Implementation of STEAM Learning Strategies in Kindergarten

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ABSTRACT

STEAM Learning (Science, Technology, Engineering, Arts, and Mathematics) is a learning that stresses children's creativity for think critically and solve problems. STEAM learning already exists from several years ago, but has not been widely implemented in kindergartens. The minimal implementation of STEAM in Indonesian kindergartens. This is the reason researchers are interested in conducting implementation research STEAM at Nurul Qur'an Stabat Kindergarten. The aim of this research is to (1) know the plans made by teachers in STEAM learning in Nurul Qur'an Stabat Kindergarten, (2) knows the implementation of learning activities STEAM at Nurul Qur'an Stabat Kindergarten, (3) knowing the results of STEAM learning at Nurul Qur'an Stabat Kindergarten. This research uses qualitative research with a phenomenological type. researcher as the instrument of this research, using interview and study data collection techniques documentation. Data analysis was carried out using the Miles and Huberman method, namely by reducing data, analyzing data and drawing conclusions. Result of This research shows that: (1) learning planning has been done planned as best as possible taking into account the characteristics of the child students, determine learning objectives and determine the place, time and materials used. (2) the learning is carried out well using a central learning model and appropriate implementation methods with STEAM learning, namely projects, performance and demonstrations. (3) results from STEAM learning shows good results, this is obtained based on the greater advantages of STEAM learning the drawback.

Keywords: Teacher Strategies, STEAM Learning, Early Childhood

1. INTRODUCTION

Early childhood is a group of children who are in a unique process of growth and development. They have specific growth and development patterns according to their level of growth and development. Mansur (Munisa at al., 2024). Children are seen as individuals who are just starting to know the world, they do not yet know manners, manners, rules, norms, ethics and various things about the world,

they are also learning to communicate with other people and learn to understand other people, children need to be guided to understand the world and also its contents. According to Glen & Dolman, experts in child development, state that the most rapid development of human brain growth occurs at the age of 0-7 years. (Nofianti, 2021). Emerson & Souza argue that "children are strategic successors to the goals of national struggle", meaning that they have the skills and characteristics necessary to ensure the continued existence of a country. (Utami et al, 2023).

Early childhood education is implied in Law no. 20 of 2003 states that early childhood starts from birth or ages zero to six years by providing stimulation from teachers in the form of education to help children's growth and development so that children in subsequent education have optimal readiness. (Rozana & pillows, 2020). The implementation of early childhood education experiences many problems in the learning process such as low teacher innovation and creativity, inadequate learning media, so that the learning process does not stimulate children to develop creativity and higher level thinking.

As mentioned previously, education plays a very important role in human life, where education is a medium for developing all the human potential that exists within a person. In the process itself, a person's ability and freedom to develop their potential is absolutely necessary, because with the freedom they have, that person will always have a new experience in their life. (R Widya, 2021).

It is known from the results of the initial study conducted at the Nurul Qur'an Stabat Kindergarten in increasing creativity that appropriate teaching strategies were not used. Because so far the school has not implemented the STEAM learning method to increase the creativity of children aged 5-6 years. In increasing children's creativity, the school only carries out activities in class, such as coloring, writing, folding, and just free play such as swings and slides, so that children's creativity has not increased as expected.

Based on several of these problems, the author proposes a suitable learning method to increase children's creativity. The method the author uses is the STEAM learning method. STEAM learning, which stands for Science, Technology, Engineering, Art, and Mathematics, is a concept that is very appropriate to the needs of today's developments. The STEAM learning approach is a means for students to create ideas based on science and technology through thinking and exploring activities to solve problems based on five integrated scientific disciplines. (Nurhikmayati, 2019). This approach provides children with the opportunity to explore science and mathematics in a more personal context, which is accompanied by children developing critical thinking skills that can be applied to everyday life, both work and academics (Munawar et al., 2019).

The importance of the teacher's role in making STEAM learning a success makes researchers want to know what strategies teachers use in implementing STEAM learning in schools. However, learning in the Stabat area is still rarely used because there is no reference that can be used to implement STEAM learning. This is different from other areas such as the Medan City area which has implemented STEAM several years ago.

Based on this, researchers were moved to conduct research on the strategies used by PAUD teachers in implementing STEAM learning in Stabat Qur'an Kindergarten. The aim of this research is to find out teachers' strategies in implementing STEAM learning at Nurul Qur'an Stabat Kindergarten, which includes learning designs, learning activities, and the results of STEAM learning. Then this research was entitled "Early Childhood Education Teacher Strategies in Implementing STEAM (Science, Technology, Engineering, Art, and Mathematics) Learning at Nurul Quran Stabat Kindergarten".

2. METHODS

This research uses a qualitative approach with the type of qualitative phenomenological research. Research is carried out on research objects without any engineering or data manipulation. This is due to knowing the phenomena that occur in fact, which was carried out by researchers to reveal the strategies of PAUD teachers in implementing STEAM learning at Nurul Qur'an Stabat Kindergarten. The data collected from the results of qualitative research is not numerical, but in the form of words described based on the results of interviews and documentation. Interviews were conducted with educators at Nurul Qur'an Stabat Kindergarten.

3. FINDINGS AND DISCUSSION

The results of this research were taken based on data obtained through interviews and documentation conducted at Nurul Qur'an Stabat Kindergarten. The results of research regarding PAUD teacher strategies in STEAM learning are described as follows:

a. STEAM learning design at Nurul Qur'an Stabat

Kindergarten Learning planning is a learning planning activity in which there are methods and use of resources to achieve learning objectives (Fadlillah, 2012). Planning for each learning application is different. This is adjusted to the needs and conditions in each early childhood education institution. The application of STEAM learning at the Nurul Qur'an Stabat Kindergarten has been used as a trial first, and the researchers decided that the Nurul Qur'an Kindergarten would be the school for the research. An explanation of the learning planning components is described as follows:

1. Child characteristics

2. Learning objectives

3. Learning activities

4. Learning materials and media

b. Implementation of STEAM Learning Activities at Nurul Qur'an Stabat

Kindergarten

1. Learning methods

The learning methods used by Nurul Qur'an Stabat Kindergarten are questions and answers, observation, projects, performance, groups, demonstrations and storytelling. Nurul Qur'an Stabat Kindergarten is the kindergarten that has the most correlation in the use of learning methods in implementing STEAM. Munawar has mentioned several methods used in STEAM learning, namely exploration, main role, construction, stories and projects (Munawar et al., 2019).

2. Stimulation of activitiesThe results of research at the Nurul Qur'an Stabat Kindergarten show that the learning resources used as stimulation in implementing STEAM are using videos, books and stories and discussing themes. In the STEAM implementation process, stimulation is at the exploration stage, namely the beginning of learning. The STEAM implementation process is carried out in several sequences, namely exploration, extend, engage and evaluate (Munawar et al., 2019). Exploration is an initial STEAM learning activity as a form of observation that raises students' curiosity.

c. Results of implementing STEAM learning at Nurul Qur'an Stabat Kindergarten

Nurul Qur'an Stabat Kindergarten has well implemented STEAM in its institution. The media used is utilizing media available in the surrounding environment, as well as giving students freedom to create. However, Nurul Qur'an Stabat Kindergarten experienced difficulties during the pandemic which meant learning was carried out online. So after the re-establishment of offline learning, Nurul Qur'an Stabat Kindergarten has not continued STEAM learning because they are still using up the material in textbooks. Nurul Qur'an Stabat Kindergarten is trying to implement STEAM again in the new academic year 2022 accompanied by the latest curriculum changes, namely the Merdeka Curriculum.

Apart from that, the conditions and obstacles encountered at Nurul Qur'an Stabat Kindergarten include obtaining traditional materials which are difficult to obtain. This is because schools that are located in urban environments result in a lack of traditional materials, so schools use more APE media available at the school. The implementation of STEAM at Nurul Qur'an Stabat Kindergarten has been implemented well and optimally. Even during the pandemic and the end of the pandemic in early 2023, Nurul Qur'an Stabat Kindergarten has implemented STEAM learning with full and maximum activities.

4. CONCLUSION

Learning planning prepared by teachers at the Nurul Kindergarten institution The Stabat Quran has been prepared as best as possible and written in form Daily Learning Implementation Plan (RPPH). Planning Learning begins by determining the characteristics of students and provide the best attitude regarding the differences in each characteristic child. The objectives in learning planning have been adjusted accordingly condition of children in the classroom. Then implement the learning STEAM is carried out inside and outside the classroom with using loose part materials and media and supported by materials others such as educational game tools.

STEAM learning activities at the Nurul Qur'an Stabat Kindergarten institution use indirect strategies. This strategy is obtained based on models and methods of activities carried out, namely with models central learning and with project learning methods, demonstration, performance, story, observation, and group. Based on the model and method used can be seen that it is Inquiry activities are indirect learning strategies The stimulation carried out at the beginning of learning is by reviewing themes through prepared media, telling stories or show learning videos.

Results of implementing STEAM learning at the Nurul Kindergarten institution The Stabat Qur'an is considered very good. This is taken based on the results advantages gained during the application of STEAM learning more than the shortcomings obtained. The advantage of implementing STEAM learning is that it makes students have broad insight, making students capable think creatively in solving problems and facing the times Industry 5.0, able to collaborate or collaborate with others friends, teachers and other people, can develop emotionally as well interest in students' talents, making children more confident and proud on the results of the work, the involvement of parents, makes the teacher able appreciate each student's work. Meanwhile, the disadvantages of implementing STEAM learning are: requires a lot of media and teaching materials, requires a lot of time longer, it is difficult to find traditional media in urban areas.

According to TK Nurul Qur'an Stabat, the advantages of STEAM learning are that it makes children have broad insight, is able to think critically in solving problems and facing the industrial era revolution 5.0, and can collaborate or work together with friends, teachers and the environment around the child. The advantage of STEAM learning that has been implemented at Nurul Qur'an Stabat Kindergarten is that STEAM can develop interest, self-confidence, emotions and parental involvement.

Then deficiencies are a factor inhibiting the implementation of STEAM learning at Nurul Qur'an Stabat Kindergarten. These obstacles are not an obstacle to continuing to implement STEAM at Stabat PAUD educational institutions. The obstacle to STEAM learning felt by Nurul Qur'an Stabat Kindergarten is the need for a lot of learning media which also requires a lot of preparation to provide media or teaching materials. Then the obstacle that has been felt by Kindergarten Nurul Qur'an Stabat is the difficulty of finding traditional media in urban areas. So during learning, factory teaching materials are often used, which results in children feeling bored. Meanwhile, the obstacle felt by Nurul Qur'an Stabat

Kindergarten is lack of time, because learning activities also involve getting used to daily life.

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