



Hybrid project-based learning for problem-solving skills and student creativity in plant anatomy and physiology courses

Silfia Ilma*, Aidil Adhani, Nelsiani Thomas Sarira

Departement of Biology Education, Faculty of Teacher Training and Education, Universitas Borneo Tarakan, Indonesia

*Corresponding author: silfiailma@borneo.ac.id

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ABSTRACT

Problem solving and creativity skills are very important skills for students to face global challenges. This study aims to analyze the effect of the Hybrid project-based learning (HPBL) learning model on students' problem-solving skills and creativity. This research used a pretest-posttest non-equivalent control group design. The experiment was conducted March to October 2022. The essay test of problem-solving and creativity was applied to measure students' problem-solving skills and creativity. Data collection in this study was carried out using Google Form, Google Classroom, Google meet, and WhatsApp. Data analysis using SPSS version 23 software. The analysis of covariate (ANCOVA) analysis results showed that HPBL affected problem-solving skills and student creativity with a value of $p < 0.005$. The least significant difference (LSD) result was significantly different in improving problem-solving skills and creativity. The HPBL class gained the highest posttest score. Therefore, HPBL could be applicable to improve problem-solving skills and student creativity.

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INTRODUCTION

Problem solving skills are basic skills in critical, logical, and systematic thinking. The era of globalization requires students to be able to solve complex problems. Problem solving skills are very crucial for a better life. In addition, the 21st century learning curriculum must be oriented to student productivity, innovative, effective, and creativity (Saipul, Kamid, Muslim, & Huda, 2020; Purwandari, Supriyatin, & Ristanto, 2022). Problem solving is an analytical process used to describe the solution to a problem, so that in the process it raises complex thoughts (Septian, & Aulia, 2021; Hidayati, Idris, & Handayani, 2022). Problem solving skills are skills in solving problems by producing effective solutions (Ocak, Doğruel, & Tepe, 2021). Problem solving skills are an important asset for students to face challenges in modern times (Tendrita, Azzajjad, & Ahmar, 2022; Khoiriyah, & Husamah, 2018). Problem solving skills involve students in identifying and finding appropriate solutions (Akat & Peker, 2021).

Problem solving skills consist of define and understand the problem, devising a plan, carrying out the plan, and looking back (Polya, 1973). Understanding the problem is the extraction and assimilation of information, and the determination of the purpose of the problem. Problem identification is needed to find a solution to a problem. Devising a plan, gathering facts to make a connection between problems. Designing a plan or strategy to find relevant solutions. Carrying out the plan, solving problems according to plan to produce solutions. Looking back, re-checking all the steps that have been taken. The right plan or strategy can help in solving a problem (Afacan, & Kaya, 2022). In addition, inquiry and inner-talk activities also help students to practice problem solving skills (Akat & Peker, 2021).

Problem solving is very important in teaching and learning environments (Yurtseven, R., Akkaş & Ocak, 2021). In fact, the observation results show that students' problem-solving skills have not been maximized in learning. Students are still unable to identify problems, and evaluate the results of the solutions provided. The observation results are in accordance with the results of relevant research regarding the low problem-solving skills of students in learning (Modok, Budiretnani, & Nurmilawati, 2021; Özenç, & Çarkıt, 2021). Problem solving skills are interconnected with student creativity (Guaman-Quntanilla, et al., 2023). So that the low problem-solving abilities of students will have an impact on creativity in thinking (Demirhan & Sahin, 2021).

Creativity is a high-level thinking skill that must be possessed for a better life. In the world of work success can be achieved through knowledge, innovation, productivity, competitiveness and creativity (Radovan, 2019; Ernawati, et al., 2023). Knowledge triggers the emergence of creativity in problem solving (Star et al., 2022; Amanda, et al., 2021). Modern creativity has experienced an expansion of meaning, from aesthetics to the discovery of innovative ideas (Cropley, 2011). Creativity requires knowledge and effort. Knowledge that refers to advertising development is intellectual, procedural, and technical (Runco, 2004; Greenstein, 2012).

Aspects of student creativity that can be developed through learning are curiosity, fluency, originality, elaboration, flexibility, and divergent thinking (Greenstein, 2012). Curiosity is the beginning of a deeper cognitive development (Özkan & Topsaka, 2020). Curiosity can be manifested by investigative activities, asking questions, and searching for deeper meanings. Fluency in science can be interpreted as fluency in finding innovative ideas. Originality is the discovery of new ideas. Elaboration is an idea that adds supporting facts. Flexibility is an idea that shows the possibilities that exist. Meanwhile, divergent thinking gives students the freedom to combine ideas in solving problems. Student creativity can be assessed using rubrics, self-assessment, and observation (Greenstein, 2012; Leiki & Elgrably, 2022). Student creativity in learning plant anatomy and physiology is still rarely disclosed. Plant anatomy and physiology have conceptual material characteristics. So that learning is still focused on understanding the material. Though creativity in thinking needs to be developed in this lecture.

Creativity is interpreted as an interaction with the environment through thoughts, personal traits, motivations, and feelings. This interaction will bring up new or innovative ideas (Al-Ababneh, 2020). Learning that can facilitate student interaction is a Hybrid project-based learning (HPBL). The combination of offline and online project learning makes time more effective (Ilma et al., 2022). Online learning not only provides knowledge but is able to develop students' skills and attitudes (Kondratavičienė, 2019; Burkšaitienė & Selevičienė, 2017).

Project-based learning can increase problem-solving skills (Kartini, Widodo, Winarno, & Astuti, 2021; Nurdianysah, & Makiyah, 2021) and student creativity (You, 2020; Ummah, In'am, & Azmi, 2019). Currently, project-based learning is being innovated with technology in a hybrid way (Rugh, Beyette,

Capraro, & Capraro, 2021). Hybrid project-based learning (HPBL) is a new breakthrough to develop students' higher order thinking skills in learning (Rahardjanto, Husamah, & Fauzi, 2019; Rugh, Beyette, Capraro, & Capraro, 2021). HPBL applies a hybrid pattern, namely online and offline learning. HPBL is intended to overcome the problem of using a long time in project learning. Project learning often takes a long time to complete a project on one topic (Li et al., 2020). However, project-based learning provides authentic memory for students in understanding concepts when combined with technology (Mckibben, & Murphy, 2021). HPBL makes it easy for students to understand a concept (Martin, et al., 2021) and is able to empower problem solving skills (Chen, & Chang, 2021).

The HPBL model is implemented in plant anatomy and physiology courses. In this study, the HPBL model was carried out on the physiological processes of plant growth and development, transportation systems, movement of water, minerals, and nutrients, as well as solutions in plants, the difference between light and dark reactions of photosynthesis. Based on the results of observations of students less actively participate in learning with discussion and lecture methods. In addition, the material covered in plant anatomy and physiology is difficult and complex (Fernández-González, & Franco-Mariscal, 2021; Nuraida & Nisa, 2017). The implementation of the HPBL model is expected to be able to be actively involved in learning and be able to improve students' problem-solving skills and student creativity. Therefore, this study will examine the effect of the Hybrid-project based learning (HPBL) model on students' problem-solving skills and student creativity.

METHODS

Research Design

The research design used a pretest-posttest non-equivalent control group design (Table 1).

Table 1

Research design

Pretest	Treatment	Post-test
O1	X	O2
O3	C	O4

Information:

X : HPBL Model Class

C : Direct instructions Class

O1, O3 : Pretest

O2, O4 : Posttest

Table 1 shows that the research design used quasi-experimental research. The control class uses direct instructions, while the experimental class uses the HPBL learning model. The pretest is given at the beginning of learning before the class is given treatment. Then after the implementation of HPBL and DI learning students were given a posttest regarding problem solving skills and creativity.

Population and Samples

The population in this study were students of biology education at the Department of Biology, Faculty of Teacher Training and Education, Universitas Borneo Tarakan. The sample in this study were 48 students who took the course in Plant Anatomy and Physiology. Samples were selected based on the results of the equivalence test. The number of students in the experimental class was 24, and the control class was 24. The control class uses direct instructions (Dignath, & Veenman, 2020). While the experimental class uses the HPBL model (George Lucas Educational Foundation, 2007; Hugerat, 2016). Learning activities in the experimental class were carried out in a hybrid, face-to-face meeting for 9 times, and online for 5 times. This study was conducted from March to October 2022.

Instrument

The instrument to measure problem-solving skills and student's creativity was an essay test consisting of 5 items. It had been validated through a reliability test of Pearson's product-moment and Cronbach's Alpha. The validity and reliability test results indicated that all test items were valid and reliable. The problem-solving skills assessment consist of define and understand the problem, devising a plan, carrying out the plan, and looking back (Polya, 1973). The student's creativity assessment

consists of 6 aspects: curiosity, fluency, originality, elaboration, flexibility, and divergent thinking (Greenstein, 2012). The problem-solving skills and student creativity essay test instrument has met the requirements 95% degree of trust. The problem-solving essay test instrument was valid 0.713 and reliable 0.722. The student creativity essay test instrument was valid 0.680 and 0.753.

Procedure

This research was conducted for one semester in plant anatomy and physiology lectures. The development of HPBL-based learning tools is carried out first, before implementing them in class. The experimental class implemented the HPBL model with stages namely 1) formulating essential questions; 2) make a project plan; 3) arranging a schedule; 4) monitor student and project progress; 5) assessment of results; 6) evaluation of experience. Lectures are held in a hybrid manner (a combination of online and offline). In hybrid learning facilitated by Google Classroom, Google meet, Google form, and WhatsApp group. Whereas in the control class using the direct instruction model with the stages namely 1) conveying learning objectives and preparing students; 2) demonstrate knowledge and skills; 3) guiding the training; 4) check understanding and provide feedback; 5) provide opportunities and follow-up training. Control class learning is done face to face (Figure 1).

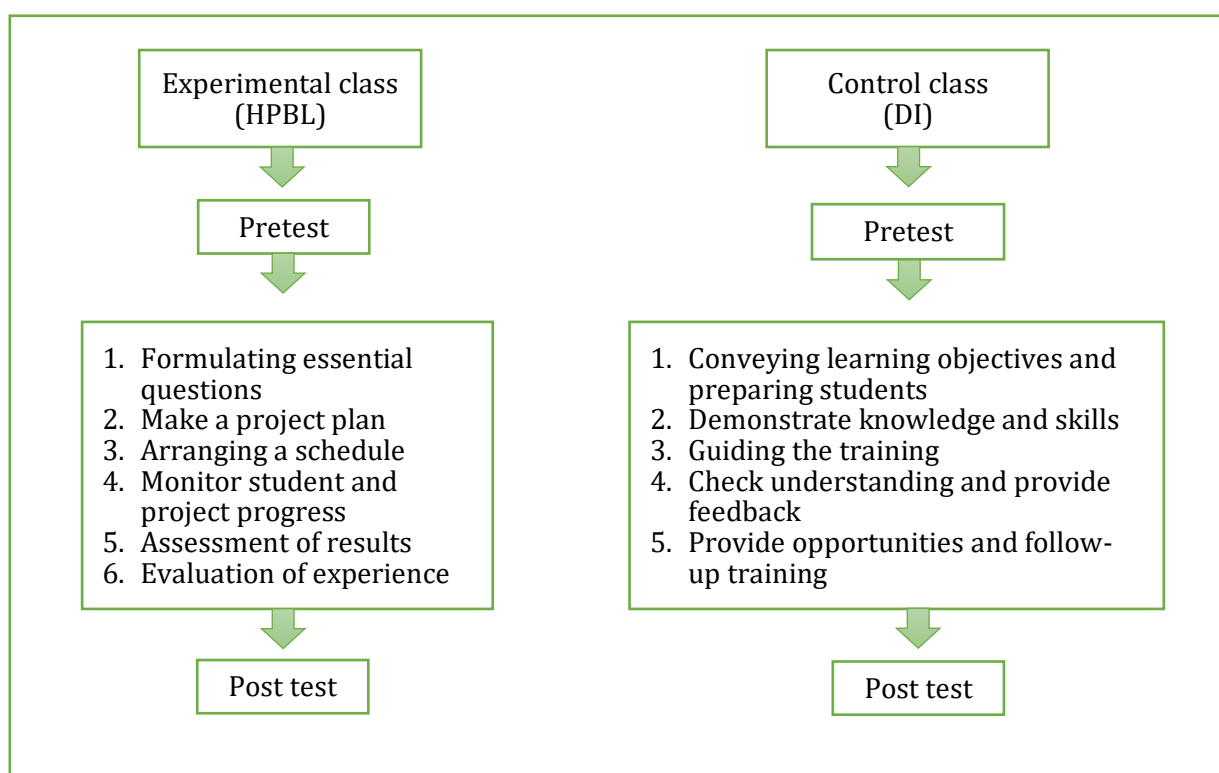


Figure 1. Research design

Data Analysis Techniques

The data collection technique was carried out by giving a pretest before the learning process with the HPBL model and a posttest after the learning was over. Problem-solving skills and student creativity was measured using a rubric with the highest scores being 4 advanced categories, 3 professional categories, 2 basic categories, and 1 beginner category. Data were analyzed using the ANCOVA test with SPSS version 23.

RESULTS AND DISCUSSION

The results of the normality and homogeneity prerequisite tests on problem-solving skills and student creativity data Table 2.

Table 2

The results of the prerequisite test for normality and homogeneity

Treatment Group	Normality		Homogeneity	
	N	Sig	Score Levene's Test	Sig
Problem-solving pretest	48	0.062	1.215	0.052
Problem-solving posttest	48	0.118	1.023	0.391
Creativity pretest	48	0.089	0.418	0.187
Creativity post-test	48	0.051	1.003	0.052

Based on Table 2 it is known that the problem-solving skills and students' creativity data has been normally distributed and homogeneous. The results of testing the hypothesis regarding the effect of the HPBL model on problem-solving skills Table 3.

Table 3

ANCOVA results (problem-solving skills)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	20639.895 ^a	2	5159.974	24.947	.000
Intercept	45465.435	1	45465.435	219.815	.000
XProblemsolving	1848.090	1	1848.090	8.935	.003
Class	19046.718	2	6348.906	30.695	.000
Error	28750.077	43	206.835		
Total	480820.000	48			
Corrected Total	49389.972	47			

R Squared=.418 (Adjusted R Squared = .401)

Table 3 shows the differences in learning models F count 30.695 with p-value 0,000 value $p < \alpha$ ($\alpha = 0.05$). Therefore, the hypothesis that the learning model affects students problem-solving skills is accepted. Then the LSD test was carried out, and the results can be seen in Table 4.

Table 4

LSD test results

Class	XPSOLVING	YPSOLVING	Difference	PSOLVINGCOR	LSD Notation
DI	34.50	52.69	18.19	52.297	a
HPBL	31.72	73.61	41.89	73.937	b

Table 5 shows that the corrected mean of the HPBL class has a higher score than the DI class. Based on the results, the HPBL class had the highest mean score, and all the mean scores are presented in Figure 2.

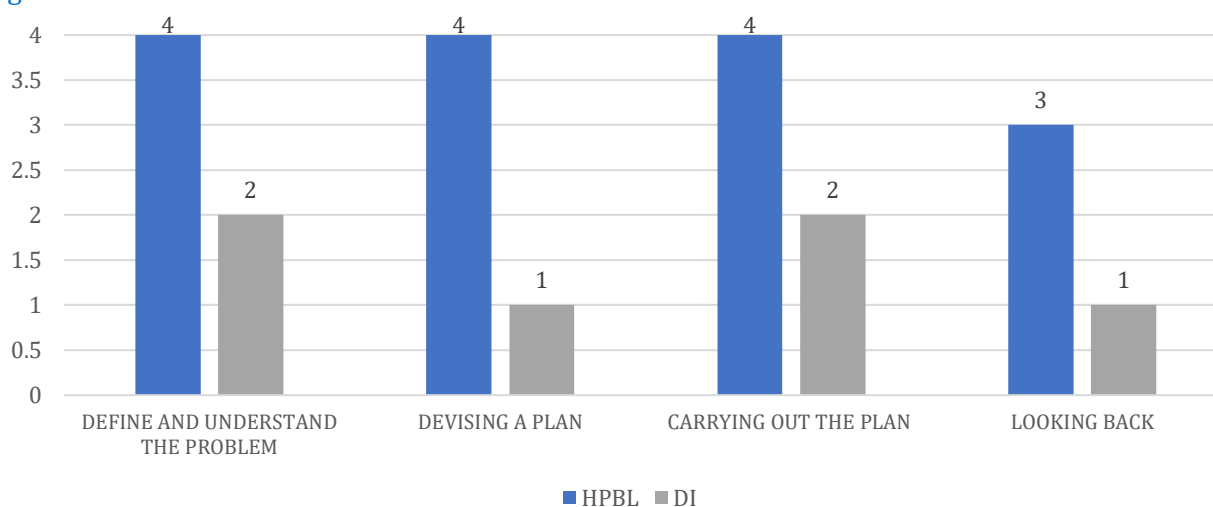

**Figure 2.** Graph of student problem solving skills per aspect

Figure 2 shows that the highest aspects are define and understand the problem, devising a plan, and carrying out the plan. The highest average is in the HPBL class. In the DI class, all aspects of problem solving have not been facilitated properly. This is because students only conduct discussions and presentations. Aspects of define and understand the problem can be seen when students are able to understand a problem and identify problems and explain influencing factors (Figure 3).

Look at the following picture!



Growth and development in plants begins with germination. Sprouts then develop into small plants. After growing to a certain size and age, it will develop to form flowers, and fruit or seeds as a means of reproduction. Based on the picture above, identify some problems related to the growth and development of plants A and B, and explain the factors that affect the growth and development of plants A and B!

Answer:
Problem identification:
 1. Plant A etiolation occurs, which causes the stem of plant A to be longer than plant B. However, the stem is not sturdy. Plant A looks weak and pale. The leaves of plant A are smaller, thinner, and pale in color. This is due to the lack of sunlight obtained. The chlorophyll produced is also low.
 2. Plant B experienced inhibition in growth. The stem of plant B did not elongate. This is because it absorbs too much sunlight. Excessive sunlight will damage the hormone auxin.
 From both cases, it can be seen that the factor that affects growth and development is sunlight. Sunlight plays a role in the germination process and plant growth. The need for sunlight intensity for each plant is different.

Figure 3. Students' answers in aspect of define and understand the problem

Define and understand the problem is a basic component in problem solving. In finding solutions, problems need to be arranged systematically. Systematic preparation can start from understanding a problem and being able to identify problems that occur (Yeong, 2021). To help students understand a problem, it can be started by presenting a problem through pictures or other illustrative schemes for students (Powell, Berry, Benz, Forsyth, & Martinez-Lincoln, 2017). Understanding a problem is part of higher-order thinking so it needs proper instructions to initiate it (Rumahtalu & Sangur, 2019; Yang, Gong, Saldivia, Cayton-Hodges, & Agard, 2021). In addition, Yang, Gong, Saldivia, Cayton-Hodges, & Agard, (2021) explain that a good understanding of a problem helps students find solutions. In this study, devising a plan was categorized as very good. This can be seen when students develop strategies in finding solutions (Figure 4).

In an experiment on the growth and development of mung bean (*Phaseolus radiatus* L.) after six days it was found that some plants died. The results of the analysis show that the planting media used is not good, because the soil in the Kalimantan area has a very high level of acidity. Based on the case, give the right considerations and strategies to overcome the problem!

Answer:
 Some things to consider before planting, namely:
 1. Carry out processing on the soil
 2. Soil cultivation can be done by making a balanced composition between soil media, husks, and fertilizers
Developed strategy:
 1. Make a separate place for planting with cultivated soil.
 2. Making liquid organic fertilizer
 3. Clean up weed every two days

Figure 4. Students answer in aspect of devising a plan

Figure 4 shows that students in developing a problem-solving strategy have involved several relevant considerations. In this case, students have done an in-depth analysis or even reflected on the experiments that have been carried out. Yang, Skelcher, & Gao (2021) explain that in project-based

learning students are given the freedom to flash back on projects that experience obstacles or fail. From an obstacle, students will be stimulated to think more deeply to conduct analysis (Yang, Skelcher, & Gao, 2021). Analysis of a constraint involves carrying out the plan. Students accurately identify problems that arise in the implementation of project activities. In project-based learning students will become in-depth investigators (Larmer, Mergendoller, & Boss, 2015). In carrying out or executing the plan generate a solution, students are able to recognize the needs used for implementing the solution and make the right solution in solving the problem. Recognition of the need for solution implementation can be done by obtaining information from a literature review or asking an expert. The process of extracting information is an attempt to obtain tentative answers that are combined with knowledge and experience (In'am, 2014). The stage of obtaining information is a part that needs to be considered to determine strategies and methods in solving problems. After that, at the end of the lesson, an evaluation of project activities is carried out. Evaluation of project-based learning is carried out by reflecting on project activities that have already taken place. Looking back really helps students to verify the solutions obtained, make comparative considerations, and make implicative formulations (Koichu, Parasha, & Tabach, 2021).

There was a significant difference in problem solving skills between the control class and the experimental class. This is because students in the HPBL class have been facilitated to the maximum extent by problem solving skills. For example, in the early stages of HPBL determining the basic problem, students are trained to find and understand a problem. This is in accordance with the results of research which states that HPBL learning is able to develop students' higher order thinking skills (Chen, & Chang, 2021; Powell, Berry, Benz, Forsyth, & Martinez-Lincoln, 2017; Yunus, Setyosari, Utaya, & Kuswandi, 2021). In addition, problem-solving skills can be developed through learning that sharpens students' curiosity (Azrai, Heryanti, Zain, & Ningsih, 2022). Results of testing the hypothesis of the effect of the HPBL model on student creativity Table 5.

Table 5
ANCOVA results (student creativity)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	28261.815 ^a	2	5459.994	25.967	.000
Intercept	42162.231	1	47765.635	289.615	.000
Xcreativity	1918.190	1	1947.000	8.942	.001
Class	21146.118	2	6647.846	32.690	.000
Error	21756.192	43	219.825		
Total	479230.060	48			
Corrected Total	49582.984	47			

R Squared=.712 (Adjusted R Squared = .723)

Table 5 shows the differences in learning models (F count 32.690 with p-value 0,000 value $p < \alpha$ ($\alpha = 0.05$). Therefore, the hypothesis that the learning model influences student creativity is accepted (LSD test Table 6).

Table 6
LSD test results

Class	XCREATIVITY	YCREATIVITY	Difference	CREATIVITYCOR	LSD Notation
DI	32.79	51.78	18.99	51.371	a
HPBL	32.54	80.41	47.87	80.359	b

Table 6 shows that the corrected mean of the HPBL class (80.359) has a higher score than the DI class (51.371). Based on the results, the HPBL class had the highest mean score, and all the mean scores are presented in Figure 5.

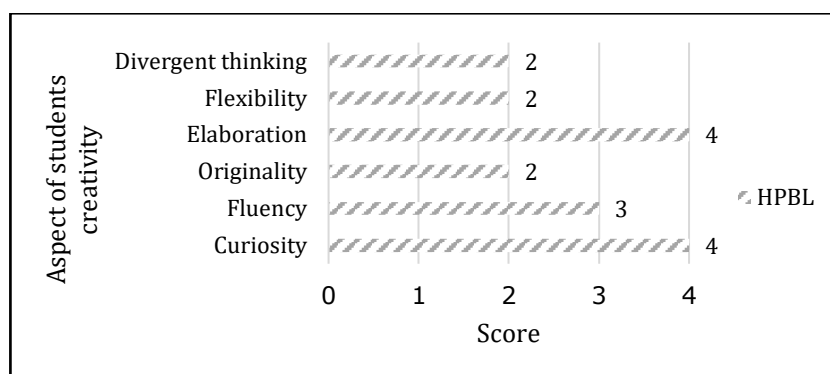


Figure 5. Graph of student problem solving skills per aspect

Figure 5 showed the highest student's creativity are curiosity and elaboration aspects. The curiosity aspect of students is trained at the stage of determining the basic problem. When determining the basic problem students are asked to explore curiosity through the formulation of relevant problems. It supports exploration or digs deep knowledge. Curiosity is especially beneficial for long-term memory (Duan, Fernández, van Dongen, & Kohn 2020; Murphy, Dehmelt, Yonelinas, Ranganath, & Gruber, 2020; Lamnina, & Chase, 2021). Curiosity is a trigger for students to be able to do the right elaboration.

Elaboration is said to be a detailed explanation and provides supporting facts (Greenstein, 2012). The elaboration aspect in this study was seen when students gave explanations regarding the selection of project activities. In this case students provide a scheme for planning project activities. From the scheme it is known that in giving reasons for choosing the project students have found supporting facts among them regarding the ingredients and benefits of shallot skin. This is in accordance with research which explains that Onion peel is effective in fighting fungi infecting plants, and as fertilizer for plants (Kurnia et al., 2022). Elaboration can be done if students have high curiosity (Ilma, Al Muhdhar, Rohman, & Sari, 2021). In addition, learning that is open minded is needed to hone student elaboration.

The lowest aspect is originality. Some students have difficulty finding original ideas to find solutions. Students need to carry out discussions and read more to be able to find innovative solutions. In this case students must find solutions in learning plant anatomy and physiology. The solution that must be found is how to deal with plants attacked by fusarium (Figure 6).

Figure 6 shows that students have been able to provide innovative ideas by making natural pesticides from liquid organic fertilizers. This is in accordance with Prieto et. al., (2013) which states that liquid organic fertilizer is effective for fertilizing plants and is a powerful natural pesticide. Apart from that, liquid organic fertilizer is also environmentally friendly (Rahmayani, Salamiah, & Pramudi, 2021). Originality is an idea that can be obtained because it has been combined, adapted, or modified to an existing solution. Some students find it difficult to think divergently, due to a lack of knowledge of a particular topic. Divergent thinking can be developed through open-ended tests or assignments (Forthmann et al., 2020). Open-ended assignments are assignments that give students the freedom to think. Giving open assignments does not only provide opportunities for students to find original ideas (Astuti, et al., 2023). But students are also able to think fluently. Fluency spurs students to look for alternative solutions that are more fluent, if the existing solutions are less effective.

Fluency in learning can be developed through students' routines in reading. Students who often read can be said to have better fluency (Landreth, & Young, 2021). In HPBL learning students are required to read the material before planning project activities. In addition, fluency can be developed through learning that involves student performance (Demir, 2015). Student fluency is seen when students provide solutions to other groups that encounter obstacles. Students fluently provide solutions to overcome failures in germination (growth and development in plants). The solution given to students is to flush with rice washing water. Rice washing water contains nutrients nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, and vitamin B1 which can fertilize plants (Rombe & Pakasi, 2020). Fluency is related to student flexibility. Flexibility in learning is related to students' conceptual knowledge (Star et al., 2022). In HPBL learning, students are trained to think about the possibilities that will occur. Predicting the possibilities that will occur and finding solutions to a problem are part of

flexibility. Student flexibility in learning activities will affect student behavior in responding to existing changes (Sathiyakumar, Carrasco, & Saad, 2020).



(a)

Water functions as the main component of protoplasm. Protoplasm is the main fluid that makes up the cell, both contained in the cytoplasm and cell vacuoles. In addition, water also functions as a solvent for mineral nutrients needed by plants. In essence, water has a vital role for plants. What happens if the roots of a plant experience decay, identify the cause, and provide a solution that contains combinations, adaptations, or modifications of several ideas to solve the problem!

Answer:

One of the causes of root rot in plants is an infection with *Fusarium solani*. This causes the opening of the vessels, chlorosis of the leaves, causing them to wither and die. The solution to this problem is to use natural pesticides. Natural pesticides can be made using onion skin soaking water. Onion skin soaking is stored for 24 hours. Then after that it can be applied to plants with a ratio of 1:5

(b)

Figure 6. (a) *Curcuma domestica* Val. drying out to *Fusarium*; (b) student's answer about *Fusarium* infected plants

HPBL learning has a significant effect on empowering problem-solving skills and creativity compared to DI learning. This is because HPBL gives freedom to students to fully contribute to learning plant anatomy and physiology. Students gave very good responses to the implementation of HPBL learning in plant anatomy and physiology courses. Factors that influence the success of HPBL in improving problem solving skills and creativity are the steps in learning. All HPBL stages play a role in facilitating problem-solving skills and creativity. In the first stage students formulate essential problems, problem solving skills that are empowered are aspects of defining and understanding the problem (Baligar, et. al., 2022) and aspects of creativity curiosity, elaboration, originality, and fluency (Karan & Brown, 2022). In the second stage of project design, the problem solving skills that are empowered are devising a plan (Baligar, et. al., 2022), and aspects of flexibility and divergent thinking creativity (Uzel & Canbazoglu, 2022). The third stage is making a project schedule empowering problem solving skills in aspects of devising a plan and aspects of fluency creativity (Hanif, et. al., 2019). The fourth stage is monitoring the project and reporting on project progress empowering problem solving skills in carrying out the plan aspects (Cotente & Galvao, 2022) and aspects of creativity, originality and fluency. The fourth stage is conducting project assessments, empowering problem solving skills in the looking back aspect, and creativity in the elaboration aspect (Keles, 2022). The fifth stage of evaluation, empowering problem solving skills in the looking back aspect, and creativity in the aspects of fluency and divergent thinking. Meanwhile, direct instructions (DI) learning has not fully empowered students' problem-solving skills and creativity, but is more effective in improving student learning outcomes

(Purwantoro & Hadromi, 2016; Sidik NH & Winata, 2016). In addition to the stages in learning, the freedom of students in choosing and designing project activities can improve problem solving skills and creativity.

The application of the HPBL learning model in learning plant anatomy and physiology gave a very good response. The percentage of student responses is 80 in the very good category. However, in practice, the obstacles encountered included students not being maximal in formulating essential problems. In this case, not all group members actively participate in identifying problems. Learning activities are still dominated by the leader in the group. To overcome this obstacle, the researcher gave assignments for each group to make as many questions as there were group members. This means that each group member must contribute at least one question. Furthermore, the questions that have been collected will be discussed again with all the considerations to determine one essential problem. Besides that, at the beginning of the HPBL learning activities, students still had difficulties in designing project activities. The effort given is to give freedom to students to find and read as many references as possible that are relevant to the topic of studying plant anatomy and physiology. Plant anatomy and physiology are part of learning science. Science learning is very focused on developing creativity. HPBL learning is able to develop creativity without putting aside aspects of knowledge in the learning process (Skjelstad Fredagsvik, 2022).

CONCLUSION

The conclusion in this study is that there is an influence of the hybrid project-based learning model on problem-solving skills and student creativity. This is indicated by problem-solving skill F count 32.690 with p-value 0,000 value $p < \alpha$ ($\alpha = 0.05$) and student creativity F count 32.690 with p-value 0,000 value $p < \alpha$ ($\alpha = 0.05$). HPBL learning is highly recommended to empower problem-solving skills and students' creativity.

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