

## Workshop on Steam Learning Strategy Development with Loosparts Media for Kindergarten Teachers

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### Abstract

This workshop activity aims to assist teachers in developing Steam learning strategies with loose part media for teachers at RA Maarif Candran Godean Yogyakarta Kindergarten. The subjects in this workshop were RA Maarif Candra Kindergarten teachers in Yogyakarta, totaling 11 people. The stages of the work shop carried out are debriefing, mentoring, implementation and evaluation. The result of the workshop implementation was an increase in teachers' knowledge in developing learning strategies for the Steam model with loose parts media as seen from an average pre-test of 10.45 with an initial indication of moderate teachers and an average post-test of 18.02 with an indication of teachers' knowledge in the development of learning strategies for the Steam model and Media Loosepart increased. After participating in the training activities, the level of understanding of teachers increased as seen from the results of observations showing that 91% of teachers were able to design and implement STEAM learning strategies with loosepart media.

**Keywords:** Workshop, Steam, Loose Parts



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### INTRODUCTION

Early childhood are children aged 0–8 years who experience physical and mental growth and development, so education is needed from an early age in an effort to develop children's potential and abilities. According to the National Education System Law Number 20 of 2003 Article 1 Paragraph 14 it states: Early childhood education is a coaching effort aimed at children from birth to the age of six which is carried out through the provision of educational stimuli to help growth and development of the physical and spiritual so that children have readiness to enter further education.

One of the efforts that can be made to face the challenges of the 21st century is to improve the quality of education, which starts at an early age. According to Bishop & Ph, The Partnership for the 21 st century identifies the four most basic things that a person must have, namely: creativity, critical thinking, communication, collaboration. The 21st century skills are often called the 4 CSs, in Indonesian it is abbreviated as the 4 Ks namely creativity, criticality, communication, cooperation. The 2013 PAUD curriculum with an integrative thematic and scientific approach is very suitable for integrating STEAM-based learning, because learning is carried out using various contexts that can bring subject matter closer to everyday life or

themes that are close to the child's world. The early childhood that we teach today, are in their 21st century, which of course their learning pattern is different from learning in the past. We cannot force them, dictate to them to follow the teacher's orders. They are active learners who have high curiosity, and need the skills needed in their future life. We educate children today, not only to prepare them to enter elementary school but we prepare them to become leaders in the future.

The problem was found from the results of observations made in Group A TK Pertiwi 2 Bodor in the 4-5 year old group, namely the learning that was carried out was still centered on the teacher and not on the learning needs of their children (teacher-centered) where the impact on the developmental achievements of the children had not been able to Achieve creativity, imagination, and critical thinking skills of children. It can be seen that during the learning process the children carry out activities according to the teacher's directions, and the children just have to imitate the activities that have been prepared by the teacher.

The problem faced by RA Ma'arif Candra Godean Kindergarten teachers is that since the implementation of curriculum 13 through a scientific approach, PAUD teachers have not fully understood the steam learning model with loose part media. There are still many teachers who have not implemented it completely. Learning methods that limit the creative thinking that is made and applied in class. There are still many teachers who are less creative in providing other media which are the work of teachers that can be used as learning support media. Besides that, children are often directed to imitate what the teacher makes and use materials/tools like what the teacher uses. The child seems to be formed into an "imitator" person, not a "creator" or "inventor".

To overcome this problem, Steam-based learning with loose parts media is the right learning innovation to develop children's creativity in creating, because this learning combines science, technology, engineering, art and mathematics in one activity. The ability of teachers' knowledge in the development of STEAM learning with initial loose part media is one of the important areas of academic skills because it can influence the acquisition of skills in other academic fields. In addition, learning activities in early childhood refer to learning through direct activities and real objects. This is in accordance with Piaget's theory in (Krobo, 2021) which states that kindergarten children are in the pre-operational stage, namely the preparatory stage towards organizing something real and having the confidence to do something. Early childhood learning refers to something real. Therefore, it is necessary to use learning media that is concrete and close to children. One of the concrete learning media is loose parts learning media.

Loose parts are learning media that are found around children and are easy to use. Loose parts are free materials that children can play with, such as natural materials, recycled objects, factory-made objects. The use of loose parts learning media must be balanced with good classroom management including learning methods and the arrangement of playing tools. Loose parts are learning media whose uses are endless. Loose parts provide a richer environment to play. Children can be more free to choose the tools to play according to their wishes. Caser & Robinson in (Prameswari et al., 18 2020) explain the introduction of playing loose parts based on the desire to learn creatively in order to increase the benefits of implementing loose parts play, namely making children more creative and imaginative.

Furthermore, (Siantajani, 2021) states that there are main benefits of playing with loose parts learning media, namely: 1) Improving children's inquiry skills. 2) Teach children to ask questions. 3) Optimizing aspects of child development. 4) Encouraging children's imagination and creativity. According to Handyman, Benson, Ullah and Telford, (in Caser and Robinson, 2016) The benefits of playing using loose parts media in the learning process include: 1)

increasing the level of creative and imaginative play, 2) children playing more cooperatively and being able to socialize, 3) children are physically more active 4) improving communication skills. In other words, the concept of STEAM-based learning using loose parts media is learning that has relevance and is also meaningful for early childhood because by using loose parts children will have 4c skills as the goal of mastering skills in the 21st century according to the identification of the National Education Association (Redhana, 2019 : 2242) includes critical thinking, creativity, communication and collaboration where these skills are collaborated with student-centered creative learning models. Based on observations made by the volunteers that the use of loose parts in STEAM learning shows that (1) STEAM learning with Loose Parts media is not fully understood by the workshop participants (2) The use of loose parts can increase children's creativity in learning activities.

## DEVOTION METHOD

The purpose of this community service is to assist teachers in developing strategies for implementing STEAM model learning with loose part media. This community service activity was attended by 11 Kindergarten teachers at RA Maarif Candra Godean Sleman Yogyakarta Kindergarten. The stages of the training carried out are debriefing, mentoring, implementation and evaluation. This training lasts for three months starting from January to March 2023, it is intended to provide more knowledge and experience for kindergarten teachers in developing and implementing learning development strategies using the Steam model with loose parts media in early childhood. This workshop activity began on January 9, 2023 at RA Maarif Candra Godean Kindergarten, Yogyakarta. The subjects of this activity were kindergarten teachers. The methods applied during activities to the community included: (1) debriefing, (2) mentoring, (3) implementation and (4). Evaluation. The following is a flowchart that explains the stages of implementing community service activities.

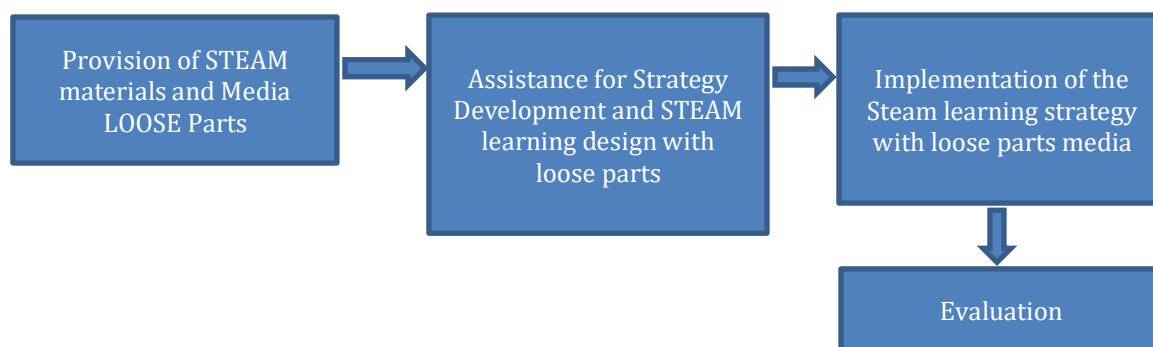


Figure 1. Activity Implementation Flowchart

1. Provisioning. The provision of this training aims to provide knowledge to early childhood education teachers regarding the Steam learning strategy with loose parts media. Debriefing is carried out for three weeks with one meeting each week and for 2 months for mentoring. The material in the debriefing relates to Steam learning strategies with loose parts media, definition, loose parts components, the benefits of loose parts, the relationship between loose parts and the curriculum, strategies for playing loose parts, organizing invitations, making learning media for the Steam model with loose parts media.
2. Assistance. After obtaining knowledge related to the STEAM learning development strategy with Loose Parts media, the training participants were assisted to design a learning development strategy for the Steam model using loose parts media. Designing learning to

improve the quality of education by strengthening STEAM in the implementation of learning in order to improve the quality of education. The main reason STEAM when implemented can combine or integrate the four disciplines of science, language, art and mathematics is reinforced by Permanasari's opinion, (2016: 1) STEM education as part of learning innovation results that will combine science, mathematics which directs a student to have a basic think logically and rationally while specifically in PAUD there is art (art) which later accommodates artistic values in aspects of early childhood development which are also important in the diversity of learning according to the curriculum in PAUD.

3. Implementation. The implementation of the results of the work shop is applied to learning in the classroom of each teacher at school. The implementation in question is the application of the steam model learning development strategy with loose parts media that has been obtained after attending the workshop. The implementation is carried out after the debriefing and mentoring ends. This is intended to determine the level of understanding and skills of teachers after attending the workshop. The results of the implementation are also able to measure the success rate of the workshop on increasing the ability of teachers in developing strategies for implementing learning with the steam model with loose parts media.
4. Evaluation. Evaluation in this service is carried out for teachers and early childhood as the subject of service. Teacher evaluation is carried out by assessing the teacher's activeness in participating in workshops and the teacher's creativity in designing learning strategies and their success in implementing their learning strategies. The instrument used to evaluate teachers is an observation sheet filled out by the local school principal. While the evaluation for early childhood uses interview guidelines, with the aim of knowing the achievement of creative children's learning.

## RESULTS OF SERVICE AND DISCUSSION

The workshop activity with the development of STEAM model learning media with Loose Parts media at RA Ma'arif Candra Yogyakarta Kindergarten was carried out well. The training at this workshop aims to provide knowledge of developing learning strategies for the Steam model with Loose Parts Media for Kindergarten teachers at RA Maarif Candran Godean Yogyakarta Kindergarten. The debriefing activities are carried out for two months with once a week the teachers communicate with the service team regarding the work shop that has been implemented, the teacher is given the opportunity to ask questions regarding Steam material and loose part material. The first meeting discussed STEAM material and loose parts media. As for the second meeting, the servant provided material related to strategies for making learning media with the Steam model with loose part media to develop student creativity. This debriefing activity was attended by 11 teachers with great enthusiasm. This was seen during the question and answer session between the servant and the workshop participants. The following are photos during the debriefing activities:



**Figure 2. Debriefing Activities**

Assistance in the development of learning strategies for the Steam model with loose parts media has no problems and is going according to plan. This mentoring activity is the teacher's job to provide loose part media taken from the surrounding environment. The tools used are according to the theme that will be given to the teacher of each class. Each teacher prepares the tools and materials that will be used to implement learning with the Steam model with loose parts media with different themes. The technique for implementing mentoring is to assist teachers in implementing learning in their respective classes. Participants enjoyed participating in this activity, apart from imparting skills to teachers, this activity also sharpened teachers' creativity in creating Steam learning media with loose parts media using used goods. Mentoring activities are carried out for one month every week one mentoring. The following is a photo of the mentoring activities in this workshop:



**Figure 3. Assistance Activities for Strategy Development and Learning Media for STEAM LOOSE PART**

Implementation is carried out after the debriefing and mentoring activities are over. Implementation activities, namely the application of learning media development strategies along with the use of media that have been designed during the workshop. Implementation activities are carried out in each class of trainees for three days. This is intended to determine the level of understanding and skills in implementing learning strategies after attending the workshop. The following is a photo of the implementation of learning strategies and media in the classroom:



**Figure 4. Implementation of Learning Strategies and Learning Media of the Steam Model with Loose Part Media**

Evaluation is applied to teachers and children as subjects of service. Teacher evaluation is carried out by assessing the teacher's creativity in designing learning strategies and models and their success in implementing them. The instrument used to evaluate teachers is an observation sheet filled in by the principal. The teachers who took part in this workshop were 11 kindergarten teachers. The following are the results of observations made by the school principal:

**Table 1.**

Observed Aspect	Score	Percentage (%)
The level of understanding of the material after attending the workshop	10	91
Innovation in the development of steam learning strategies with loosepart media	9	81,8

Development of learning media	9	81,8
Teachers are able to implement well	10	91
Average		91

The table above illustrates that after participating in this training activity, 91% of teachers were able to design and implement strategies and learning media using the Steam model with loose parts media. However, some teachers have not been able to develop loose part learning media properly, they have not been able to create new ideas in media development and the media they have designed do not have the multifunctional value of a learning media. Evaluation of children was carried out twice, namely pre-test and post-test. This activity was carried out to determine the level of understanding of children before and after being given learning by steam with loose parts media by the teacher. The number of children as subjects in this service is 38 children for 2 classes. The following is a table of children's understanding ability test results:

**Table 2. Initial Understanding Ability Level**

Aspect	N	X Pre Test	X Post Test
Early literacy	38	10,45	18,02

Evaluation in children showed a significant increase. During the Pre Test, the average ability in learning steam with loose parts media given by early childhood teachers showed a score of 10.45 and was categorized as having the ability to use loose parts media for medium early children. At this level, children need more learning, to prepare for learning by using steam with loose part media. After applying appropriate learning strategies and models to children, the results of the Post Test showed a score of 18.02 in the category of children's ability to learn using loose part media at the beginning of good children.

## CONCLUSION

Based on the work shop activity with the title "Work shop for developing steam learning strategies with loose parts media for Kindergarten teachers Maarif Candran Yogyakarta", the results obtained were that the increase in teachers' knowledge about learning Steam with loose parts media was seen from an average pre test of 10, 45 with an initial indication of moderate teachers and an average post test of 18.02 with an indication of increased teacher knowledge about steam and looseparts media. After participating in the workshop activities, the level of teacher understanding increased as seen from the results of observations showing that 91% of teachers were able to design and implement STEAM learning strategies with loosepart media.

## Recommendation

Based on the results of the dedication, the servant recommends that the teacher develop his skills in designing a steam learning strategy with loose part media according to the child's developmental stage. Teachers are also expected to be able to develop learning media using used goods around the school environment, to develop early childhood cognitive

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