



THE APPLICATION OF CONSTRUCTIVISM LEARNING MODELS IN THE PANDEMIC PERIOD TO IMPROVE STUDENTS ENGLISH FOR BIOLOGICAL LEARNING CREATIVITY IN SMA NEGERI 5 PADANGSIDIMPUAN

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Abstract

The purpose of this study was to determine the increase in student learning creativity through the application of the constructivism learning model on English for Biology material on learning outcomes in class X MIPA-5 SMA Negeri 5 Padangsidimpuan. The method used in this research is included in Classroom Action Research. Research. The research process was carried out in 2 cycles, each of which consisted of seven stages: (1) Analysis, (2) Fact Finding, (3) Conceptualization, (4) Planning, (5) Implementation, (6) Additional Fact Finding, and (7) Evaluation. The results of this study indicate that there is an increase in students' English for Biology learning creativity by 20% through the constructivism learning model on the material of English for Biology at the Padangsidimpuan High School at SMA Negeri 5 Padangsidimpuan with a percentage of completeness reaching 50% in cycle I and 70% in cycle II, with a KKM value. 80.

Keywords: *Student Learning Creativity, English for Biology, and Constructivist Learning Models.*

Abstrak

Tujuan penelitian ini adalah untuk mengetahui peningkatan kreativitas belajar siswa melalui penerapan model pembelajaran konstruktivisme materi Bahasa Inggris Biologi terhadap hasil belajar siswa kelas X MIPA-5 SMA Negeri 5 Padangsidimpuan. Metode yang digunakan dalam penelitian ini termasuk dalam Penelitian Tindakan Kelas. Riset. Proses penelitian dilaksanakan dalam 2 siklus yang masing-masing siklus terdiri dari tujuh tahap: (1) Analisis, (2) Pencarian Fakta, (3) Konseptualisasi, (4) Perencanaan, (5) Implementasi, (6) Pencarian Fakta Tambahan, dan (7) Evaluasi. Hasil penelitian ini menunjukkan terdapat peningkatan kreativitas belajar English for Biology siswa sebesar 20% melalui model pembelajaran konstruktivisme pada materi English for Biology SMA Padangsidimpuan SMA Negeri 5 Padangsidimpuan dengan persentase ketuntasan mencapai 50% pada siklus I dan 70% pada siklus II, dengan nilai KKM. 80.

Kata Kunci: Kreativitas Belajar Siswa, Bahasa Inggris Biologi, dan Model Pembelajaran Konstruktivis.

A. Introduction

English for Biology is the science of life that includes aspects of animal life, plants, humans, microorganisms, and relationships between living things in English literacy (Siregar, 2018). In English for Biology is also defined as one of the sciences that provides various experiences to understand the concepts and processes of science (Setiawan, 2017). The purpose of English for Biology in general helps students understand the concepts of Biology in English literacy and their relationship with everyday life, have the skills to develop knowledge about the surrounding nature and apply various concepts of Biology in English literacy to explain the symptoms of nature that must be proven true in the laboratory, thus Biology in English literacy is not only a product but also as a process (Djamaluddin & Wardana, 2019).

Some students at SMA Negeri 5 Padangsidimpuan, who said that applying biology in English literacy to daily life is very difficult and the way of teaching teachers is also still teacher-centered learning, so students are less active in learning and students cannot express their creative ideas. This may be because learning is still conventional or teacher-centered.

Based on the results of an interview on March 4, 2022 with a teacher of Biology subjects at SMA Negeri 5 Padangsidimpuan stated that in the learning process the teacher has never used other learning models that can increase student learning creativity at the time of Learning takes place and the model applied by the teacher at the time of teaching is the lecture method.

The results of the research observation carried out at SMA Negeri 5 Padangsidimpuan showed the fact that during learning, students tend to be passive, because the learning methods used are still teacher-oriented. And learners focus only on the teacher as a source of knowledge and package books. Learners do not have the opportunity to ask questions and express opinions. Thus making students' learning creativity low and less active during teaching and learning.

In the process of learning biology in English literacy, teachers must apply various learning models such as the *constructivism* learning model where. The learning model of *constructivism* is the cornerstone of contextual learning thinking that states that knowledge is constructed by the human being little by little which is generative, that is, the act of creating a meaning from what is learned. So that it will affect the learning creativity of students.

If the teacher seeks to increase creativity, in addition to the teacher must be able to activate students in learning, it must also create an interesting learning atmosphere for students. In accordance with this kind of atmosphere, students in addition to being able to hone their cognitive abilities, also get hands-on experience, so that learning becomes more meaningful for students. Meaningful learning allows students to discover for themselves facts and concepts and foster the values embraced.

To achieve maximum learning outcomes, students then focus on improving knowledge. Development of the teaching and learning process through the cognitive realm. And students must be able to build their own understanding and be able to accept the understanding of others. Students can participate in group learning and are able to form groups in the learning process through the affective realm. Then from the cognitive and affective realms students must also have the ability to create innovative and creativity in the learning process.

According to (Syafi et al., 2016), it is stated that in the national education system the formulation of educational objectives, both curricular goals and instructional objectives use the classification of learning outcomes from Benjamin which broadly divides them into three domains, namely: 1) Cognitive with regard to intellect learning outcomes, 2) Affective with regard to attitudes, 3) Psycho-motor with regard to the results of learning skills and abilities. The three taxonomies cannot stand alone separately from each other but are interconnected with each other (Lathifah, 2021).

According to (Arini & Umami, 2019), Taxonomy in the cognitive realm includes six levels, namely: 1) *Remembering* is the ability to re-name information or knowledge that is stored in memory; 2) *Understanding* is the ability to understand instructions and affirm the understanding/meaning of ideas or concepts that have been taught both in oral form, as well as graphs/diagrams; 3) *Applying* is the ability to do something and apply concepts in certain situations; 4) *Analyzing* is the ability to separate concepts into several components and connect them to each other to gain a complete understanding of the concept; 5) *Evaluating* is the ability to establish the degree of something based on a certain norm, criterion or benchmark; 6) *Creating* is the ability to combine elements into a new form that is whole and coherent, or to create something original (Nasution et al., 2019).

The importance of increasing student learning creativity to improve the quality of the learning process in the classroom and determining quality, because by increasing the creativity of teaching and learning in the classroom, student learning outcomes can increase (Salsabila & Ramdhini, 2020). A tool to measure the extent of student creativeness, mastery taught by the teacher and a benchmark that can be used to determine the success of students in mastering lessons in obtaining maximum learning achievement with good results (Komarudin, 2018).

The learning model of *constructivism* is one of the views on the learning process which states that the learning process (acquisition of knowledge) begins with the occurrence of cognitive conflicts (Nita, 2019). This cognitive conflict can only be overcome through knowledge to be built by the child himself through his experience from the results of interaction with his environment (Sabrin, 2011).

According to (Suparlan, 2019), *constructivism* is how to produce something from what is being fingered, in other words that how to combine a learning with doing or practicing in his life to be useful for the benefit. *Constructivism* is an activity, where learners build their own knowledge, explore the meaning of what they learn, and are the process of completing new concepts and ideas with the existing framework of thinking (Sukiman, 2008).

It can be understood that *constructivism* is how to activate students by giving them the widest possible space to understand what they have learned by applying concepts they know and then embedding them into their daily lives.

According to (Safitri et al., 2020), writing that creative learning is a learning process that requires teachers to be able to motivate and bring out student creativity during learning, using several varied methods and strategies, such as group work, role-playing, and problem solving. Creative learning requires teachers to stimulate student creativity, both in developing thinking skills and in performing an action. Creative thinking always starts with critical thinking (Yuliani et al., 2018).

Through the learning model, it is hoped that it can increase students' learning creativity on the subject matter of English for Biology in class X MIPA-5 Padangsidempuan. In schools where research has never applied *constructivism* learning, so researchers are interested in conducting research using *the constructivism* learning model to increase learning creativity.

B. Research Method

1. Research Procedure

In this study, the steps taken were cycle model class action research because the object of study studied was only one class in one school. The implementation of this research consists of 4 stages, namely planning, acting, observing, and reflecting. Class action flow can See in the chart below.

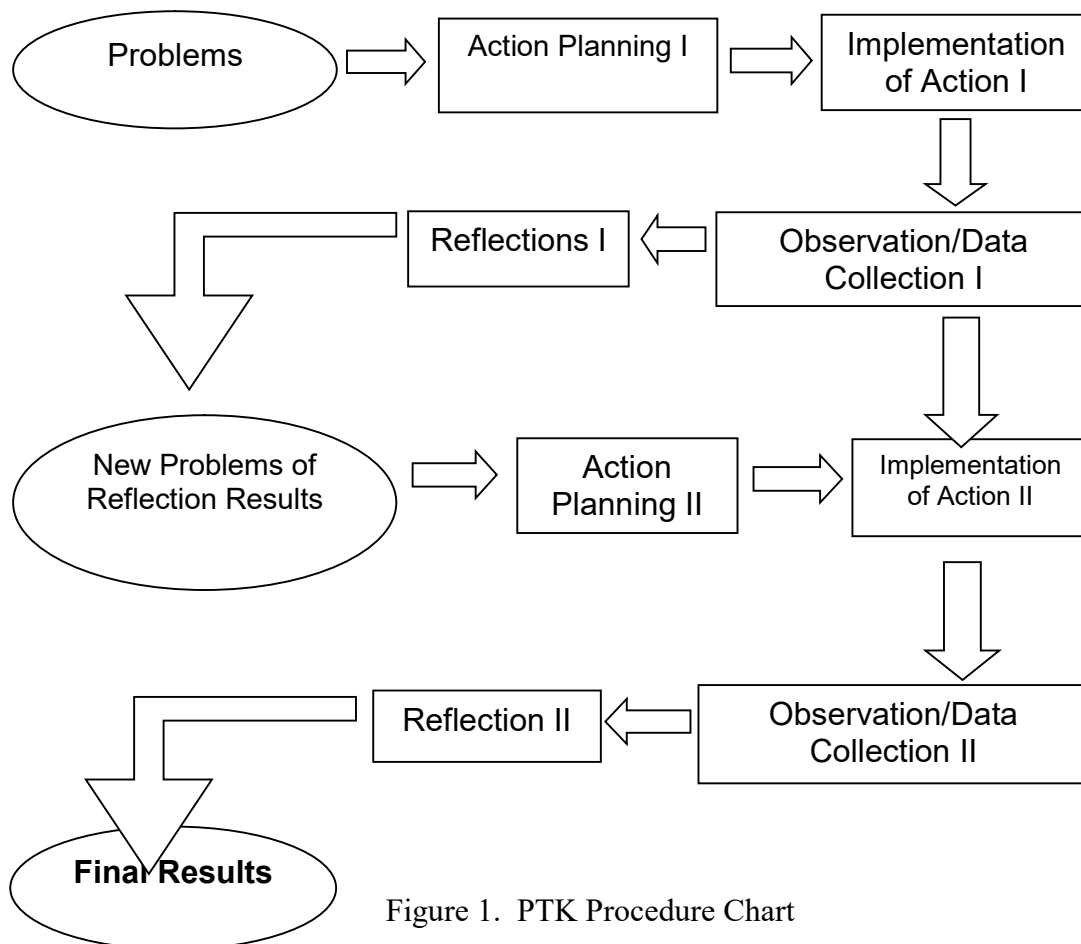


Figure 1. PTK Procedure Chart

2. Data and Data Sources

a. Data Collection Techniques

Data collection is the most important step in research, because of the purpose of the research. According to Arikunto (2010) said that data collection is a tool chosen and used by researchers in collecting activities so that these activities become systematic and facilitated by him.

The data collection technique in this research is by: first providing the questions and testing them to other students who have studied the material by entering the classroom group of the class and sharing the questions by sending files of the questions and students answering the questions by taking pictures of the answers and sending them back to the classroom. Furthermore, valid questions are distributed to students who are the object of research by entering the classroom and sharing the questions by sending a file of the question and students answering the question by taking a photo of the answer and sending

it back to the *classroom*. As the learning process progresses in *the classroom*, student activities are also monitored to see changes in their activities during teaching and learning.

Creativity Test

Tests are questions that must be answered and done by the student who wants to be investigated, called the respondent. In this test, researchers use creativity tests to find out the development of students' creativity. The implementation of the creativity test is carried out after the learning is carried out.

Table 1. Creativity Test Score Criteria

No.	Score	Criterion
1.	90 – 100	Very Creative
2.	80– 89	Creative
3.	70– 79	Creative Enough
4.	60 – 69	Less Creative
5.	≤59	Uncreative

b. Data Collection Tools

To obtain the data needed in this study, the researcher used a research instrument with a test sheet.

3. Data Analysis

Analysis of Student Learning Creativity

To calculate the percentage of student learning creativity individually used the formula :

1. Calculating Values

$$\text{Final Score} = \frac{\text{jumlah nilai yang didapat}}{\text{jumlah nilai maksimal}} \times 100$$

Furthermore, the average score of students is calculated using the calculated average formula as follows :

2. Calculating the grade average:

a. $X = \frac{\sum x}{a}$

Information:

X = grade point average score

$\sum x$ = sum of all student grades

a = number of students

b. Percentage of Individual Completeness (PKI)

$$\text{PKI} = \frac{\text{jumlah nilai yang diselesaikan}}{\text{nilai maksimal}} \times 100\%$$

c. Percentage of Class Completion (PKK)

$$\text{PKK} = \frac{\text{jumlah nilai yang diselesaikan}}{\text{nilai maksimal}} \times 100\%$$

Then the completion of each student's learning is determined, the average student based on KKM is 80.

C. Research Results and Discussion

Based on the results of research conducted at SMA Negeri 5 Padangsidimpuan for the 2021-2022 academic year conducted in class X MIPA, data was obtained regarding the results of student creativity tests and learning management after learning was carried out using a constructivism learning model. Based on a survey conducted by researchers by direct observation in the field, namely students carrying out teaching and learning activities, researchers share a creativity test, which will be answered by students. Where this study consisted of 2 cycles, and each cycle consisted of 2 meetings, each meeting consisted of 2 hours of learning (2 x 45 minutes).

Student Creativity Test

Creativity can be defined as an individual's ability to produce something new or a combination of something that has existed before, either in the form of an idea or idea or an object or a certain work through a creative process that is sensitive to various surrounding conditions so as to bring out uniqueness in himself that looks different from others. Such uniqueness allows the chances of success in a person.

Therefore, at the end of learning, researchers evaluate by dividing valid learning creativity test questions in the form of an *essay* test followed by 30 students and the test results prove that in the first cycle student learning creativity is still in the sufficient category. This can be proven from the indicators of learning creativity assessed based on bloom taxonomy where the average cognitive ability of students in aspects of knowledge, understanding, application, analysis, synthesis and evaluation is still in the moderate category with a PKK value of 50%.

The results of the cycle II test show an increase in student learning creativity through the application of the *Constructivism* Learning Model because at this stage when viewed from the indicators of learning creativity observed based on bloom taxonomy, the average cognitive ability of students is already in the category of both aspects of knowledge, understanding, application, analysis, synthesis and evaluation in the good category with a classical completion percentage of 70 %.

From the results of the study, we can see that Model Learning *constructivism* can increase students' learning creativity on the subject matter of English for Biology in class X SMA Negeri 5 Padangsidimpuan. This can be proven by the value of increasing 20% from cycle I to cycle II so that it can be concluded that this study ends in cycle II because the completeness value of students in cycle II has met the stipulated requirements of more than 80%.

The increase in the test of student learning creativity from cycle I to cycle II is observed in table 2 :

Table 2. Enhanced Student Creativity Test

No	Analysis Descriptive	Cycle I	Cycle II	Increased
1	Top Rated	85	95	10
2	Lowest Value	54	75	21
3	Number of students completed	15 People	21 People	6 People
4	PKK	50%	70%	20%

From table 2, it can be seen that the highest indigo increased by 10 points, the PKK value increased by 20%, the number of completed increased from 15 people in cycle I to 21 people in cycle II (increased by 6 people). The number of students who were not completed decreased by 9 people and the percentage of classical completion increased from 50% in cycle I to 70% in cycle II (increased by 20%).

Overall, the results of the student learning creativity test from cycle I to cycle II can be seen in Figure 2. :

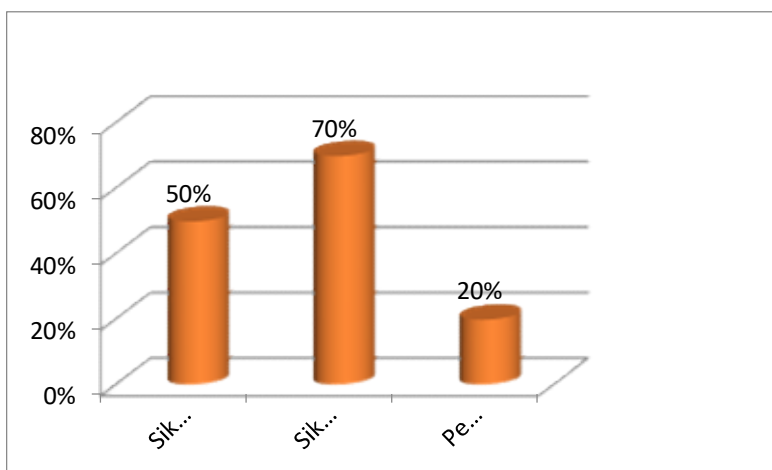


Figure 2. Graph of Improving Student Learning Creativity Test Results

The results of this study are in line with research conducted by Kartika, Wan Syafi'i, et al. 2015, with the title "*Development of Student Worksheets (LKS) Based on a Constructivism Approach to Circulation System Material for Learning Biology Class XI SMA Babussalam Pekanbaru*". The average score of the validation results is 3.38-3.64 with a very valid category and the average score of the limited trial results is 3.33-3.72 with the excellent category.

In addition, the results of this study are also in line with research conducted by Hoirunnisa Nasution, Melvariani Syari Batubara, et al. 2019, with the title "*Efforts to Increase Student Biological Creativity through the Application of Problem Based Learning (PBL) Models at SMA Negeri 1 Sipirok*". The results of the research obtained show that the application of model problem based learning can increase students' learning creativity, it can be seen from the results of the creativity test in cycle I obtained a percentage value of completion of 71.97% and cycle II of 93.75% (an increase of 21.88%). By using the problem-based learning (PBL) model, it can increase student learning activities, this can be seen in cycle I the percentage value of 58.28% and increased in cycle II with a percentage of 76.56% so that from cycle I to cycle II there is an increase of 18.28% of the qualifications less into good criteria. The ability of teachers in managing Biology learning can be improved through the application of problem-based learning models, this can be seen from the observation results of cycle I obtained an average score of 2.8 and a percentage of performance of 70% with sufficient criteria, and in cycle II an average score of 3.3 (91%) was obtained with very good criteria. So that from cycle I to cycle II there has been an increase of 21%.

D. Conclusion

Based on the results of the research carried out, conclusions were drawn to increase the creativity of learning biology in English literacy students through a constructivism learning model on English for Biology material at SMA Negeri 5 Padangsidimpuan with a

percentage of completeness reaching 50% in cycle I and 70% in cycle II, with a KKM value of 80.

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