mapping can help students to memorize material easily through images and colors that students make by themselves. According to Buzan (2013) "Mind Map is an easy way to arouse imagination and help you remember." In line with the statement of Fatmasari (2016) that "Through the Mind Map, students can also be creative based on their idea in making concepts." The results for the understanding test in the first cycle were 77.7%, in the second cycle was 89.2%, and in the third cycle was 91.1%. Based on these results, it can be seen that there was an increase in each cycle.

Research on Mind Mapping has also been conducted by Kulsum (2017) on the X grade of IPS 2 students at Brawijaya Smart School Malang. The results of this study indicated that: (1) The application of the Mind Mapping learning model could enhance students' creativity on economic subjects; (2) The application of the Mind Mapping learning model can be used to improve the student learning outcomes on the

economic subjects. This is in line with the research that has been done where Mind Mapping based Imindmap application can improve student creativity.

Interestingly, there are differences in the results of previous studies compared to this current study, wherein this study, the researcher determines the effect of Mind mapping based Imindmap applications on student creativity. Based on the results of data analysis, it can be seen that the value between the pre-test and post-test has increased. Therefore, it can be concluded that Mind Mapping based on Imindmap Application affects students' creativity and concept understanding.

The Understanding Concept of Students

From the results of the Paired Sample t-test on the variable of understanding concepts in the experimental group obtained a value of ($t = -6.807$; $p < 0.05$). The magnitude of the value illustrates that there is a significant increase in the understanding concepts of students after being treated with the Mind mapping method based Imindmap application. Therefore, it can be concluded that the hypothesis which stated that the method of Mind mapping based Imindmap application in increasing students' understanding is accepted. Meanwhile, in the control group obtained a value of ($t = -0.435$; $p > 0.05$). This value explains that the increase in the conceptual understanding of students experienced is not significant. Therefore, it can be inferred that the hypothesis stated that the method of Mind mapping based Imindmap application could not improve the conceptual understanding of students is rejected.

Previous research that has been done on the mind mapping variable on understanding concepts were conducted by Ula, Supardi, and Sulhadi (2018). The result indicated that the implementation of PBL with mind mapping has succeeded in increasing students' conceptual understanding. It is proved by the achievement of the three indicators, namely (a) the average post-test value of the conceptual understanding of students who achieve the minimum mastery criteria, (b) the results of the pre-test – post-test on understanding concept of students which is based on the N-Gain test was in the category of moderate minimal, and (c) the average score of the acquisition of mind mapping was considered in a very good category.

In line with those results, Saputro, Basori, and Budiyanto (2017) stated that mind mapping learning method could improve the learning outcomes and student activity. The increase of the student learning outcomes and activeness can be proven by the increase of the average value of students in the learning process with mind mapping methods, they were: the average value of affective aspects which is at 42.86%, an increase in the cognitive aspects at 37.14%, the aspects of psychomotor at 37.15%, the increase of activity aspect at 51.43%. Thus, the Mind Mapping learning method is effective to improve the students understanding the concept.

Suyatno (2009) stated that "Mind map is the easiest way to send information into the brain and retrieve information out of the brain, which is a creative and effective way of recording." By using Mind mapping, student activities in the teaching and learning activities are no longer just passive listeners and note takers. However, in learning, students can have more freedom to develop their mindset and creativity through mind mapping. Thus, Mind Mapping can help to make things more practical, efficient, generate creativity, and remember information easily since Mind Mapping is methods that involve the right brain and left brain that works actively.

Research on Mind mapping based Imindmap's application and the understanding concepts proves that there is an effect of Mind mapping based Imindmap's application on students' conceptual understanding. It can be seen through the t-test that has been carried out in this study.

Creativity and Understanding Concept of Students

Table 1 shows the results of the Manova test and Paired Sample t-test. The results of the Manova test were obtained from Tests of Between-Subjects Effects which showed that the Mind Mapping method based Imindmap

application affects improving the student creativity ($F_{(3.46)}$ = 34.104; p < 0.05) and conceptual understanding ($F_{(3.46)}$ = 5.727; p < 0.05). The effect of the method of Mind mapping based Imindmap application in increasing creativity by 69% (η_p^2 = 0.690) and understanding of concepts by 27% (η_p^2 = 0.272).

Research conducted by Nuryandari (2017) on the effect of mind mapping methods to improve students' understanding of concepts and attitudes showed that the method of mind mapping could influence both the understanding of concepts and attitudes of students. In this study, the effect of mind mapping methods on students' creativity and conceptual understanding was investigated. It can be seen that there is an influence on the use of these methods on the concept of understanding of students. That is, not only on the effective aspects of learning attitudes, but the use of mind mapping methods can also have a good effect on other affective aspects, such as student creativity.

Furthermore, the research conducted by Agustin (2016) shows that there is an effect of mind mapping method on the ability to understand mathematical concepts and there are effects of mind mapping methods on student learning motivation. From the results of his research, the method of mind mapping can influence both the understanding of concepts and student motivation. In this study, the effect of mind mapping methods on students' creativity and conceptual understanding was investigated. It can be seen that there is an influence on the use of these methods on the conceptual understanding of students. The result not only appear on the affective aspects of motivation; however, the use of mind mapping methods can also have a good effect on other affective aspects, such as student creativity.

In line, the above research, Yunus, and Chien (2016) students who answered through questionnaires argued that mind mapping helped them to organize their ideas effectively. Understanding their topics and writing is enhanced as long as they can easily articulate ideas.

Furthermore, through the variables of Mind Mapping based Imindmap's application on students' creativity and conceptual understanding in this study, it was found that the there is an effect on the use of the Mind Mapping method based Imindmap's application simultaneously on the creativity and the understanding concepts of students in the social studies (IPS) in grade V SD which was proven by using Manova test with SPSS 23.

The findings of this study have successfully proved and answered the problem statement. However, the findings of this study still have limitations in it, such as the use of the Mind mapping method based Imindmap applications must be done with full guidance from the teacher to students to be more maximal in making mind mapping on other materials.

CONCLUSION

Based on the results of data analysis obtained from the implementation of research on the students of Muhammadiyah Integrated Elementary School Ponorogo starting from the preliminary stage to the final stage, some conclusions can be formulated as follows: (1) There was an effect of the Mind mapping method based Imindmap application on the students creativity, (2) There was an effect of Mind mapping method based Imindmap's application on the conceptual understanding of students, (3) Simultaneously, there was an effect of the Mind mapping method based Imindmap's application on the students' creativity and the understanding of concepts.

REFERENCES

Agustin, D., Syahbana, A., & Paradesa, R. (2018). Pengaruh metode mind mapping terhadap kemampuan pemahaman konsep matematis dan motivasi belajar siswa smp negeri 5 prabumulih. *Jurnal Pendidikan Matematika RAFA*, *4*(1), 9-18. Retrieved from http://jurnal.radenfatah.ac.id/index.php/jpmrafa/article/view/2461

Agustin, W. F. (2016). Pengggunaan model mind map dalam peningkatan hasil belajar ips tentang

perkembangan teknologi siswa kelas iv sd negeri 2 jatisari kecamatan kebumen kabupaten kebumen tahun ajaran 2014/2015. *Kalam Cendekia PGSD Kebumen*, *4*(1.1), 17-24. Retrieved from http://jurnal.fkip.uns.ac.id/index.php/pgsdkebumen/article/view/6356

Anggraini, A. T. (2016). Peningkatan kreativitas siswa melalui penerapan metode mind mapping dalam pembelajaran ips. *Basic education*, *5*(16). Retrieved from http://journal.student.uny.ac.id/ojs/index.php/pgsd/article/view/3192

Arsyad, A. (2011). Media pembelajaran. Jakarta: PT Raja Grafindo Persada.

Aziz, R. (2009). Pengaruh kegiatan synectics terhadap kemampuan menulis kreatif. *Gifted Review: Jurnal Keberbakatan dan Kreativitas*, *3*(2), 1-14. Retrieved from http://repository.uin-malang.ac.id/366

Budiarti, Y. (2015). Pengembangan kemampuan kreativitas dalam pembelajaran. *PROMOSI: Jurnal Program Studi Pendidikan Ekonomi, 3*(1). Retrieved from http://ojs.fkip.ummetro.ac.id/index.php/ekonomi/article/view/143

Buzan, T. (2013). *Buku pintar mind map.* Jakarta: PT. Gramedia Pustaka Utama.

Darmayoga, I. W., Lasmawan, I. W., & Marhaeni, A. A. I. N. (2013). Pengaruh implementasi metode mind mapping terhadap hasil belajar ips ditinjau dari minat siswa kelas iv sd sathya sai denpasar. *PENDASI: Jurnal Pendidikan Dasar Indonesia*, *3*(4), 1-12. Retrieved from http://oldpasca.undiksha.ac.id/e-journal/index.php/jurnal_pendas/article/view/50

Daryanto. (2010). *Media pembelajaran*. Jakarta: Gava Media.

Fatmasari, Y. M. (2016). Peningkatan kreativitas belajar ips melalui metode mind map siswa kelas v sd negeri jeruksari. *Basic Education, 5*(34). Retrieved from http://journal.student.uny.ac.id/ojs/index.php/pgsd/article/view/5180

Fauziah, D. N. (2017). Penerapan model mind map untuk meningkatkan kreativitas dan pemahaman siswa pada materi sejarah kerajaan islam di indonesia. *Mimbar Sekolah Dasar*, *4*(2), 128-138. Retrieved from http://ejournal.upi.edu/index.php/mimbar/article/view/7767

Ihsan, F. (2010). *Dasar-dasar kependidikan.* Jakarta: Rineka Cipta.

Kulsum, N. U. (2017). Mind mapping model in increasing students' creativity and learning outcomes. *Classroom Action Research Journal*, (*CARJO*), *2*(3). Retrieved from http://journal2.um.ac.id/index.php/carjo/article/view/3761

Nurhadi. (2012). *Pembelajaran kontekstual dan penerapan dalam kbk*. Malang: UM Press.

Permatasari, A. I. (2018). Pengaruh metode mind mapping terhadap pemahaman konsep. *Basic Education*, *7*(4), 274-275. Retrieved from http://journal.student.uny.ac.id/ojs/ojs/index.php/pgsd/article/view/10659

Sapriya. (2009). *Pendidikan ips konsep dan pembelajaran*. Bandung: PT. Rosdakarya.

Saputro, A. R., Basori, & Budiyanto, C. (2017). The Application of Mind Mapping Learning Model to Improve the Students' Learning Outcomes and Liveliness. *Proceedings*. The International Conference on Teacher Training and Education 2017 (ICTTE 2017). Retrieved from https://www.atlantis-press.com/proceedings/ictte-17/25885708

Sari, E. N., Ridlo, S., & Utami, N. R. (2016). Pengaruh model pembelajaran discovery learning dengan mind mapping terhadap hasil belajar siswa pada materi sel di sma. *Unnes Science Education Journal*, *5*(3), 1403-1407. Retrieved from https://journal.unnes.ac.id/sju/index.php/usej/article/view/13171

Septiaji, A. (2015). Pembelajaran berbasis imindmap dalam meningkatkan keterampilan menulis wacana argumentasi. *Riksa Bahasa: Jurnal Bahasa, Sastra, dan Pembelajarannya*, *1*(2). Retrieved from http://ejournal.upi.edu/index.php/RBSPs/article/view/8754

Sopiani, A. (2014). *Sukses menjadi pendidik karakter siswa*. Jakarta: Literatur Media Sukses.

Sukmawati, P., Utami, B., & Mulyani, B. (2014). Penerapan model pembelajaran problem solving berbantuan animasi flash untuk meningkatkan prestasi belajar dan kemampuan analisis materi pokok hidrokarbon siswa kelas x-1 semester genap sma negeri kebakkramat karanganyar tahun pelajaran 2013/2014. *Jurnal Pendidikan Kimia*, *3*(4), 136-144. Retrieved from http://jurnal.fkip.uns.ac.id/index.php/kimia/article/view/4571

Supriadi. (2016). Efektivitas metode mind mapping dalam meningkatkan kemampuan menyimak dongeng di kelas 1 sd inpres panrenge kabupaten barru. *Publikasi Pendidikan, 6*(2). Retrieved from

http://ojs.unm.ac.id/pubpend/article/view/1895

Suprijono. A. (2011). *Cooperative learning teori dan aplikasi paikem.* Yogyakarta: Pustaka Pelajar.

Surya, M. (2015). *Strategi kognitif dalam proses pembelajaran*. Bandung: Alfabeta.

Suyatno. (2009). *Menjelajah pembelajaran inovatif*. Sidoarjo: Masmedia Buana.

Syahidah, N. (2015). Metode pembelajaran mind mapping sebagai upaya mengembangkan kreativitas siswa dalam pembelajaran ekonomi. *Proceedings*. Seminar nasional pendidikan ekonomi fe uny "profesionalisme pendidik dalam dinamika kurikulum pendidikan di indonesia pada era mea". Retrieved from https://eprints.uny.ac.id/21693

Syam, M., Djangi, M. J., & Danial, M. (2018). Penggunaan media imindmap7 pada model pembelajaran kooperatif tipe stad (studi tentang hasil belajar siswa kelas xi-ipa 1 man 2 model makassar pada materi pokok laju reaksi). *Chemica: Jurnal Ilmiah Kimia Dan Pendidikan Kimia*, *19*(1), 107-117. Retrieved from https://ojs.unm.ac.id/chemica/article/view/6656

Tiharita, R., & Anix, E. N. (2017). Pengaruh model pembelajaran mind map melalui media pembelajaran audio visual terhadap pemahaman konsep belajar siswa pada mata pelajaran ekonomi kelas xi di sma negeri 1 anjatan kabupaten indramayu. *Edunomic Jurnal Ilmiah Pendidikan Ekonomi*, *5*(1). Retrieved from http://jurnal.unswagati.ac.id/index.php/Edunomic/article/view/933

Ula, W. R. R., Supardi, K. I., & Sulhadi. (2018). The implementation of problem based learning with mind mapping to improve the student's understanding of concept. *Journal of Primary Education*, *7*(2), 163-171. Retrieved from https://journal.unnes.ac.id/sju/index.php/jpe/article/view/23089

Vitulli, P., & Giles, R. (2016). *Mind mapping: making connections with images and color*. *Delta Journal of Education*, *6*(2), 1-10. Retrieved from http://www.deltastate.edu/PDFFiles/DJE/dje%20fall%202016/MS8Sp2016_Vitulli-and-Giles-pub-finala_1.pdf

Yunus, M. M., & Chien, C. H. (2016). The use of mind mapping strategy in malaysian university english test (muet) writing. *Creative Education*, *7*(4), 619-626. Retrieved from https://www.scirp.org/journal/PaperInformation.aspx?PaperID=65541