

The influence of the synectics mind maps cooperative learning (SM2CL) model on the students learning outcomes of class XI MAN Gowa

Riskawati¹, Muhammad Khalifah Mustami^{1*}, Ahmad Afif¹

Department of Biology Education, Faculty of Tarbiyah and Teacher Training,
Universitas Islam Negeri Alauddin Makassar
Sultan Alauddin Street No.63, Gowa, Indonesia, 92113

*Email: mukhalifahmustami@uin-alauddin.ac.id

Abstract: Character education in subjects needs to be implemented through various methods that can invite students to reason and build networks. The aims of this study were to: (1) Find out the learning outcomes of students in class XI MAN Gowa who were taught using the SM2CL learning model; (2) Find out the learning outcomes of Class XI MAN Gowa students who are taught without using the SM2CL learning model; and (3) Examine the effect of the SM2CL learning model on the learning outcomes of class XI MAN Gowa students. This research is a type of quantitative research, namely a quasi-experimental research with a nonequivalent control group design. The population of this study is the students of MAN Gowa class XI with a total of 170 people and the research sample totaling 68 students selected by purposive sampling technique. The instruments used for learning outcomes are multiple choice questions for cognitive and observation sheets for affective and psychomotor learning outcomes. The data analysis technique used is descriptive analysis and inferential analysis using prerequisite test and t-paired sample test. Results of the study are (1) The learning outcomes of the experimental group students class XI IPA II on cell material taught using the SM2CL learning model, the average value of learning outcomes was 75.85, which was included in the high category; (2) Learning outcomes of control group students class XI IPA I on cell material taught using the cooperative learning model, the average value of learning outcomes was 63.73 including in the medium category; and (3) There is an effect of the SM2CL learning model on learning outcomes in class XI IPA II MAN GOWA students. This is evidenced by the results of hypothesis testing using the paired t test, the results obtained sig (2 tailed) or p-value smaller than 0.05, namely $0.000 < 0.05$ or H_1 is rejected and H_0 is accepted. This study implies learning activities using the SM2CL learning model have an influence on student learning outcomes, therefore this model can be considered for use in the learning process, especially if it is related to improving learning outcomes.

Keywords: cell material, learning outcomes, SM2CL

Abstrak: Pendidikan karakter pada mata pelajaran perlu diimplementasikan melalui berbagai metode yang dapat mengajak siswa untuk menalar dan membangun jaringan. Pendidikan karakter pada mata pelajaran perlu diimplementasikan melalui berbagai metode yang dapat mengajak siswa untuk menalar dan membangun jaringan. Tujuan penelitian ini adalah untuk (1) Mengetahui hasil belajar peserta didik kelas XI MAN Gowa yang diajar menggunakan model pembelajaran SM2CL; (2) Mengetahui hasil belajar peserta didik Kelas XI MAN Gowa yang diajar tanpa menggunakan model pembelajaran SM2CL; dan (3) Menguji pengaruh model pembelajaran SM2CL terhadap hasil belajar peserta didik kelas XI MAN Gowa. Penelitian ini adalah penelitian kuantitatif eksperimen semu (*quasi-experimental research*) dengan menggunakan desain *nonequivalent control group*. Populasi penelitian ini adalah peserta didik MAN Gowa kelas XI dengan jumlah 170 orang dan sampel penelitian yang berjumlah 68 peserta didik yang dipilih dengan teknik *purposive sampling*. Instrumen yang digunakan berupa soal pilihan ganda untuk kognitif dan lembar observasi untuk hasil belajar afektif dan psikomotorik. Teknik analisis data yang digunakan adalah analisis deskriptif dan analisis inferensial dengan menggunakan uji prasyarat dan uji t-Paired Sample test. Berdasarkan hasil penelitian menunjukkan bahwa (1) Hasil belajar peserta didik kelompok eksperimen kelas XI IPA II pada materi sel yang diajar dengan menggunakan model pembelajaran SM2CL diperoleh nilai rata-rata hasil belajar sebesar 75,85 termasuk dalam kategori tinggi; (2) Hasil belajar peserta didik kelompok kontrol kelas XI IPA I pada materi sel yang diajar dengan menggunakan model pembelajaran kooperatif diperoleh nilai rata-rata hasil belajar sebesar 63,73 termasuk dalam kategori sedang; dan (3) Ada pengaruh model pembelajaran SM2CL terhadap hasil belajar pada peserta didik kelas XI IPA II MAN Gowa. Hal ini dibuktikan pada hasil pengujian hipotesis dengan menggunakan uji paired t test diperoleh hasil sig (2 tailed) atau p-value lebih kecil dari 0,05 yaitu $0,000 < 0,05$ atau H_1 ditolak dan H_0 diterima. Implikasi penelitian ini adalah model pembelajaran SM2CL memiliki pengaruh terhadap hasil belajar peserta didik, olehnya itu model ini dapat dipertimbangkan untuk digunakan dalam proses pembelajaran terutama jika terkait dengan peningkatan hasil belajar.

Kata Kunci: hasil belajar, materi sel, SM2CL

Introduction

This era is characterized by very rapid technological developments full of uncertainties and dilemmas. Therefore, the purpose of education and teaching should lead to the fulfillment of students' intellectual skills so that one day they can assimilate with the knowledge era. To realize this goal, it is necessary to pay attention to the statement of Raths et al. that it is necessary to realize the most important task in teaching, namely helping students think (Mustami, 2007). Helping students think of course by using a learning model that emphasizes activities in analyzing and criticizing objects as an effort to gain knowledge. Students are seen as active organisms where students are the source of all learning activities, who have freedom in constructing their knowledge and using goals more effectively.

The 2013 curriculum is an educational concept that builds the character of honesty for students. Through the 2013 curriculum, teachers are required to be creative in integrating character education in all types of subjects. Teachers must be able to invite students to analyze, reason, try, and build networks. To realize this goal, teachers need to master various methods that are able to implement character education. Borkowitz suggests that the method of forming character is by applying the 4 M's, namely knowing, loving, wanting, and teaching what is good. Meanwhile, Koesoema put forward 5 methods for schools, namely teaching, exemplary, setting priorities, practical priorities, and reflection (Tenriwaru, 2014). Learning outcomes are abilities that individuals acquire after the learning process takes place, which can provide changes in behavior both knowledge, understanding, attitudes and skills of students so that they become better than before (Purwanto, 2002).

SM2CL (synectis mind maps cooperative learning) is a learning model where synectics uses analogy, mind maps as a means and cooperative as a strategy. The teacher can give an analogy about the material to be studied. Making mind maps as a route map that uses all the potential of the brain so that it is optimal and students can integrate their cognition and imagination, besides that with the combination of colors, symbols, shapes, and so on it can make it easier for the brain to absorb the information received. As for the cooperative itself here it is done so that students can work together to exchange ideas about how they understand what they understand from this learning process.

Materials and Methods

This research was carried out in the 2020/ 2021 school year and is included in a type of pseudo-experimental research with a nonequivalent control group design. The procedure in this study consists of the preparation stage, the implementation stage, and the data collection stage. Data collection techniques in the form of pretest and posttest consisting of 20 multiple-choice form questions and observation. The subjects of the study were students of class XI 2 of MAN Gowa with a total of 170 students.

Result and Discussion

A. Descriptive Analysis of Learning Outcomes of Learners Taught without Using Terrarium Media

Based on the results of research conducted in class XI MAN Gowa using a learning outcomes test, the following data were obtained:

Table 1. Pretest analysis of control class XI I

Parameter	Value
Maximum Value	67
Minimum Value	35
Average	46.17
Standard Deviation	8.677
Variance	73.08

Table 2. Posttest analysis of class XI 2

Parameter	Value
Maximum Value	80
Minimum Value	42
Average	63.73
Standard Deviation	8.989
Variance	78.42

Based on the categorization frequency distribution table above, it shows 0% in the very low category, in the low category there are 4 people with a percentage of 11.76% and in the medium category there are 21 people with a percentage of 61.76% and in the high category there are 9 people with a percentage of 26.47% while 0% of students' posttest results were in the very high category. From the categorization above, if we relate it to the pretest average, which is 63.73, the learning outcomes of students in the control class are in the medium category.

B. Analisis Descriptive Learning Outcomes of Students Taught Using SM2CL

Based on the results of research conducted in class XI 2 MAN Gowa using the learning achievement test, the data is shown in Table 3.

Table 3. Pretest analysis of experimental class X 2

Parameter	Value
Maximum Value	75
Minimum Value	40
Average	55.32
Standard Deviation	8.412
Variance	69.62

Table 4. Posttest analysis of experimental class XI 2

Parameter	Value
Maximum Value	95
Minimum Value	55
Average	75.85
Standard Deviation	8.790
Variance	75.00

Based on the frequency distribution table above 0%, the percentage of students' posttest results is in the very low, low and medium categories. While in the medium category there are 6 people with a percentage of 17.64%, in the high category there are 24 people with a percentage of 70.58%, in the very high category there are 5 people with a percentage of 14.70%. From the categorization above, if we relate it to the posttest average, which is 75.88, then the learning outcomes of students in the experimental class after the application of the SM2CL learning model are in the high category.

C. The Effect of the SM2CL Learning Model on Student Learning Outcomes

Inferential statistical analysis is carried out to determine whether there is an influence on the use of terrarium media when carrying out learning on student learning outcomes.

1. Normality Test

Table 5. Result of normality test

	<i>Kolmogorov Smirnov</i>			Information
	Statistic	Df	Sign	
Pretest of control class	0,136	34	0,111	Normally Distributed
Posttest of control class	0,107	34	0,200	
Pretest of experiment class	0,148	34	0,056	
Posttest experiments class	0,113	34	0,200	

Based on the Table 5, a significant value was obtained for class XI IPA 1 as the control class, namely 0.035 degrees of freedom (df) 34. Meanwhile, the significant value for class XI IPA 2 as the experimental class was 0.200 with degrees of freedom 34. The data is normally distributed if the significant value is greater from 0.05. The significant value in the table above is greater than 0.05 so it can be concluded that data on metacognitive skills and learning outcomes of students in biology subjects in experimental and control classes are normally distributed.

2. Homogeneity test

Table 6. Homogeneity test results

Levene Statistic	Df1	Df2	Sign	Information
Control 0.035	1	66	0.851	Homogeneous
Experiment 0.028	1	66	0.868	Homogeneous

Based on the table above, it shows that the Levene's Test of Equality of Error Variances obtained an F value of 2,335 with a significance value of 0.868. Because the significance value is $0.868 > 0.05$, it is evident that the data come from the same or homogeneous population so that the assumption of homogeneity is met.

3. Hypothesis test

Table 7. Hypothesis test results

	Levene's Test for Equality of variances		t-test for Equility of Means		
	F	Sign	T	Df	Sign (2tailed)
Equal variances assumed	0.216	0.012	4.614	52	0.000
Equal variances non assumed			4.614	51.588	0.000

Based on the Paired Sample Test table, it can be seen that the value of $\text{sig} = 0.000 < 0.05$, then according to the basis for making the decision above it can be concluded that H_0 is rejected. So it can be concluded that there is an influence of the Synectics Mind Maps Cooperative Learning (SM2CL) learning model on the learning outcomes of class XI IPA 2 MAN Gowa as an experimental class.

Conclusion

In the Qur'an many verses mention the creation of man, as well as the material of human creation, such as man created from water, created from despicable water (*Maaen Maabih*), from a drop of mixed semen (*Nuthfaten Amsyay*), created from a lump of blood and created from the ground. From this information, it was found that the soil was the initial material of human creation, namely in the form of wet soil (*thiin*) then undergoing a process of change to dry land (*Turab*), then became *Sulalah Min Thiin* (soil essence). It is from this soil essence that man generally comes from food and drinks that he consumes sourced from the ground. Even though all human beings are created from the soil, there is a difference in the process of creation of the first man (Adam) with humans in general. Adam was created from the ground without going through biological processes, while humans in general had to go through biological processes, namely the mixture between male sperm and female ovum.

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