

**PAIKEM'S APPROACH TO SEE STUDENT RESPONSES ON FOOD BIOTECHNOLOGY MATERIALS AT SMP NEGERI 3 BAMBEL**

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**Abstract**

This study aims to determine students' responses to the *PAIKEM* approach to food biotechnology material. The population in this study was all grade IX students of Babel 3 Public Junior High School, Aceh Tenggara Regency, for the 2021/2022 academic year, totalling 69 students. The sample taken in this study was one class from class IX-C with a total of 20 students. In class IX-C, qualitative research methods were carried out using a descriptive design and purposive sampling technique. The results of students' responses regarding the *PAIKEM* approach of class IX students on food biotechnology material at Babel 3 Public Junior High School were 0.80. According to the inter-achievement guidelines, the interval coefficient at a score of 0.80-1.00 was very high.

**Introduction**

Education is the key to all quality progress and development because, with education, humans can realize all their potential as individuals and as citizens of society. The low quality of teaching and learning processes and outcomes indicates that the interaction between students and learning resources, such as teachers and the environment, does not work effectively, so the learning outcomes achieved are not optimal, resulting in low quality of education (Arikunto, 2016).

One of the main actions of the teacher is to organize the teaching and learning process or learning process. The learning process is a series of activities between teachers and students based on reciprocal relationships in educational situations to achieve specific goals. The reciprocal relationship between teachers and students is the main requirement in implementing the learning process. Interaction in the learning process contains a broader meaning than just the relationship between teachers and students because it contains the meaning of educative interaction, which is not only in the form of delivering messages or subject matter (Asrori, 2009)

Based on the observations during Practice Field Experience (PPL) from January 7, 2022, to February 7, 2022, Babel 3 Public Junior High School rarely uses a learning approach that

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utilizes the environment as a learning resource. In comparison, the environment around us is essential to understand and study where the environment around us dramatically influences us. The lack of utilization of this environment makes children bored, less enthusiastic about learning, and even low their learning achievements (Sanjaya, 2016).

In general, teachers still adhere to conventional teaching habits. The way of teaching in class IX also experiences the same thing, namely, the process of learning activities runs conventionally, especially in science subjects which ultimately makes student activity in the process of teaching and learning activities less. Less active students, for example, such as the courage to express opinions or express their ideas are still small, interaction and communication with teachers during learning activities are also still small, they unable to work together in group activities, and their learning motivation is also still low which makes their learning outcomes less than optimal or average. – their average score in the previous material on Food Biotechnology is 60, while the specified minimum completeness criteria (*KKM*) value is 70 (Riduwan, 2006).

Judging from the existing problems such as lack of student activity in the teaching and learning process such as the courage to express opinions or express their ideas is still tiny, interaction and communication with teachers during learning activities are also still small, less able to cooperate in group activities, and their learning motivation is also still low, *PAIKEM* approach (Active learning, Innovative, Creative, Effective and Fun) is used. The *PAIKEM* approach is student-centred and makes students active, innovative, and creative. Their learning becomes more effective and fun. The *PAIKEM* learning approach also allows students to carry out various activities to develop their attitudes, understanding, and skills in the sense that they are not merely "fed" by the teacher (Hamzah B. Uno and Nurdin Mohamd, 2017). Therefore, the authors are interested in conducting research entitled Application of the *PAIKEM* Approach to Improve Student Learning Outcomes for Class IX on Food Biotechnology Materials at Babel 3 Public Junior High School.

The purpose of this study is to examine how the process of applying the *PAIKEM* approach to improve student learning outcomes in class IX on Food Biotechnology material at Babel 3 Public Junior High School, then examine student responses to the application of the *PAIKEM* approach in class IX on Food Biotechnology material at Babel 3 Public Junior High School.

## Method

The research method used in this study is a type of quantitative research. The sample taken in this study was one class from class IX-C with 20 students. The qualitative research method was carried out in class IX-C with a descriptive design, and sampling was a purposive sampling technique.

## Results and Discussion

### A. Research Results

#### 1. *PAIKEM's* approach makes Food Biotechnology lessons more interesting to learn

No	Respondent's response	Frequency	Percentage
1.	Strongly Agree (SS)	14	70 %
2.	Agree (S)	6	30 %
3.	Neither Agree nor	0	0

	Disagree (KS)		
4.	Disagree (TS)	0	0
5.	Strongly Disagree (STS)	0	0
Total		N=20	100%

**2. PAIKEM approach makes it difficult for me to solve the problem**

No	Respondent's response	Frequency	Percentage
1.	Strongly Agree (SS)	0	0
2.	Agree (S)	0	0
3.	Neither Agree nor Disagree (KS)	4	20 %
4.	Disagree (TS)	9	45 %
5.	Strongly Disagree (STS)	7	35 %
<b>Total</b>		<b>N=20</b>	<b>100%</b>

Source: Results of processed respondent data

**3. Learning food biotechnology materials using the PAIKEM approach makes the material easy to remember.**

No	Respondent's response	Frequency	Percentage
1.	Strongly Agree (SS)	1	5 %
2.	Agree (S)	19	95 %
3.	Neither Agree nor Disagree (KS)	0	0
4.	Disagree (TS)	0	0
5.	Strongly Disagree (STS)	0	0
<b>Total</b>		<b>N=20</b>	<b>100%</b>

**4. The PAIKEM approach makes me more active in learning food biotechnology material.**

No	Respondent's response	Frequency	Percentage
1.	Strongly Agree (SS)	3	15 %
2.	Agree (S)	15	75 %
3.	Neither Agree nor Disagree (KS)	2	10 %
4.	Disagree (TS)	0	0
5.	Strongly Disagree (STS)	0	0
<b>Total</b>		<b>N=20</b>	<b>100%</b>

**5. Food biotechnology material using the PAIKEM approach trained me to express opinions.**

No	Respondent's response	Frequency	Percentage
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1.	Strongly Agree (SS)	5	25 %
2.	Agree (S)	15	75 %
3.	Neither Agree nor Disagree (KS)	0	0
4.	Disagree (TS)	0	0
5.	Strongly Disagree (STS)	0	0
<b>Total</b>		<b>N=20</b>	<b>100%</b>

**6. Food biotechnology material using the *PAIKEM* approach makes me sleepy**

No	Respondent's response	Frequency	Percentage
1.	Strongly Agree (SS)	0	0
2.	Agree (S)	0	0
3.	Neither Agree nor Disagree (KS)	8	40 %
4.	Disagree (TS)	7	35 %
5.	Strongly Disagree (STS)	5	25 %
<b>Total</b>		<b>N=20</b>	<b>100%</b>

**7. Learning to use the *PAIKEM* approach made me understand more about Food Biotechnology Materials.**

No	Respondent's response	Frequency	Percentage
1.	Strongly Agree (SS)	4	20 %
2.	Agree (S)	12	60 %
3.	Neither Agree nor Disagree (KS)	4	20 %
4.	Disagree (TS)	0	0
5.	Strongly Disagree (STS)	0	0
<b>Total</b>		<b>N=20</b>	<b>100%</b>

**8. Food Biotechnology materials using the *PAIKEM* approach made me more skilled.**

No	Respondent's response	Frequency	Percentage
1.	Strongly Agree (SS)	5	25 %
2.	Agree (S)	12	60 %
3.	Neither Agree nor Disagree (KS)	3	15 %
4.	Disagree (TS)	0	0
5.	Strongly Disagree (STS)	0	0
<b>Total</b>		<b>N=20</b>	<b>100%</b>

**9. I do not understand food biotechnology material using the *PAIKEM* approach**

No	Respondent's response	Frequency	Percentage
1.	Strongly Agree (SS)	0	0
2.	Agree (S)	0	0
3.	Neither Agree nor Disagree (KS)	10	50 %

4.	Disagree (TS)	9	45 %
5.	Strongly Disagree (STS)	1	5 %
<b>Total</b>		<b>N=20</b>	<b>100%</b>

**10. The *PAIKEM* approach makes it difficult for me to solve the problem of Food Biotechnology.**

No	Respondent's response	Frequency	Percentage
1.	Strongly Agree (SS)	0	0
2.	Agree (S)	2	10 %
3.	Neither Agree nor Disagree (KS)	9	45 %
4.	Disagree (TS)	5	25 %
5.	Strongly Disagree (STS)	4	20 %
<b>Total</b>		<b>N=20</b>	<b>100%</b>

Based on the results of distributing a questionnaire on the application of the *PAIKEM* approach to improving student learning outcomes in class IX on food biotechnology material at Babel 3 Public Junior High School, 20 respondents answered the questionnaire, and the results obtained were the overall data processed using the percentage formula  $P = \frac{F}{N} \times 100 \%$ . The following is a recapitulation table of the overall frequency data as follows.

**Frequency Recapitulation of Response Items**

Score (S)	Frequency (F)	(S) x (F)
(SS) 5	49	245
(S) 4	109	436
(KS) 3	40	120
(TS) 2	2	4
(STS) 1	0	0
<b>Total</b>	<b>200</b>	<b>805</b>

From the table above, it is known that the total score for the application of the *PAIKEM* approach to improving student learning outcomes for class IX students on food biotechnology materials at Babel 3 Public Junior High School is 805, categorization based on the ideal score range:

1. The maximum score is obtained 5 (highest score) times the number of statement items times the number of respondents, which is  $5 \times 10 \times 20 = 1,000$
2. The minimum score is obtained 1 (lowest score) times the number of statement items times the respondent, namely:  $1 \times 10 \times 20 = 200$

Score range = (maximum score - minimum score): 5. Thus, the range of scores for applying the *PAIKEM* approach to improve student learning outcomes of class IX on food biotechnology material at Babel 3 Public Junior High School =  $(1,000 - 200) : 5 = 160$ .

Based on the results of the research of 20 respondents, the variable score of the application of the *PAIKEM* approach to improving student learning outcomes of class IX on food biotechnology material in Babel 3 Public Junior High School of 850 is categorized as

high, or if it is a percentage, then it is calculated as % or 0.805. The value of 0.80, if interpreted, is in the interval 0.80-1.00 with a **very high level**. Thus, the results of applying the *PAIKEM* approach to improve the learning outcomes of class IX students on food biotechnology materials at Babel 3 Public Junior High School, which is 80.5%, are very high.

Based on the results of the above calculations, it can be concluded that the results of the questionnaire regarding the application of the *PAIKEM* approach to improving the learning outcomes of class IX students on food biotechnology materials at Babel 3 Public Junior High School are 0.80, which according to the guidelines for the interpretation of the interval coefficient on a score of 0.80-1.00. very high. So the results of the questionnaire application of the *PAIKEM* approach to improving the learning outcomes of class IX students on food biotechnology material at 3 Public Junior High School, which amounted to 0.80, were **very high**. Therefore, students' response to applying the *PAIKEM* approach to improving the learning outcomes of class IX students on food biotechnology materials at Babel 3 Public Junior High School is very high because students like applying the *PAIKEM* approach.

### DIAGRAM

*PAIKEM* approach implementation to improve student learning outcomes for grade IX students on food biotechnology materials at 3 Public Junior High School



The results of these percentages are  $\frac{\sum S X F}{\sum \text{Skor maksimal}} \times 100\%$  the highest. There are 5 who say they strongly agree with the results of 24.6, the second score of 4 which says they agree with the results of 43.6, the third score of 3 states that they do not agree with the results of 12, the fourth score of 2 states 0.4, all five scores of 1 said strongly disagree with the results of Zero. Based on the information above, Babel 3 Public Junior High School students **agreed** with applying the *PAIKEM* approach to improving student learning outcomes on food biotechnology materials at Babel 3 Public Junior High School based on the questionnaire statement with 43.6 results.

### Discussion

*PAIKEM* approach implementation makes students more active, more enthusiastic and understand faster; this can be seen when students get questions, they tend to answer questions directly with their thoughts, and some even answer questions without being asked. There were no students who did not answer the questions. Most students tried to answer the question even though the answer was wrong or not exactly as taught. This is because students are at the stage of formal operations stated in Piaget's theory. Students begin to think logically, and problems can be solved through systematic experimentation. In addition, when students get a question that does not answer correctly, the other group members try to help and answer the question so that the group gets additional points and does not lag behind other groups. Vygotsky's theory states that more mental functions generally appear in conversation and cooperation between individuals.

With the Paikem approach, it can be seen that students can state that the food biotechnology material lesson the Paikem approach is very liked, easy to understand and more enthusiastic because they learn to use the environment. After being explained by the teacher, students read it and then asked them again.

Learning with the *PAIKEM* approach makes students more enthusiastic about learning; this can be seen in students' enthusiasm to answer questions from the teacher when they get questions. In addition, teaching and learning interactions between students and teachers are also good. This makes the learning atmosphere in the classroom more lively so that students do not feel bored during the teaching and learning process. The *PAIKEM* approach can improve student learning activities because learning feels more vibrant and lively when the teacher asks one of the students a question. All students feel heart exercise so that students will be stimulated to remember and study harder the material delivered by the teacher. This can be seen from the number of students who answered the questions correctly in the second meeting compared to the first meeting.

According to (Istarani, 2017), states that students understand the material faster because it starts with a teacher's explanation, students master the teaching material better because they are allowed to study it again through the available textbooks, and memory is better because they will be asked again about the material presented. Explained and learned, and students are not bored because of the questions as a binder to attract students to participate in the lesson. Thus, students who dominate the class can more easily understand the subject matter of food biotechnology.

## Conclusion

*PAIKEM* approach implementation can improve the learning outcomes of class IX students on food biotechnology material with the data obtained from the calculation of the hypothesis that the results of  $t$  arithmetic = 41.0436 and  $t$  table at a significant of 0.05 are 1.68288, then  $t$  arithmetic >  $t$  table from hypothesis testing can be concluded that there is an increase in learning outcomes students by using the *PAIKEM* approach to food biotechnology material.

The results of distributing a questionnaire about *PAIKEM* approach implementation to improve student learning outcomes in class IX on food biotechnology material at Babel 3 Public Junior High School as a whole with a score of 805, which is categorized as high or if it is a percentage it is calculated, are  $805/1000 \times 100\% = 80.5\%$  or 0.805. The value of 0.80, if interpreted, is in the interval 0.80-1.00 with a very high level. Therefore, the response of students about applying the *PAIKEM* approach to improving the learning outcomes of class IX

students on food biotechnology materials at Babel 3 Public Junior High School is very high since students are enthusiastic about *PAIKEM* approach implementation.

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