

Transforming Textile Waste into Educational Play Tools for Early Childhood Teacher

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ABSTRACT

Through play activities, children demonstrate their stages of growth and development. However, Early Childhood Education often encounters challenges, such as funding issues. The high cost of educational play tools and the lack of knowledge among educators in designing and creating educational tools using available materials from the environment are significant obstacles. The goals of this research are: to analyze the initial capabilities of ECE educators in Bebesen Subdistrict, Central Aceh, in understanding the basic concepts of making educational play tools before mentoring; to design convection waste-based educational tools for classroom units in Bebesen Subdistrict; and to describe the mentoring process in making educational play tools from convection waste. This activity involves ECE educators in Bebesen using a qualitative descriptive approach with data collection techniques including interviews, focus group discussions (FGD), and documentation. The outcome of the research includes educational play tools made from convection waste that can be used in learning activities. ECE educators successfully developed skills to create various types of educational tools from convection waste. Utilizing garment industry waste reduces environmental waste and lowers the cost of making educational tools, making the program environmentally friendly and sustainable.

Keywords: Convection Waste, Educational Game Tools, Early Childhood Education

INTRODUCTION

The level of early childhood education is a level of basic education that prepares children to face the next level of education. This level is intended for children aged 0 to 6 years, where children are often referred to as the Golden Age or golden age. It is called the golden age because at this stage the growth and development of children occurs rapidly compared to other ages. At this age, children are given educational stimuli that help physical and spiritual growth and development. There are at least six aspects of child development, including: religious and moral values, social-emotional, cognitive, language, fine motor and gross motor. These six aspects of development develop well if given the right stimulus such as play activities. This is because playing is a children's play activity will show to what stage the growth and development has been achieved. So, play activities are highly recommended for educators or parents of PAUD children to always insert educational elements in every child's play activity (Rohmah, 2016).

Educational game tools are game tools that are specifically designed to be used in education with various goals, benefits, forms and development of children. In its implementation, PAUD institutions often experience various obstacles such as funding problems. The price of APE that is too expensive and unaffordable has an impact on the lack of availability of APE in early childhood education institutions. In addition, it was also found that there was a lack of knowledge of PAUD teachers in designing and making APE by utilizing the availability of materials in the environment. Early childhood educators have a negative self-concept regarding creative concepts. They consider that the creative process is dominated by talent, this results in early childhood education educators/teachers not being brave enough in creating and working. In fact, early childhood is a period of play, and almost all of its time is spent on play activities. So that the availability of supportive learning facilities such as APE is very important. Through play while learning, children will find it easier to explore the world in a fun way so that new experiences will be formed. Educational game tools are essentially a set of play tools used by children in fulfilling their play instincts and have the characteristics of being able to be disassembled, classified, compared, compiled, designed, perfected, and arranged into a single unit (Sumaryanti et al., 2021).

Today's education requires an educator to be creative, both in learning children and in managing games and learning models so that learning can be fun and increase the enthusiasm and motivation of students. The education that is now applied to our children is not the same as our education when we were in school, every era there will always be changes that lead to better education (Hamid, 2011). Teachers must view play as something that can make a valuable contribution to children's development. Through play, children can have creativity and experience in play activities. In addition, some social goals can be achieved through play, such as social skills, accepting rules, and a better understanding of oneself in competitive and cooperative situations. Learning media is only an intermediary to achieve the learning process from teacher to student through media and communicate well so that learning objectives can be achieved quickly (Aulia et al., 2024). Games for children should be simple and easy to teach and use only a few skills. Most games require basic and locomotor movements and provide exciting rides in practicing movements. Thus, parents and teachers must create games that support creativity and have educational elements. One of the materials that can be

used in making APE is used materials that are suitable for use (Ambarita & Purnamasari, 2020). The used materials referred to here are convection leftover fabric materials such as leftover fabrics, yarns, dakrons, ropes, etc. so that when created it will produce something new and can be used for game tools in learning. APE made from used materials is one of the solutions in responding to the problems faced by teachers today, even though it comes from simple materials, but the results will not change the purpose and function of APE in general in learning (Hayati, 2019).

Waste is a leftover product of processing factories or small industries in the form of garbage or chemical liquids. Another definition of waste is everything that is not used for production or consumption and if disposed of will result in environmental pollution. Waste is a substance or object that arises as a result of human activities or activities that are no longer used and discarded (Mulyani et al., 2021). Convection waste is produced from businesses in the field of convection. Business in the field of convection is one of the sectors that contributes greatly to economic development, especially in the field of clothing. Takengon City is one of the cities known for producing Gayo openwork, Gayo openwork weaving is usually created into accessories on: bracelets, bags, shoes, and also clothes (Ismail, 2006). The convection industry in the city of Takengon produces significant convection waste. Waste that is based on synthetic materials such as plastic and fabric is difficult to decompose. Waste that cannot be decomposed by nature has a negative impact on the environment (Purwasih et al., 2020). For people who do not understand how to recycle, waste is often considered a product that can no longer be reused. Of the many leftover production wastes, convection waste is quite visible in the surrounding environment. One of the things that is included in convection waste is patchwork waste.

According to the opinion above, it can be said that APE is a tool designed to optimize the development of preschool children's intelligence (early childhood) and has educational value. APE does not have to be expensive, but it can be made from materials around us or used items that are not used (Mukhtar, 2018). This is also in accordance with one of the principles of early childhood learning, namely integrated or thematic learning. If seen as a play activity, it does not have a fixed goal because the purpose of the game is more emphasized on the achievement of pleasure and inner satisfaction while judging from an activity that educates the game must be directed to be able to produce a change in the situation. By playing, it is hoped that children's thinking, creativity, language, skills and physical abilities can develop optimally. This community service activity is carried out by involving partners, namely the PAUD unit in Bebesen district (Djamarah & Zain, 2013). Service activities are carried out in the form of providing assistance in making APE with used convection waste materials as the main component. So that this activity will hone creativity and enrich teachers' insights, as well as improve the quality of learning. In addition, the use of APE based on waste materials is also one of the efforts to protect the environment by reducing waste (M. Fadlillah, 2017)

METHOD

This research uses a qualitative method with a descriptive method, to describe the assistance activities for making APE based on convection waste. The location of this assistance activity was carried out in Bebesen District, which is an

area that produces the most convection waste compared to other districts in Central Aceh. This is because the majority of people work as Gayo filigree craftsmen. Determining the subjects in this research was carried out using purposive sampling, namely determining sampling with certain considerations. The subjects of this research were 30 PAUD teachers in Bebesen sub-district. In this research, activity observation sheets and interviews were used as instruments. The observation sheet was used to obtain data regarding the stages of APE making activities, while the interview contained several question points aimed at the subject regarding the subject's response to the activity of making APE made from convection waste.

RESULT AND DISCUSSION

Bebesen District is one of the sub-districts located in Central Aceh Regency, Aceh Province, Indonesia. Its geographical location in the Gayo highlands, makes this area have a cool climate equipped with beautiful scenery. The majority of people in Bebesen sub-district rely on the agricultural sector as the main source of livelihood. The main commodity produced is coffee, which is a superior product from the Gayo highlands with high quality. In addition to the agricultural sector that dominates this area, Gayo openwork tailors also stand out in Bebesen sub-district. As stated on the website of the Ministry of Tourism and Creative Economy, Bebesen Village is familiarly called Kampung Kerawang Gayo. Gayo filigree is one of the most famous forms of traditional handicrafts in the Central Aceh region, including in Bebesen. The Gayo filigree motif itself has been recognized as one of the intangible cultural heritages by the Ministry of Education and Culture of the Republic of Indonesia since 2014. Gayo filigree is usually contained in the form of clothing that is often worn at traditional events, official events and even in DIDONG art performances and Guel dances.

In order to increase tourist attraction as well as introduce culture and art, Gayo cultural events and festivals are held. In the event, various Gayo openwork were also introduced. Behind the beauty and success of Gayo kearawang crafts, there are also significant challenges such as the existence of convection waste. The production process of Gayo Openwork into various facion devices determines that it will produce leftover materials, such as pieces of fabric, yarn, and other materials that are not used. This waste, if managed properly, will produce objects of economic value. As well as providing significant benefits such as Educational Game Tools that can be used by PAUD Institutions.

Interviews with informants, such as Mrs. Mariani, the teacher of TKS Babussalam, revealed that prior to this assistance program, many PAUD teachers were unaware of the potential of convection waste as materials for making educational game tools (APE). "We often struggled to find affordable yet educational materials for creating play tools," said Mrs. Mariani. Initial observations indicated a high demand for APE, but budget constraints posed a significant challenge. The assistance team identified several sources of convection waste around Bebesen, particularly from Kerawang Gayo craft businesses.

During the training process, Mrs. Mirna Sari, a PAUD teacher, shared, "We learned to make fabric dolls and puzzles from leftover fabric pieces. It was challenging at first, but with guidance, we gained confidence." The assistance included group discussions and hands-on practice. Observations showed that teachers began to grasp basic APE-making techniques and even innovated their

own designs. "We created letter and number puzzles to help children learn while playing," added Mrs. Mirna.

Material selection and production were also key focuses. Mrs. Fatimah, another participant, noted, "We were taught to choose child-safe fabrics and sew neatly to ensure safety." Prototypes of the APE were tested in several PAUD institutions, receiving positive feedback from children and teachers alike. An interview with Mr. Reje Pandere Saril, Head of Pendere Saril Village, highlighted the 100% attendance rate of participants, reflecting high enthusiasm. "The teachers were very eager. They even requested additional sessions to learn more," he said. Questionnaires showed that 93.5% of participants found the activity highly effective, and 96.8% considered the produced APE very useful. Mrs. Hevi Niara added, "Our children became more enthusiastic about playing and learning. They loved the fabric dolls and puzzles we made."

However, time constraints were a major challenge. "We had to balance teaching and attending training. Thankfully, online consultation services were very helpful," stated Mrs. Hevi. Overall, this assistance program successfully enhanced PAUD teachers' skills in utilizing convection waste to create APE, while also contributing to environmental conservation by reducing textile waste.

Discussion

One of the main findings of this mentoring activity is the improvement of the skills and knowledge of PAUD teachers in processing convection waste into APE. The training and guidance provided succeeded in providing a deep understanding of the concept of APE, the types of APE, and basic techniques in making APE based on convection waste. The 100% attendance rate of participants shows the high enthusiasm and commitment of the early childhood teachers, which reflects the relevance and need for this program. Previous research by (Darling-Hammond, 2017) shows that practice-based professional development significantly enhances teachers' ability to create innovative and engaging learning media

Recent studies grounded in Piaget's theory of constructivist learning emphasize the critical role of tools and media in the teaching and learning process, aiding children in the construction of their own knowledge (Fosnot, C. T., and Perry, 2005). The results of the evaluation showed that the APE resulting from this mentoring activity was very useful in learning. The APE products made, such as hand puppets, letter boxes, and tangrams, not only show the creativity of the participants but also meet safety and functionality standards (Hasanah et al., 2024). The APE supports various aspects of child development, including cognitive, motor, and language. Improving participants' skills in utilizing convection waste into an educational and attractive APE is an indicator of the success of this program. This aligns with findings in the literature that suggest the use of recycled materials in education can enhance students' creativity and practical skills (McDonough & Braungart, 2013). Vygotsky (1978) in his theory of the Praxis Development Zone also emphasized the importance of appropriate learning aids to optimize child development. In addition to educational benefits, this program also makes a real contribution to environmental conservation (Hsiao & Shih, 2016). By utilizing convection waste that usually ends up in landfills, this program has succeeded in reducing the amount of textile waste generated. Participants in the mentoring activities showed increased awareness of the importance of recycling and the use

of waste as a valuable resource (Rolina, 2012). Research by (Ardoin et al., 2020) shows that environmental education programs grounded in hands-on activities can significantly boost environmental awareness and foster greater participation in recycling efforts.

This is also in line with Bronfenbrenner's ecological theory which emphasizes the importance of interaction between individuals and their environment in influencing development. Although this program was successful, there were several obstacles faced, especially related to the limited training time (Suralaga, 2021). The duration of the activity, which was only two days, was felt short by the participants, which resulted in them not fully mastering more complex techniques (Fadillah et al., 2014). However, this obstacle is overcome by providing additional training and online consulting services to support the sustainability of the program. This approach is effective in ensuring that participants continue to receive guidance even after the mentoring activities have been completed, as shown by research by (Liu et al., 2020) which found that continuous support through online consultations can improve the success of training programs.

This service has several important implications for the development of early childhood education and convection waste management. First, similar programs can be applied in other regions by adjusting training materials according to local needs. Second, there needs to be ongoing support from relevant parties, such as local governments and educational institutions, to ensure that this program runs effectively (Madyawati, 2016). Third, further research is needed to evaluate the long-term impact of the use of convection waste-based APE on early childhood development. Overall, this mentoring program has succeeded in improving the skills of PAUD teachers in processing convection waste into educational APE, as well as providing real benefits for children and the environment. These findings underscore the importance of innovation in education and environmental sustainability as an integral part of early childhood education programs (Musman, 2020).

The study highlights the significance of utilizing local resources for educational purposes, especially in rural areas. The use of convection waste for APE addresses budget constraints while promoting sustainability. Increased participant skills emphasize the importance of hands-on training and experiential learning. Feedback from informants indicated that practical experience enhanced their confidence and capabilities. Community involvement played a crucial role in the program's success, and continuous support was essential for sustained impact. Time management challenges were mitigated through flexible solutions like online consultations. This study contributes to the literature on sustainable education and community-based initiatives, with potential for broader application in similar contexts.

CONCLUSION

Based on the data presented on the results of the implementation of the assistance activities for the production of APE (educational play tools) based on convection waste for PAUD units in Bebesen District, it can be concluded that the program has been successful. Judging by the success indicators, the assistance program for the production of APE based on convection waste for PAUD units in Bebesen District, Central Aceh, has achieved its goals. Furthermore, there have been positive changes among participants, who have understood the essence,

types, and procedures for developing APE. Practically, they have demonstrated the ability to design and create APE using convection waste in accordance with child development standards.

SUGGESTION

Here are three suggestions for improving the community service program described in the journal: (1) Enhanced Collaboration with Local Industries: Strengthen partnerships with local garment industries to ensure a continuous supply of convection waste materials. This collaboration could also involve raising awareness among businesses about the environmental and educational benefits of donating their waste, fostering a mutually beneficial relationship between industry and education; (2) Ongoing Professional Development for Educators: Implement continuous professional development sessions for early childhood educators to further enhance their skills in creating innovative, sustainable educational tools. This could include workshops or online courses that emphasize creativity in using recyclable materials beyond convection waste, helping teachers to adapt to new trends in educational play.; (3) Community Involvement and Sustainability Awareness: Involve the local community, including parents and environmental groups, in the process of creating educational tools. This not only raises environmental awareness but also promotes a culture of sustainability and creativity within the broader community. Additionally, it ensures the program's sustainability by instilling a sense of ownership and responsibility in all stakeholders (Zaman, B., Pd, M., and Cucu Eliyawati, 2010).

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