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### The Effectiveness of Outdoor Education on Student Creativity

Yogi Akin<sup>1\*</sup>, Ryan Abu Bakar<sup>2</sup>

<sup>1,2</sup> Universitas Pendidikan Indonesia, Jl. DR. Setiabudi No.229, Isola, West Java Province, 40154, Indonesia Indonesia

\*e-mail: [yogi.1498@upi.edu](mailto:yogi.1498@upi.edu)

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#### Abstract

This study aims to determine the effect of outdoor education activities on student creativity. The method used in this study is an experimental method with a static group comparison design. The sample in this study were PGSD Physical Education students using a purposive sampling technique, totaling 40 students, namely 20 students who did outdoor education activities and 20 students who did not do outdoor education activities. The research instrument was a creativity questionnaire which was analyzed with the statistical technique of the Two-Average Equivalence Test with the treatment of outdoor education activities given six days in 2 weeks. Based on the data analysis, the hypothesis is accepted, meaning that outdoor education activities significantly affect student creativity. This study concludes that outdoor education activities have a significant positive impact on student creativity. Outdoor education activities can be a good alternative in learning to increase creativity and other cognitive components.

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✉ Alamat korespondensi: Jl Mayor Abdurahman 211 Sumedang Jawa Barat

E-mail: [yogi.1498@upi.edu](mailto:yogi.1498@upi.edu)

## INTRODUCTION

The increase in human resources in the current era of globalization shows how important creativity is to be optimally managed and developed. Jimenez-Jimenez & Sanz-Valle, (2013) state that human resources (HR) development increasingly depends on creativity, skills, and self-motivation. As the creativity of human resources develops, the faster the progress of a country. So that with the high creativity of human resources, a country will have many innovations resulting from the creativity of its population (Hasmin & Nurung, 2017). Innovations can be developed through educational institutions, namely universities, by supporting the advancement of the quality of education, namely by guiding and fostering students into human resources who have creativity and innovation with high value for the progress of a nation. Creativity and innovation are closely related and overlapping concepts but are arable (Joo et al., 2013). Students need to develop creativity, both thinking creativity and learning creativity. So far, there are still a lot of obstacles and weaknesses that limit the growth and development of student creativity. The condition of creativity that is still not optimal occurs among PGSD Physical Education students; one example of not maximizing learning creativity is obtained from observations, namely, many students play with gadgets before the lecturer comes, when the lecture hours are empty, students immediately go home not looking for material or reading existing textbooks and most

students do not repeat the material that the lecturer has explained. To make meaningful knowledge constructions, lecturers must educate students to think creatively in analyzing and solving problems. The opinion of Crompton & Patston (2019) states that creative action is an example of learning and that a comprehensive theory of learning must take into account creative insights and activities. Creative behavior and products are usually defined in the form of originality and adaptivity, it all means that the process generates original and adaptive ideas and also results in deep solutions and insights; this is an indication of the creative process of expressing ideas, solutions, and insights in the creative thought process as a product of cognition (Lee & Therriault, 2013).

Physical Education PGSD students, as prospective educators or teachers, must have high creativity skills to overcome the problem of limited facilities and infrastructure and choose the right learning strategy or model so that the teaching and learning process can run as it should. A teacher has the role of a teacher and mentor so students can achieve learning goals. Not infrequently, a teacher also has to act as a second parent for students in school (Keiler, 2018). Moustafa et al. (2013) stated that the role of the teacher is to encourage and accept student autonomy and create a comfortable atmosphere for students to solve a problem. One of the methods of developing thinking power, reasoning, impulse, and imagination in solving a student problem is to be given the freedom to develop the results of imagination into the real world with scientific-

based directions. However, this only sometimes gets results but must go through several stages; for example, we review the supporting components in the development of student creativity (Setyaningrum, 2020). These components include adequate and modern scientific information, the quality of mentors who have an ethos of scientific progress and modern studies, and freedom of space in the learning or teaching process. If all these components are met, the development of the quality of human resources, especially students, will provide good and creative quality (Muzaini et al., 2021).

Creative thinking is the ability to think to produce original and useful responses. Redifer et al. (2021) stated that the creative abilities already possessed and the feedback obtained while carrying out creative-thinking tasks can affect the perceived cognitive load and creative thinking performance. Creativity is very important because more is needed to hold creativity training or problem-solving sessions once to allow creativity to develop in schools (Karwowski et al., 2022). Enriching the mastery of basic knowledge is very important because it allows students to create new concepts and solve several problems. To develop creative skills in students with low abilities, it is recommended that creativity training programs be implemented; according to Byrge & Tang (2015), the use of attention techniques as a useful and effective strategy to increase creativity, such techniques will improve performance in creativity. Creativity ability can also be influenced by gender, socioeconomic status, and participation in

extracurricular activities (Castillo-Vergara et al., 2018). Furthermore, Davies et al. (2013) determine that the main characteristics of the school environment that increase creativity are a good physical environment, the availability of diverse materials, the use of outdoor environments, the use of game methods, and the use of flexible time.

Looking at the expert opinion before it, the supporting component in increasing student creativity is not limited to learning space. Then, the method or model that is suitable for the learning process in open spaces is the *outdoor education* model. *Outdoor education* learning or outdoor direct learning models inspire the implementation of outdoor learning and can provide a different experience than indoors (Yıldırım & Akamca, 2017). This model is presented in different forms of games that can relatively contribute to the three domains of education (cognitive, affective, and psychomotor). The *outdoor education* activity model can make the participants' space in a new physical and social environment. Participants are given one challenge to solve problems requiring them to adapt to a new emotional state that will give the experience meaning (Harun & Salamuddin, 2014). The studies that have been carried out explain that *outdoor education* activities in the teaching of subjects can increase the success rate of students and positively influence the level of remembering their knowledge (Avci & Gümüş, 2020). Shellman & Hill (2017) revealed that there are statistically significant advantages of *outdoor education* activities on the

psychological resilience and well-being of students' overall mental health that are significantly improved. Students need the right coaching to develop their potential and abilities optimally. Ultimately, these abilities are hoped to be useful for themselves, their families, and the wider community. *Outdoor education* activities can shape a person's life skills to reflect on the benefits of *these outdoor education* activities in daily life (Akin et al., 2020). Creativity is one of the components of life skills that must be possessed to live in today's global era. According to Yıldırım & Akamca (2017), *outdoor education* learning programs aim to generate positive changes in participants by stimulating participants to engage in adventure activities to encourage identity discovery and character building. Changes can include self-esteem, social attitudes, leadership, problem-solving skills, team cohesion, and behavior (Gardner & Pierce, 2016).

In this study, the *outdoor education* program provided was challenging in the form of a simulation of an initiative *problem-solving* game or simulation to foster the initiative and creativity of a person or in groups by being given challenges and problems in the game. This simulation activity has clear and measurable objectives, rules, and success rates for completing the game. This *outdoor education* learning program is expected to produce students who have creativity and innovation so that they can face

the challenges of the times and teach them to their students later after becoming teachers.

## METHODS

This research method uses experimental research methods and research designs using *static group comparison* designs (Fraenkel et al., 2012).

Participants in this study were students majoring in Elementary School Teacher Education (PGSD) Physical Education at the UPI Sumedang Campus.

The sampling in this study used *purposive sampling* techniques from a population of 84 students and 40 students who were sampled. The number of samples was divided into 2 groups, 20 students as an experimental group determined based on certain considerations, namely 5th-semester students who had carried out outdoor education activities six times, limited time, energy, and costs, and 20 students as a control group who had never participated in *outdoor education* activities is as an external comparison group of the sample under study.

To measure the level of student creativity in this study using, a research instrument in the form of a creativity questionnaire was adopted (Heryana, 2008) with a validity value of 4.25 and a reliability value of 0.92.

Table 1. Components of Creativity Questionnaire Instruments

Component	Sub Components
<b>Creativeness</b>	1. Sensitive to the Environment
	2. Initiative
	3. Have Self-Strength
	4. Have the Power of Intellectuality
	5. Attitudes That Accentuate Freedom
	6. Have a talent for creativity.

In this study, 20 students were treated with outdoor education activities (outbound games). As many as six types of initiative problem-solving games (in the table below) were carried out as much as three days in 1 week on weekends and carried out for two

consecutive weeks. Meanwhile, the control group of 20 students was not given the treatment of outdoor education activities (outbound games) but only carried out daily activities.

Table 2. Outbound Game Program (Outdoor Education)

Meeting	Outbound Games (Outdoor Education)
1	Acid River
2	Water Rescue
3	Treasure Hunt
4	Traffic Jam
5	Roller Coaster
6	Spider Web

The data generated from this study were analyzed using experimental research techniques to test whether there was a positive influence of *outdoor education* activities on student creativity for data analysis processing using a t-test parametric statistical approach with a statistical method of testing the similarity of two averages (one-party t-test) as

a calculation to determine the presence of influence.

## FINDINGS AND DISCUSSION

### Findings

From the results of filling out the creativity questionnaire (*post-test*) by students

from the experimental group and control group, the following data were obtained:

Table 3. Creativity Test Results Data

Group Given Model <i>Outdoor Education</i>	Group Not Given Model <i>Outdoor Education (Control)</i>
$\sum = 3408$	$\sum = 3283$
$\bar{X} = 170,4$	$\bar{X} = 164,15$
S = 11,49	S = 11,02

The table above shows that the score obtained in the *post-test* experimental group that carried out *outdoor education* activities was  $\sum = 3408$ , with an average =  $\bar{X} 170.4$ . Meanwhile, the *post-test* scores of the control group that did not do *outdoor education* were  $\sum = 3283$  with an average =  $\bar{X} 164.15$ . From the data above, it can be concluded that the number of scores from the results of the questionnaire test calculation (*post-test*) that

has been given shows that the group that carries out outdoor education activities has a higher creativity score than the group that does not carry out *outdoor education* activities.

Furthermore, a normality test was carried out with the Lilliefors test. The goal is to find out the degree of normality of the data obtained, as well as to determine the next step. As for the normality test results, the following data were obtained in Table 4 and Table 5:

Table 4. Normality Test Results in Data With *Lilliefors* Samples Conducting *Outdoor Education Activities*

$\sum$	$\bar{X}$	S	Lo	L-tabel	Conclusion
3408	170,4	11,49	0,095	0,190	Normal

L The table at the real rate of 0.05 with n = 20 is  $L\alpha 0.190$  and  $Lo 0.095$ . Thus  $Lo < L\alpha$ , the hypothesis is accepted. From the results of the *Lilliefors* normality test, it can be

concluded that the data obtained are in the normal distribution level.

Table 5. Data on Normality Test Results with *Sample Lilliefors* Who Did Not Carry Out *Outdoor Education Activities (Control)*

$\sum$	$\bar{X}$	S	Lo	L-tabel	Conclusion
3283	164,15	11,02	0,103	0,190	Normal

L The table at the fundamental level of 0.05 with  $n = 20$  is  $L\alpha$  0.190 and  $Lo$  0.103. Thus  $Lo < L\alpha$ , the hypothesis is accepted. From the results of the Lilliefors normality test, it can be concluded that the data obtained are in the normal distribution level.

The next step after calculating the normality test is to test the homogeneity of the data, whose importance is, in addition to knowing the homogeneity of the data, also a step to determine the statistical formula that will be used to process the data. The statistical

formula used to determine homogeneity is a tested formula for the similarity of two variances. From the test, it can be seen that the data from the two variables that the author studied are homogeneous or not, which in this study is created between students who do outdoor education activities and those who do not do *outdoor education* activities.

The results of the homogeneity test calculations carried out are as follows in table 6:

**Table 6. Variance Homogeneity Test Results**

F-Hitung	F-Tabel	Conclusion
0,053	0,05	Homogen

The test was performed with a degree of confidence ( $= 0.05$ )  $\alpha$  Hypothesis was accepted if the F value counts  $> F$  table ( $((n_1-1, n_2-1)$  where F table is obtained from the distribution table F with ( $= 0.05$ ) and et al. ( $= (n_1/2 - 1, n_2/2 - 1)$ ). Based on the variance homogeneity test results table, a calculated F value of 0.053 and an F value of 0.050 is obtained. This means that the hypothesis is accepted and the variance of the two variables is the same or homogeneous. Thus it can be

concluded that the data are normal and homogeneous. Furthermore, the data can be processed using a parametric statistical approach.

The statistical approach used to process data is expected to be concluded from the research results; the author uses a statistical method with a two-average similarity test (one-party t-test) in Table 7:

Table 7. Results of the Analysis of the Two-Average Similarity Test (One-Party Test) Creativity of Outdoor Education and Non-Outdoor *Education* Groups

t – Hitung	t – Tabel ( $\alpha$ 0,05)	Conclusion
2,97	1,743	Accepted

The hypothesis is accepted if the value of  $t_{count} > t_{table}$  were obtained t table distribution t with ( $\alpha$  0.05) and et al.  $n_1 + n_2$

– 2. Based on the calculation above,  $t_{count} = 2.97$ , and the table t value = 1.74 means that the hypothesis is accepted, which means that

outdoor education has a significant positive influence on student creativity.

### Discussion

Based on the research results, findings were obtained that outdoor activities (outbound games) effectively increase students' creative abilities through *experiential theories*, which state that outdoor *education* can be learning based on outdoor experiences. The interesting thing about learning is that it can only happen with experience (Morris, 2020). The results prove that students who do outdoor education have a higher creativity test questionnaire score compared to students who do not do *outdoor education*. After analysis with statistical calculations, it has a significant positive impact. Creativity will be present when a person is in a new situation. A person is forced to adapt to his work and social environments when in a new situation. The experience of learning through *outdoor education* provides a new challenge to conquer itself through a challenge that it can pass (Yıldırım & Akamca, 2017).

Likewise, when a student can complete a challenge in the game even though the chances of success are small, it can be material for reflection in the educational environment and his life. Reflection on learning through *outdoor education* is the main factor in digesting every challenge given to learning that he experienced directly (Chan, 2012). This means that the outdoor education learning provided is the result of reflecting on the meaning of a game that is applied in life so that *outdoor education* activities can affect the level of student

creativity. Good outdoor education activities are activities that are arranged and planned (*instructional structure*) that are structured for time and place, activities to be carried out, goals to be achieved, to reflections that must be applied so that the *outdoor education* program provided can achieve the right goals and objectives (Lien & Hakim, 2013). Therefore, *outdoor education* activities (*outbound games*) that are carried out should be specially compiled and planned to achieve the purpose of the activity, namely training student creativity. The games and challenges in *outdoor education* activities are simulations of real challenges made simple and packaged in the form of interesting games and rich in problems aimed at personal and groups. In these situations, people will find it easier to understand the meaning contained in them than with complicated problems. This corresponds to the results of other research conducted by (Mackenzie et al., 2018; Roberts, 2021) affirms that outdoor adventure programs generate positive changes in attendees by exposing them to adventure activities designed to encourage discovery and character building. Her research has focused on the impact of rehabilitative adventure therapy programs and adventure and environmental education programs on 149 female learners aged 13-16 years from a group. According to Bowen & Neill (2016), the Catalyst program's outdoor adventure interventions improved life effectiveness, psychological well-being, and short, medium, and long-term behavioral aspects. There is no long-term positive impact on psychological distress and some aspects of



behavior. *Outdoor education* activities can also positively impact the surrounding environment because it supports the sustainability of the environment itself (Abu Bakar et al., 2022).

The results of the studies stated above are very relevant and support the author's research, so the opinions of these studies can be used as strong support for the results of the author's research. These studies illustrate that *outdoor education* has an important influence on the goals achieved if the program is well organized and planned. In addition, various other factors that can support success must also be considered. In this study, the author realizes that there are still many things that could be improved and need improvement. One of the shortcomings that can be corrected in the future is comparing samples of *outdoor education* activities for lower levels of education, such as SD, SMP, and SMA school levels, to foster creativity from the beginning and reduce juvenile delinquency in school students.

## CONCLUSION

Based on the results of processing and analyzing the data that has been described, conclusions can be formulated from the results of the research, namely: outdoor education activities' significant positive influence on student creativity in the teaching and learning process. This means that groups of students who have carried out outdoor education activities have better creativity compared to students who do not do outdoor education activities, so *outdoor education* activities can be a good choice in learning to increase student

creativity. This research has limited release which, is still narrow because it is only limited to the student environment. However, this research is expected to be a material and reference for further research.

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