Current Opinion
CO 2 (4), 140− 144 (2022)
Received 25 June 2022 | **Revised** 19 July 2022 | **Accepted** 28 July 2022 | **Online Available** 25 August 2022

Current Opinion
Current Opinion

OPEN ACCESS

ISSN(O) 2795- 935X

Research Article

Implementing research models to improve student performance and creativity Xi Ipa 2 Biological Sciences Class 5 at Ternate State High School

Dr. Marasabessy Djukri

Post-graduate Program, Biology Lesson

Corresponding Author: Dr. Marasabessy Djukri

Abstract: The purpose of this study is to improve students' learning outcomes and creativity through the implementation of Discovery Learning Patterns in Public Secondary School 5 (SMA Negeri 5), Kota Ternate. Subjects taught are students of XI science class 2 (XI PBA 2) and the corresponding teachers of school subjects. Data was collected using observational techniques, audit testing and documentation. Data analysis was done by testing in each cycle and then comparing the two mean scores to determine if the study results increased.

This study is a collective action research that consists of four stages: planning, implementation, observation and reflection. Tools used include: interview form and test questions. Research results show: 1). Kota Ternate State High School 5 (SMANegeri 5) The process of teaching innovation in mobile material is reasoning from material, organizing evidence, explaining, solving problems and conveying ideas 2) Teaching and learning activities using innovative learning improve student performance and academic performance, the average first cycle was 60%, and in the second cycle this indicator increased to 83.33%.

Therefore, the innovation learning model can be used to improve learning outcomes and creativity of eleventh graders. The results of the study of the creative ability of students of the XI 2nd grade in natural science (XI PBA 2) showed that the average grade of the students in the first cycle was 51.17%, and in the second cycle it increased by 70.50%.

Keywords: discovery, learning outcomes and creativity, biology.

Introduction

Education includes life in its each of many facets that may be influential to individuals [13] [5] any good education must have goals, inter alia: 1), to give opportunity to freedom to each individual and easily access anything regarding teaching. 2), to give the opportunity to each individual to transfer his or her knowledge and the individual providing the guidance. 3), to give the authority to general inputs relating to education.To achieve the national goal, both the government and the private sector have conducted various efforts, including inter alia, improving the curriculum, although the national education goals are not yet achieved, in particular in Northern Moluccas (Maluku Utara). This fact can be seen from the data the teachers' competence test and principals' competence test which shows in Northern Moluccas (Maluku Utara) ranks the last [8], study results reflect individual capability, and a person's attitude in solving a problem that he or she acquires [9].

The results of observation and the interviews with the teachers and students indicate that the students' motivation to study is still low. The data indicates thate 30% of the number finishing students totaling 9, which may be attributable to some factors, to mention one, the study method used is still conventional, insufficient use of the equipment and the teaching which does not utilize the actual surrounding and is only theory-based, the teachers' duties are not only to transfer the knowledge but also to provide good inspirations

for the progress of the students. Studying remain the main problems for students and it is the teacher's to provide the guidance and inspirations on how to utilize the teaching- studying process using the available facilities [14]. To overcome the aforesaid problem, the teacher should improve the teaching –and-studying process so that the concept of the subject, which is abstract in nature, may be understood by the students. An approach in biology as a school subject that is oriented at the aforesaid problem is by implementing the discovery learning model. This discovery learning model is a study process where the students should be involved in problem solving in the teaching to develop the students' knowledge and their creative skills.

The curriculum that we know of today is the 2013 Curriculum which, as described above, requires the students to be actively involved in the study and may possess the competence or skill to think creatively and to obtain good study results and therefore the conventional model or system should be changed by a model that can actually assist students to think creatively and in their study results.

The study model that can be implemented in the studying in order to comply with the provisions of 2013 curriculum is the discover learning model. Bruner says the he acknowledges and emphasizes active participation from every student in the studying process and recognize well the differences in their thinking. In that way, the discovery learningmodel is developed. As stated in the opinion of Bruner that *Discovery learning can be defined as the learning that takes place when the student is not presented with subject matter in the final form, but father is required to organize it himself.*

The base for Bruner is that the students are required to participate actively in the learning process in the class. Bruner uses the Discovery Learning model with the hope that students should be able to connect the material that they study. [2]. The implementation of the discovery learning model in the learning process of biology my improve the study results and the creative skills. The use of the discovery learning is intended to change the passive learning condition to become an active and creative one. In the process of changing from the teacher-centered learning to the student-centered method, so the students are no longer loyal listener in learning but also to participate actively in the learning and teaching process. The Discovery Learning means students will be able to understand the concept and the relation to the intuitive process up to the conclusion [1].

The results of a relevant study conducted by Hanafi indicate that the discovery learning can be effectively used to improve skills in English for students [6]. From the similar study conducted by Treadwell et al it is found that the data of the qualitative method we can conclude the discovery learning has positive influences toward the students' performance [15]. Another study by [16] state the in the results of his study using a discovery model or the finding that may be implemented will be able to help students to think analytically and theoretically and will be able to improve the students' competence in thinking.

The study results are often times used in measuring to find out how far an individual is able to master what he has learned. Such measurement is a scientific that can be found in many fields of education and non-education matters [12]. The substance of the students' results is to change the students' preferred behavior and that becomes important as the basis of assessment reference [10].

Creativity is an ability to create new combinations based on the information containing the equally fluent, flexible and original element in reasoning, such as in formulating ideas. As the study conducted [11], it shows that the student's creativity at this moment reflects the success in institution operation of secondary education and training for specialists, organizational culture, becoming complex owned by all learning and teaching activity such as norms. Confidence functions as an integrated and important aspect that influences students' creative activity.

Based on the analysis of several journals, it shows that the students' motivation in areas like assignment grades and self-efficacy can be improved by this training, this strategy can be effective for creativity and improvement of high meta-cognitive process [4]. Apart from this, the study by [17] shows results that ATI and mediation effect in particular does not directly influence creativity via KM. Self-regulation

influences, directly and indirectly, via KM. And the study conducted by [3] shows that teaching and learning set of science equipment, the questions guided by the subject has been develop and this applies, train and training the creative thinking in an effective way and competence of conceptual comprehension.

Method

The type of study used is the Study of Class Action. The goal of Study of Class Action is to improve the quality of teaching and learning process with the final goal of improving the quality of teaching and learning process by the students, so that the Study of Class Action may have substantial benefit in improving the quality and creativity of learning in class. The design of Study Class Action used in this study is that of [7]) comprising four steps: planning, executing, observing and reflecting.

Results and Discussion

From the results generated at SMA 5, in XI Science Class 2 (XI IPA 2 SMA) it shows that cognitive learning among the students in cycle I and cycle II can be explain as follows.

Table 1. The Results of Cognitive Learning among Students of XI Science Class 2, State High School 5 of Kota Ternate

Score	Student's Score in Cycle I
Highest Score	92
Lowest Score	20
Class Average Score	60
Number of Completing Students	18 Students (60%)

The study results of students in the cycle I are still lower than those before the action. The data contained in the above table indicates that the number of completing students in the first cycle was only 18 students or 60%. This was attributable to the results gained prior to the action from the corresponding teacher and the materials tested, not concerning the cells. Apart from this, in the first cycle, the students and teacher were not accustomed with the discovery model so they did not show seriousness during the learning. The teacher still felt unfamiliar with discovery learning.

Based on the observation of the students' creativity in the learning process in cycle II it shows that they have improved from the previous cycle. This can be seen in the percentage gained in cycle I, 51.17% and it increased to 70.50% in cycle II. In cycle II, the evaluation of students' creativity regarding psycho- motoric aspects included the interest, attention, participation and percentage. Based on the observation, the teacher's activity in the teaching in cycle II, it shows that their performance has improved from the previous cycle. This can be seen from the percentage gained in cycle I, 55.55% and cycle II 81.67%.this indicates that the teacher is accustomed to discovery learning model, the learning occurred by involving the students actively through discussion and to find concepts of the materials about cells. Further, students involved actively via discussion and the teacher drew a conclusion from the students' discussion.

The results of the learning in cycle II, in the subject matter of cells and sub- subject matter of the structure and the function of organellecells improved. The data shows that the results of students' learning in cycle II improved when compared to those in cycle I. In cycle II, the number of students who completed was 25 students (83.33%) in which the students obtain a score exceeding 70. The comparison of the results in cycle I and cycle II is as the following

Table 2. Data of the Students' Study Results in Cycle I and Cycle II

Score	**Student's Score in Cycle I**	**Student's Score in Cycle II**
Highest Score	92	96

Lowest Score	20	60
Class Average Score	60%	83.33%
Number of Completing Students	18 Students (60%)	25 Students (83.33%)

The data of observation of creativity among the students in cycle I and cycle II is as follows:

Table3. Observation of Students' Creatuvity

Cycle	Class Average Score for Students' Creativity	Criteria
Cycle I	51.17	Satisfactory
Cycle II	70.50	Good

The tables show that the average scores for creativity among the students of XI Science Class 2 at State High School 5 of Kota Ternate in cycle I is 51.17 % representing a satisfactory category, this can be seen that 4 students were in poor category, 21 students were in satisfactory category and 3 students were in good category, while cycle II indicates an average score of 70.50 %, with a good category, this can be seen that 7 students were in satisfactory category and 27 students were in good category.

The evaluation results in cycle I does not reach the KKM, with the average score of 60 %. This was caused by the fact that students were not able to adjust themselves with the model used and therefore this influence the results of the evaluations itself. The evaluation results of cycle II has reached the KKM, with the average score of 83.33%, this was caused by the fact that the students were accustomed to the discovery learning and the teacher already understood the steps in the discovery learning so the teacher was Students' performance and comprehension may improve by using the discovery learning model, with the average score in cycle I being 60% with the number of the completing students being 18. And this figure increased in cycle II, becoming 83.33% with the number of completing students reaching 25. It is clear that discovery learning model can improved the study results of the students.

The average score for creativity among students in cycle I is 51.17% and increases in cycle II to become 70.50%. This is evident that discovery earning model is able to improve the students' creativity.

Reference

1. Budiningsih. 2005., Discovery Learning able to undertake teaching process well and the students were pleased and understood the material taught well.

The data of learning process by the teacher taking place in cycle I where 33 students or 55.55% were involved, this is caused by the fact that the teacher did not understand the steps of the discovery learning process and therefore it is classified as satisfactory. And the data relating to the activity of the teacher's teaching in cycle II improved to become 49 students or 81.67% which was caused by the fact that the teacher already understood the discovery learning process and performed the learning quite well.

And so using the effective discovery learning model may be able to encourage the students enthusiasm in their study, and created and improved motivation among students in doing their assignments, it gave ease to the students to understand the lessons so it enabled the students to reach better study results.

Conclusion

Sebagai Pemecahan masalah Pendidikan Indonesia. Bandung: Bineka Cipta Utama

2. Dalyono.1996. *Psikologi Pendidikan*. Jakarta, Rineka Cipta
3. Eddy Mufiannoor dkk (2016). *Melatihkan Kemampuan Berpikir Kreatif dan Pemahaman Konsep dengan Pembelajaran Berbasis Inquiry Terbimbing pada Materi Interaksi Makhluk Hidup Dengan Lingkungan*. Pendidikan Sains Pascasarjana Universitas Surabaya ISSN. 5 (2) 934
4. Eric Zhi-Feng LIU (2012). *The Dynamics of Motivation and Learning Strategy In A Creativity-Suporting Learning Environment In Higher Education*. The journal of education technology 11 (1) 172

5. H. Imam Suprayogo, *Pengembangan Pendidikan Karakter*, (Malang: UIN malang Press, 2013), h.18
6. Hanafi, (2016). *The Effect Of Discovery Learning Method Application On Increasing Students Listening Outcome and Social Attitude*. Dinamika Ilmu, 16 (2). 291
7. Kemmis & Mc Taggart, *the action research planner* (deakin university, Thirtd Edition, 1990. H.11
8. Koran Malut Post 10 April 2015, http: / / issuu. Com / malutpost/ docs/ malut_ post_ 10 _april 2015 . Diakses pada tanggal 3 agustus 2016 jam 21:30 WIB
9. Maisaroh dan Rostreningsih, *peningkatan hasil belajar siswa dengan menggunakan metode pembelajaran active learning tipe quia*. *Ekonomi dan pendidikan*, vol. 8 nomor 2 november 2010, h. 35
10. Nana Sudjana. 2009. Penilaian Hasil Proses Belajar Mengajar. Bandung: PT Remaja Rosdakarya
11. Nursafa Khairullina, Ramli Bakhtizin dkk. (2016) *Development of Creative Activity of Student in The System of The Organizational Culture of The Modern University*. Internastional journal of environmental & science education 11 (4) 2171
12. Purwanto. 2009. *Evaluasi Hasil Belajar*, Surakarta: Pustaka Belajar
13. Redja Mudyahardjo, *Pengantar Pendidikan*, (Jakarta:PT RajaGrafindo Persada, 2014), h 3
14. Syaiful Bahri Djamarah. *Guru dan anak didik dalam interaksi edukatif*. (Jakarta : Rineka Cipta, 2010, h, 44
15. Treadwell, Julie Wilson. (2010). *The Impact of Discovery Learning in Writing Instruction on Fifth-Grade Student Achievement*.192
16. Yilmaz, Rezan (2014). *Pre-Service Teachers Cognitive Competencies to Use the Approachhes In Mathematics Teaching: Discovery Learning*. 66 (15)
17. Yu-Chu Yeh and Chun Fu Lin. (2015) *Aptitude-Treatment Interactions during Creativity Traning in E-Learning: How Meaning-Making, self- regulation, and knowledge Management Influence Creativity*. 18 (1). 119