IMPROVING THE CREATIVITY OF STUDENTS THROUGH PROJECT BASED LEARNING

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Introduction

Information and communication technology evolving so rapidly and has pervaded various sectors including education. This development can be a solution to problems faced in the era of the industrial revolution 4.0. For example, abstract learning can be explained by visual media, namely computer-assisted media such as geometry material about the concept of two lines that are not parallel in a shape .

Learning that takes place during a pandemic Covid-19 requires learning using information and communication technology as a medium for learning must be of the house in accordance with the letter of the circular of the Minister of Education and Culture number 36 962 / MPK.A / HK / 2020 and circulars North Sulawesi number 410 / 20.6963 / SEKR. The development of information and communication technology is a solution to convey learning messages by teachers to all students who learn from home. However, in reality, in the field the solutions presented are not yet a solution for most teachers due to limited capabilities and knowledge of the use of these technologies. Most of the learning in the network at some public schools that were observed occurred only in the form of assignment through, and also virtual meetings that occur only in the form of checking the presence of learners and reading material and ask students to take notes, as well as delivery media photos of students (Sumilat, 2020) .

This phenomenon that occurs presents the idea of utilizing project-based learning methods in learning during the Covid-19 pandemic both in elementary schools and in universities to become a tool to increase the creativity of students. The project-based learning method is a learning method that connects the experience of students with learning in school to provoke serious thoughts from students during the learning process or when acquiring knowledge through the learning process (Efstratia, 2014) .

The contribution of project-based learning in the development of general competencies and fields of study has been widely recognized , such as the results of research from (Ergül & Kargin, 2014) which state that project-based learning methods make a greater contribution to student success when compared to teaching carried out in accordance with current program develop student competencies as teacher candidates through project activities necessary strategies and learning methods based on the project as a means of most essential for self-education (Lasauskiene & Rauduvaite, 2015) . Project-based learning methods are able to provide benefits to student activities and opportunities to solve interdisciplinary problems (Holubova, 2008) .

In low-grade mathematics learning subjects in PGSD Study Program, students are required to be able to design, design and demonstrate learning and evaluate it. However, during the Covid-19 pandemic, there were obstacles to teaching students, therefore researchers took a solution, namely using project-based learning for these courses.

Discussion

The steps for the project-based learning method applied are 1) Preparing the work or project assignment plan, 2) Preparing reading sources, 3) the process of searching for literature on subject matter and techniques for packaging the learning process, 4) Realizing project work, 5) Reporting each group , 6 Presentations, 7) Discussion, 8) Conclusion (Holubova, 2008) . The implementation of Steps three and four requires monitoring from educators to ensure their creativity appears and even increases so that the results of the project work carried out are successful. This is also as stated by Blumenfeld, et al., Which states that educators have an important role to play in helping students in this process by forming opportunities to learn, guiding students' thinking and helping them build new understandings and knowledge. In addition, technology can also make a substantial contribution to supporting the success of educators in applying this project-based learning method to achieve learning goals by making information more physically and intellectually accessible so that it helps students build their knowledge (Blumenfeld, et al., 2011) .

Project success or performance will provide experiences that can make students construct their knowledge, and with project-based learning methods stimulate students to unleash their creativity so as to produce optimal project results or performance. This is very visible in the process of making learning media used to deliver material on learning in elementary schools in low classes which is the target of low grade mathematics learning subjects. The implication of applying project-

based learning methods is that it provides opportunities for students to develop their life skills and also prepares them for success (Meyer, 2015) .

Various media assisted learning computer generated from the project work on the study shows that there are diverse projects that make students experiencing direct and construct an understanding of utilizing a n information technology and communication in the world of education presented as a solution to various problems that emerged especially during the Covid-19 pandemic. It also allows students to solve problems and develop their life skills as primary school teachers. It also stated et al., 2018) methods based project can be used in the learning process as an effort to improve student learning outcomes and creativity as well as educate prospective teachers become educators reliable . Qureshi also show that the application of project-based learning methods has a greater influence on responsibility, problem solving, self-direction, communication and creativity, and enables students to develop their life skills (Wurdinger & Qureshi, 2015) .

In applying the project work results of low grade mathematics learning subjects in elementary schools, it shows that projects designed for students to find the formula for the area of a flat shape and the formula for the volume of space make students' creativity emerge. This can be seen in the various videos that students make when explaining how to find the formula for area and volume of shapes, it is varied and interesting. The results of this study indicate that learning with project-based learning methods is able to foster creativity. The creativity of students is very important to be developed or improved because it is proven to have a big contribution to the success of these students. The results of the study (Wurdinger & Rudolph, 2009) show that 94% of creativity is part of life skills that can be developed through the application of project-based learning methods through opportunities given to students to practice academic skills in project assignments given to them. The same thing was conveyed (Tamim & Grant, 2013) which states that project-based learning methods are able to differentiate between individual students and enrich their creativity that supports and facilitates and enhances the learning process.

Conclusion

The preliminary description and discussion above explains that the application of project-based learning methods can improve or foster creativity which is part of life skills that facilitate students in finding understanding and constructing knowledge through the learning process they experience. The role of the teacher or educator in implementing project-based learning methods also greatly determines the outcome of project work. Technology can also be a means of supporting the success of the teacher or educator's task in achieving learning goals and the objectives of implementing project-based learning methods.

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