Study of Creative Thinking Ability in Project Learning through Field Trip at Lake Tangkas Jambi

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ABSTRACT

Natural learning resources that highlight the local wealth of the region are a good means to facilitate student creativity, and one such resource is Lake Tangkas. The aim of this research is to analyze students' creative thinking abilities and identify the strengths and weaknesses of field trips to Danau Tangkas. This study is a descriptive exploratory research enriched by in-depth interviews. Data analysis is conducted quantitatively and qualitatively. The results of the research show that the criteria for very creative thinking ability are 19%, creative thinking 38%, not creative 29%, and very uncreative 14%. Furthermore, 90% of students chose ideas related to plants, while only 10% chose ideas related to animals in the Danau Tangkas area. The percentage of creative thinking indicators is as follows: novelty 75%, flexibility 55%, and proficiency 65%. In conclusion, the research indicates the potential to develop students' creative thinking abilities and emphasizes the importance of focusing on ideas related to plants in projects at Lake Tangkas, Jambi.

INTRODUCTION

Education in Indonesia is currently being aligned with the educational demands of the 21st century, known as 4C, namely critical thinking (*Critical Thinking*), Communication (*Communication*), collaborative (*Collaboration*), and and Creativity (*Creativity*) (Soleh & Arifin, 2021; Indraswati et al., 2020). As time progresses, students are faced with complex life situations, full of opportunities, challenges and uncertainty, where students need various life competencies to develop effectively, productively, with dignity and benefit themselves and their environment. As a result of this, it is necessary to add two basic abilities known as (*Citizenship and Character*) (Ananda, 2012). So it is known that the 6 abilities of the 21st

century which are currently being widely researched are the ability to think creatively (*creative thingking*).

Creative thinking is the ability of students to be able to look for opportunities/explore ideas/ideas to process all information through the ability to think metaphorically, synthesize ideas or thoughts, carry out investigations to try out ideas and thoughts in an investigation, tolerate, collaborate and innovate (Bosman, 2018) . Creativity can be taught in various ways so that students are able to optimize cognitive work on a high scale. One lesson that can be introduced so that students are able to think using their knowledge in creating ideas and ideas is by introducing them to learning resources that utilize nature presented in front of them (Oktiani, 2017). This is not an easy thing to do when students have little knowledge about a conceptual understanding of the things they see. As stated by Lin & Wu, (2016), the emergence of the ability to think must begin with stimulation by facilitating the provision of a learning environment that supports students to think. The learning environment in this research is limited to the term as a natural learning resource by highlighting local regional wealth, which is a good means to facilitate student creativity, one of which is the Lake Tangkas tourist attraction.

Lake Tangkas is one of the lakes in the village of Tanjung Advanced, Sekernan District, Muaro Jambi Regency. This lake is a tourist location that is worth visiting because of the beauty and uniqueness displayed by this lake. The origin of Lake Tangkas is also quite unique. The integration of Lake Tangkas in 21st century education should be further emphasized to maximize the natural learning potential offered by this environment. This lake can be a very creative learning source by combining various concepts and skills relevant to 21st century education. One innovative approach is to encourage students to explore lakes as real natural laboratories. Through observation, experimentation, and scientific research, students can develop critical skills such as problem solving, data analysis, and understanding of the relationship between humans and the environment. In addition, technology can be used to integrate digital elements, such as monitoring water quality with sensors and using data in decision making. All of this will create holistic educational opportunities, promote understanding of sustainability, and enable students to become caring and environmentally responsible citizens. In this way, Danau Tangkas can become a unique learning center and make a positive contribution in preparing the younger generation to face the challenges of the 21st century.

The use of natural resources, in this case the agile lake, can be introduced to students, in line with the opinion of (Wardani, 2003) which states that learning activities should prepare students to have the ability to solve problems, critically and creatively, in insightful conditions. The creativity of a student can also be seen from asking lots of questions, having lots of alternative answers, having lots of ideas/ideas for responding to something, in interacting students will work more and do more things than their friends. Students who are fluent in creative thinking also tend to be able to identify mistakes and*deficiency* on an object quickly. In order to bring up creative thinking,*faithful trip* Going to tourist attractions can certainly broaden students' knowledge and experience (Miller, 2015;Hasyim, 2019). One indicator of creative thinking is the ability to express an interesting idea or idea about an object to be used

as a research work that can be appointed related to the taxonomy course of Monera and Protista (Rasnawati et al., (2019).

Problems related to the absence of learning that directs the animal and plant ecosystems in Lake Tangkas with the application of project learning are an obstacle in providing valuable and relevant educational experiences for students. A lack of focus on ecosystems and plants in the local environment in educational curricula can result in several negative impacts. Firstly, it can reduce students' understanding of the local environment and the importance of preserving it. Second, students may miss the opportunity to develop practical skills and in-depth understanding of the ecosystem and plants that exist in Lake Tangkas. Third, it can also hinder students' creativity and problem solving, as ecosystem-focused project learning can motivate them to identify problems and seek innovative solutions. Therefore, there needs to be a change in the educational approach to integrate project learning centered on the ecosystem at Lake Tangkas, so that students can be actively involved in preserving their environment and exploiting wider learning potential.

Following up on these problems, it is necessary to make improvements in the form of implementing learning models that can improve students' creative thinking abilities. Learning model*Project Based Learning* (PjBL) is a learning approach that uses real world problems as a context for students to learn about creative thinking and problem solving skills in creating projects, as well as to gain essential knowledge and concepts from the subject matter (Nafiah, 2014). Learning model*Project Based Learning* which is developed in accordance with local wealth and utilizing local wealth content can help students by applying it to real learning (Budiarti & Harlis, 2020).

Applying the Project Based Learning (PjBL) Approach in the context of Lake Tangkas, PjBL will enable students to be actively involved in planning, implementing, and evaluating projects that focus on the sustainability and conservation of the lake. Students can choose a variety of research topics, such as water quality monitoring, biodiversity, or environmental changes affecting lake ecosystems. They will work in teams, identify problems, formulate research questions, and plan a Field Trip to Lake Tangkas to collect relevant field data. During the Field Trip, they will observe, measure and analyze the lake environment directly. The results of this project will then be presented to fellow students and the school community, developing their speaking and creative thinking skills while increasing their understanding of the importance of environmental conservation. With PjBL, students will engage in active and in-depth learning, while developing creative thinking skills in the context of sustainability and nature conservation.

Learning model*Project Based Learning* (PjBL) is also often called project-based learning. PjBL learning is a model of an innovative learning approach that involves project work and requires students to design, solve problems, make decisions, carry out investigative activities, and provide opportunities for students to work independently (Putra & Basuki, 2018). Furthermore, according to (Sitaresmi et al., 2017) also revealed that project-based learning is a learning model that provides educators the opportunity to manage learning in the classroom by involving project work. Advantages of learning models*Project Based Learning* provide direct experience related to what is being studied (Sasmono, 2018). The main purpose of the

model*Project Based Learning* namely developing and improving students' abilities, both technical and non-technical, as well as facilitating students to carry out real practice related to the material being taught (Rifai et al., 2019).

The objectives of this research are (1) Analyzing students' creative thinking abilities regarding real-world learning resources*Field trip* to Lake Tangkas Jambi (2). Investigating the creation of research proposals that highlight local wealth in the Lake Tangkas tourist center, Jambi. (3) Knowing the advantages and disadvantages of field visits to Lake Tangkas as a contextual learning resource. The research was carried out with a field visit to the Lake Tangkas tourist attraction in Jambi by 21 students who contracted the Monera and Protista taxonomy course and were guided by 2 teaching assistants. Therefore, it is important to carry out research that examines creative thinking skills in project-based learning through*"Field Trip"* at Lake Tangkas Jambi

METHOD

This research uses qualitative and quantitative descriptive research with a case study design. This research was conducted at the Biology Education Study Program, FKIP, Jambi University. This research was conducted for 2 months (November-December). The subjects of this research were 4th semester students who were interested in the taxonomy course of monera and protists, totaling 21 obtained by total sampling. The data collection instrument used was open questions. Indicators of Creative Thinking are as follows:

Table 1 Indicators of Creative Thinking

Characteristics of Creative Thinking Ability	Indicators of Creative Thinking Ability
Novelty	Students are able to present original solutions that are different but have the correct value or are able to show an answer that is not usually done by students at their level of knowledge in solving problems.
Flexibility	Students are able to solve problems using various methods or methods.
Fluency	Students are able to show many/various answers in solving problems.

The data collection technique in this research used a closed questionnaire. Descriptive statistics can be used to describe the object being studied through sample or population data as it is. These descriptive statistics do not carry out analysis and make conclusions that apply to the general public (Rahmiza & Adlim, 2015). Descriptive statistics is a method used to summarize, organize and describe data statistically so that it is easier to understand. One of the data analysis techniques in descriptive statistics is the use of percentages. The use of percentages in data analysis is a way to measure how large or small a particular part of the data is in comparison to the total data or a particular subgroup. This is useful for providing a clearer picture of the data distribution and making the data easier to understand for people who do not have a deep background in statistics.

RESULTS AND DISCUSSION

This research is motivated by the need for changes in learning in higher education units in Indonesia that are capable of producing skilled human resources to face the challenges of progress in the 21st century era. The use of fun learning without reducing scientific knowledge can even optimize the wealth of regional natural resources, as a means of meaningful contextual learning resources. needs to be considered. Lake Tangkas is a natural lake in Jambi province whose use has not been optimized and can be recommended as a learning resource to improve creative thinking skills.

Based on questions and questionnaires by students, answers were obtained regarding the Study of Creative Thinking Ability in Project Based Learning *"Field Trip"* At Lake Tangkas Jambi in table 2.

Table 2. Results of questionnaires by students

No	Statement	Criteria	Percentage
1	Do you know about Lake Tangkas?	Of	100%
		No	0%
2	Have you ever been to Lake Tangkas?	Not yet	77%
		Once	23%
3	How do you know about Lake Tangkas?	Social media	77%
		Friend	23%
4	Write down your thoughts or ideas related to Lake Tangkas and research themes related to Lake Tangkas	4 He's going	19%
		3 He's going	38%
		2 He's going	29%
		1 He's going	14%

Based on table 1 in question 1, it shows that 100% of students know Lake Tangkas Jambi as a tourist attraction. Furthermore, question 2 shows that 77% of students have never been to Lake Tangkas and 23% of students have been to Lake Tangkas. Furthermore, question 3 showed that 77% of students knew about Danau Tangkas from social media and 23% heard about it from peers or relatives. Furthermore, question 4 shows that those who answered more than four ideas were 19%, three ideas 38%, two ideas 29% and 1 idea 14%, this shows the level of students' creative thinking abilities with the criteria that if students answered four or more ideas it could be said very creative, students who answer three ideas are said to be creative, answer two ideas are said to be not creative and answer one idea are said to be very uncreative.

Based on the answer to question 4, several qualifications can be divided into educational and non-educational ideas, after which they can be further qualified into ideas related to plants and animals. After that, look at the percentage level.

Table 3. Percentage of Educational and Non-Educational Ideas

Qualification	Percentage
Education	19%
Non-Educational	81%

Based on table 3. Students prefer non-education related ideas that focus on exploration, research and utilization of resources in the Danau Tangkas area. These ideas cover various aspects, such as the diversity of plants, organisms, microalgae, environmental ecosystems, and the use of plants around Lake Tangkas. Specifically, these ideas lead to efforts to better understand the ecosystem and biodiversity in the lake, conduct research on the organisms and microalgae that exist, and develop the potential for utilizing plants that grow around Lake Tangkas for various purposes, including perhaps for scientific purposes. industry, or even ecological tourism. By focusing on these ideas, students have the opportunity to make valuable contributions in preserving the environment, promoting scientific knowledge, and creating greater potential benefits for the community around Lake Tangkas. Furthermore, regarding educational ideas, it is estimated that 19% of students chose ideas that existed in the Danau Tangkas area. These ideas lead to the development of learning media in the form of videos, comics, books and practical learning guides. The learning media is linked to the diversity that exists in Lake Tangkas.

Table 4. Percentage of Plant and Animal Ideas

Qualification	Percentage
Plants	90%
Animal	10%

Based on table 4, 90% of students chose ideas related to plants. The idea in question is related to ideas/ideas that exist in the Danau Tangkas area. These ideas focus more on the diversity of plants, plants and the use of plants around Lake Tangkas. Furthermore, regarding the idea of animals, it is estimated that 10% of students chose ideas from the Lake Tangkas area. These ideas lead to the animals around Lake Tangkas. For example butterflies, fish and other animals.

Furthermore, based on the questionnaire distributed, there are indicators of creative thinking so that the percentage can be calculated by looking at the respondents' answers. From the respondents' answers to each indicator of creative thinking, the percentage can be seen in the following table:

Table 5. Percentage of Creative Thinking Indicators

Characteristics of Creative Thinking Ability	Indicators of Creative Thinking Ability	Percentage (%)
Novelty	Students are able to present original solutions that are different but have the correct value or are able to show an answer that is not usually done by students at their level of knowledge in solving problems.	75%
Flexibility	Students are able to solve problems using various methods or methods.	55%

Fluency	Students are able to show many/various answers in solving problems.	65%

Achieving creative thinking indicators develops the knowledge that students already have according to good criteria, showing that educators' knowledge has been successfully developed by analyzing and interpreting solutions based on mathematical data calculations (Rufaida & Mubarokah, 2019). Likewise, achieving creative thinking indicators arouses curiosity and desire to know which are in good criteria. Students' curiosity and desire to know are successfully aroused by connecting information/processes in real life with information obtained from school. Analysis through student answers to this indicator showed that students were focused on connecting information/processes in real life.

The ability to think creatively is the ability to generate new ideas or ways of producing a product. In general, creative thinking is triggered by challenging problems (Syahrir, 2016). Creative ability can be understood as a form of cognitive ability that underlies the ability to operate on routine symbolic representations that allow new symbols to be constructed. More specifically, students' creative thinking abilities in question are mathematical creative thinking abilities (Susilawati et al., 2020). Therefore, creativity in mathematics is more accurately termed as mathematical creative thinking. However, the terms creativity in mathematics or mathematical creative thinking are seen to have the same meaning, so they can be used interchangeably.

One learning model that invites students to think creatively, to take part in work performance and experience directly what they are doing is *Project-Based Learning* (PjBL), because this model is a model that organizes learning through certain projects (Ilham, 2018). The term project-based learning is a learning term translated from English *Project-Based Learning* (PjBL). According to Hutasuhut, (2010) stated that PjBL is a learning model that involves students in problem solving activities and gives students the opportunity to work autonomously to construct their own learning, and ultimately produces student work products of realistic value. PjBL is also a learning model that provides teachers with the opportunity to manage classroom learning involving project work.

This solution is supported by research conducted by Sumarni et al., (2019) showing that the results of the analysis show that students' cognitive abilities reach good criteria, with the highest achievement in the indicators of understanding concepts and creative thinking abilities. Students reach good criteria with the highest achievement in the ability indicators. view information from different points of view. Similar research was also written by Aminullah, (2017) regarding project-based learning to improve creative thinking abilities which is proven to improve students' creative thinking abilities because in the project-based learning method students are trained through challenging problems and questions in the form of projects to produce or discover something new.

CONCLUSIONS AND SUGGESTIONS
Conclusion

Based on the results of research and data analysis, it can be concluded that there is a need to change the learning approach in higher education institutions in Indonesia so that they can produce skilled Human Resources (HR) who are ready to face the challenges of the 21st century era. The research results also revealed that students have the ability to think creatively with the highest percentage of novelty indicators (75%), which shows that they are able to produce new and unconventional solutions in solving problems. The flexibility indicator (55%) indicates the ability to solve problems using various methods, while the fitness indicator (65%) indicates that students are able to provide various answers in solving problems. Based on these findings, it can be concluded that the use of a project-based learning (PjBL) approach that encourages creativity and exploration at Lake Tangkas could be an effective solution for improving students' creative thinking abilities, while utilizing the natural potential of the area. This can help produce human resources who are ready to face challenges and make a positive contribution to preserving the environment around Lake Tangkas, Jambi.

Suggestion

Based on the research that has been conducted, the researcher proposes several suggestions as follows, (a) training aspects of creativity through literacy and project-based learning, (b) implementing learning models project based learning can be a variation of learning models that can be applied by lecturers to different taxonomic concepts of monera and protista.

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BRIEF PROFILE

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