

An Analysis of Teachers' Efforts in Developing Educational Play Tools at PAUD Maranatha Mararena Sarmi

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ABSTRACT

Penelitian ini bertujuan untuk mendeskripsikan upaya guru dalam mengembangkan alat permainan edukatif (APE) di PAUD Maranatha Mararena Kabupaten Sarmi. Pendekatan penelitian yang digunakan adalah kualitatif dengan jenis penelitian deskriptif. Data dikumpulkan melalui observasi, dokumentasi dan wawancara mendalam terhadap guru yang terlibat secara langsung dalam proses pembelajaran. Hasil penelitian menunjukkan bahwa guru PAUD Maranatha Mararena memiliki kreativitas tinggi dalam mengembangkan APE dengan memanfaatkan bahan-bahan yang ada di lingkungan sekitar, seperti kardus bekas, tutup botol, dan stik es krim. Upaya pengembangan ini dilakukan melalui kegiatan prakarya, kolaborasi antar guru, serta pemanfaatan teknologi sederhana untuk memperkaya ide dan tampilan alat permainan. Hasil observasi juga memperlihatkan bahwa alat permainan yang dibuat tidak hanya digunakan dalam proses belajar mengajar tetapi juga dimanfaatkan sebagai media hias kelas untuk memotivasi anak. Penelitian ini menegaskan bahwa kreativitas dan fleksibilitas guru menjadi faktor penting dalam peningkatan kualitas pembelajaran anak usia dini melalui pengembangan APE.

This study aims to describe teachers' efforts in developing educational play tools (EPT) at PAUD Maranatha Mararena, Sarmi Regency. The research employed a qualitative descriptive approach. Data were collected through observation and in-depth interviews with teachers and the school principal who were directly involved in classroom learning. The results indicate that teachers at PAUD Maranatha Mararena demonstrate high creativity in developing EPT by utilizing locally available materials such as used cardboard, bottle caps, and ice cream sticks. These efforts are carried out through craft activities, peer collaboration, and the use of simple technology to enrich ideas and visual designs. Observations also show that the developed play tools are not only used during learning activities but also displayed as classroom decorations to motivate children. This study highlights that teachers' creativity and flexibility play a crucial role in improving the quality of early childhood education through the development of educational play tools.

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INTRODUCTION

Education has a very important role in human life because it is the main means in shaping the quality of human resources. Through education, a person can develop their

potential, adjust to the times, and contribute to the progress of the nation. Education is important to produce human resources that are relevant to technological advances and development needs (Mantiri, 2019). Quality education will produce humans who are able to create innovation, increase efficiency, and strengthen economic competitiveness (Hasan et al., 2023). Thus, education is the foundation for improving the quality of life and building a knowledgeable society (Rahaju, 2024). To achieve this goal, professional educational institutions and educators are needed to create a generation that is superior and adaptive to change (Damanik et al., 2022; Prayoga et al., 2024; J. Sari et al., 2022).

Early Childhood Education (PAUD) is a level of education that has a strategic role in shaping the basis of children's personality, values, and skills from an early age. The learning process in early childhood education has distinctive characteristics that adjust to the stages of physical and psychological development of children. Learning in PAUD institutions is based on the principle of "play while learning and learning while playing" which is oriented to the needs and development of children as a whole (Nugraha et al., 2018). This principle is in line with the view of Nuraeni (2014) who emphasizes that early childhood learning activities need to be designed through meaningful, interactive, and contextual play activities according to the child's developmental stage.

The role of educators in the context of PAUD is very crucial. Teachers are not only in charge of delivering material, but also designing fun and meaningful learning experiences for children. Teachers need to understand the characteristics of children's development, choose appropriate learning resources, and create a warm and democratic classroom atmosphere. Early childhood basically has high curiosity, strong imagination, and rapidly changing interests, so teachers must be able to present varied and interesting learning activities so that children's motivation to learn is maintained (Aniyawati, 2021; Wigati & Wiyani, 2020).

Early childhood is also a golden age in child development. In the age range of 0–6 years, children experience very rapid growth and development, both in physical, cognitive, linguistic, social, and emotional aspects. Therefore, appropriate and positive stimulation is needed so that the child's potential develops optimally. Widayati et al. (2021) explained that educational media and game tools have an important role in providing fun and meaningful stimulation to support children's overall development. In this context, educational game tools (APE) are strategic means of stimulating early childhood thinking, motor, social-emotional, and creativity skills (Damayanti et al., 2022; Rakhmawati, 2022).

Early childhood has its own uniqueness. No two children are the same, and even twins have different interests, abilities, and ways of learning. Some children may be more interested in artistic activities such as singing and dancing, while others are more prominent in language, math, or sports. Teachers need to understand this diversity in order to adjust learning strategies and media according to individual characteristics of children. Teachers' creativity in choosing and developing game tools is the key to the success of learning that is oriented towards overall child development (Puspitasari et al., 2022; Trimantara & Mulya, 2019; Warsono & Affrida, 2019).

As mandated in the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System, education is a conscious effort to create a learning atmosphere and learning process so that students actively develop their potential, have

intelligence, noble morals, and skills needed for society, nation, and state. Thus, PAUD teachers must have professional, pedagogic, social, and personality competencies to be able to create active and enjoyable learning. J. Sari et al. (2022) and Rahaju (2024) emphasized that teachers' professionalism is a fundamental aspect to ensure the quality of education, including in their ability to design and develop creative and relevant learning media for early childhood. One form of professional competence can be realized through the ability of teachers to create APE that suits the needs and characteristics of children (Firda et al., 2023; Hasanah et al., 2022).

Educational game tools are tools designed to optimize various aspects of children's development, both physical, motor, cognitive, language, social-emotional, and creativity. APE can be made from simple materials and does not always have to be purchased from a factory. Teachers' creativity in utilizing used items such as cardboard, paper plates, or plastic bottles can produce games with educational value (Permata et al., 2025; Salama et al., 2023). For example, *a roulette game* made from used materials that can stimulate children's motor development. Through play activities with APE, children learn to recognize concepts, practice motor coordination, and develop logical and social thinking skills (Agustia, 2023; Hatta, 2021).

However, the results of initial observations carried out in the even semester of 2022/2023 at PAUD Maranatha Mararena, Sarimi Regency show that some teachers are still not optimal in developing and utilizing APE. Learning tends to be teacher-centered and oriented towards children's worksheets. Teachers often use guidebooks and writing or coloring activities, while playing activities with concrete media are still very limited. This condition is in line with the findings of Dewi et al. (2023) who show that the low creativity of PAUD teachers in making APE is often caused by limited ideas, facilities, and training. As a result, children seem to be easily bored and less actively involved in learning activities.

This condition shows that there is a gap between the ideals of APE-based learning that emphasizes children's creativity and active participation and learning practices in the field that are still teacher-centered. Several previous studies have highlighted that the main obstacles for teachers in developing APE lie in the lack of training, limited facilities, and low innovative ability to utilize simple materials (Dewi et al., 2023; Firda et al., 2023; Hasanah et al., 2022; Salama et al., 2023). In fact, APE functions not only as a learning tool, but also as a medium that is able to integrate various aspects of child development—both cognitive, social-emotional, and motor—in the context of meaningful play (Rakhmawati, 2022; Widayati et al., 2021). Thus, teachers' efforts in designing and developing innovative APE are important indicators of professionalism and quality of learning in PAUD institutions (Damanik et al., 2022; J. Sari et al., 2022).

In addition, the results of previous studies focused more on training in making APE for teachers (e.g., Hanum et al., 2024; Salama et al., 2023; Sari, 2024) or on the effectiveness of APE on children's cognitive development (Damayanti et al., 2022; Hatta, 2021), but there has not been much research that has in-depth examined how teachers in certain PAUD units seek to develop APE in the context of limited facilities and resources. In other words, there is still room for research to uncover the real processes, strategies, and challenges faced by teachers in the field, especially in areas with limited access to education such as Sarimi Regency. Therefore, this research is important to understand in depth the efforts of teachers in

developing educational game tools at PAUD Maranatha Mararena, Sarimi Regency, as well as identify inhibiting and supporting factors in its implementation. The results of this research are expected to make a practical contribution to improving the professionalism of PAUD teachers in creating contextual and innovative learning media, as well as becoming an empirical reference for educational institutions and policy makers in designing training programs oriented to the development of teacher creativity.

METHOD

This study uses a descriptive qualitative approach that aims to describe in depth the efforts of teachers in developing educational game tools at PAUD Maranatha Mararena, Sarimi Regency. A qualitative approach was chosen to understand phenomena holistically through the description of words in a natural context (Moleong, 2016; Sugiyono, 2016). Descriptive research focuses on the presentation of facts and events systematically and factually. Other research that uses the same type of research and research approach as the topic of teachers' efforts in developing educational game tools can be seen in Trimantara & Mulya (2019) and Wigati & Wiyani (2020). The research was carried out at PAUD Maranatha Mararena, Sarimi Regency in the first semester of the 2023/2024 school year, from July to August 2023. The research informants consisted of two teachers who were selected purposively, because they were directly involved in the development of educational game equipment at the institution.

Data were collected through in-depth interviews, documentation and participatory observation. Interviews were conducted with semi-structured guidelines to explore teachers' understanding and practice in designing and using educational game tools. Meanwhile, observations are used to record teachers' behaviors and activities during the learning process related to the use of educational game tools, equipped with photo documentation as supporting evidence. Data analysis was carried out referring to the model of Miles et al. (2014) which includes three stages: data reduction, data presentation, and drawing conclusions. Data reduction is carried out by selecting information that is relevant to the focus of the research, then presented in narrative and visual form. Conclusions were drawn continuously throughout the research process to gain a comprehensive understanding of teachers' efforts in developing educational game tools at PAUD Maranatha Mararena.

RESULTS

The results of this study are presented based on thematic analysis from interview, observation, and documentation data conducted on teachers and heads of PAUD Maranatha Mararena, Sarimi Regency. To maintain research ethics, the teacher's name will use initials, namely AM and FU. The analysis is carried out systematically through a process of reduction, categorization, and repeated data interpretation until the main themes that comprehensively describe the teacher's efforts in developing APE. The findings of the study show that there is creativity, collaboration, and innovation of teachers in designing and utilizing simple materials-based APE in the surrounding environment. In general, the findings of the study are presented in a thematic table in Table 1 which contains eight main themes. Each theme is elaborated based on the focus of the findings, the source of the data (informants and observations), and the researcher's interpretation of the meaning of the data collected.

Table 1. Thematic Summary of Research Results

Main Theme	Focus of Findings	Data Source	Summary of Interpretation
1. Teachers' efforts in developing educational game tools	Teachers have high initiative to seek out and share ideas for making APE through collaboration between teachers.	Interview with AM and FU	Teachers show creativity and openness to new ideas to improve the quality of learning.
2. Teacher craft activities	Teachers make toys from simple materials in the surrounding environment such as cardboard, bottles, and leaves.	Observation of craft activities; interviews with AM and FU.	Teachers innovate by utilizing local materials to save costs and instill the value of creativity.
3. Flexibility in the use of materials and themes	The teacher adjusts the game equipment to the learning theme and environmental conditions.	Interview with AM and FU.	Teachers are able to adapt in creating game tools according to the context and availability of materials.
4. Elaboration and creation of the class	Children's works are used as wall decorations and learning media.	Interview with AM and FU.	The arrangement of the works increases children's motivation and creates an interesting learning atmosphere.
5. Originality of gaming tools	Teachers create unique and unusual tools to interest children.	Observation of the work; interview with FU.	Teachers explore new ideas as a form of creativity and contextual learning.
6. Utilization of APE in learning	APE is used in a planned manner in accordance with the RPPM and RPPH.	Interview with AM.	The use of game tools is adjusted to the learning objectives to be more effective.
7. Teachers' strategies in the use of APE	Teachers use demonstrative, singing, and question-and-answer methods to attract children's attention.	Observation of learning activities; interviews with AM and FU.	APE is used to build social interaction and children's involvement in learning.
8. The role of teachers and parents	Teachers and parents work together in motivating children to develop educational play tools.	Interview with AM and FU.	Collaboration between teachers and parents is an important factor in fostering children's creativity.

Based on the results of the thematic analysis presented in Table 1, eight main themes were found that represented teachers' efforts in developing educational game tools at PAUD Maranatha Mararena, Sarumi Regency. The eight themes are interrelated and describe the creative process carried out by teachers in the real context of early childhood learning. The results of the study show that teachers' creativity does not appear suddenly, but through a reflective and collaborative process between teachers, peers, and the support of the principal. This process is manifested in various forms of activities, ranging from finding ideas, making toys based on local ingredients, to their use in teaching and learning activities.

In addition, the findings show that teachers have high flexibility and adaptability in adjusting materials, themes, and school environmental conditions. Teachers not only play the role of users of learning media, but also as creators and developers of contextual educational game tools. These efforts are strengthened by the application of craft activities that utilize used materials, plants, or simple objects around the school to produce meaningful play tools that are in accordance with the characteristics of children.

Furthermore, the practice of classroom elaboration through the display of children's and teachers' works shows that the development of APE not only has an impact on children's cognitive and motor aspects, but also fosters a sense of pride, belonging, and motivation to learn. The aspect of originality also seems strong in every teacher's effort to create a game tool that is unique and relevant to the learning theme. These findings confirm that teachers' creativity is a key component in realizing active, fun, and child-oriented learning. Therefore, the following eight themes of research results will be described in more detail to show how each aspect supports each other in forming a reflective, innovative, and collaborative teacher work pattern in developing educational game tools at PAUD Maranatha Mararena, Sarimi Regency.

Teachers' Efforts in Developing Educational Game Tools

Teachers have a central role in the learning process in PAUD, not only as educators and supervisors, but also as innovators who develop children's creativity through meaningful play media. Based on the results of observations, teachers at PAUD Maranatha Mararena, Sarimi Regency showed a high commitment to developing educational game tools (APE) to support interesting learning and in accordance with children's needs. This process is not only technical, but reflects the form of professionalism of teachers in integrating pedagogical, creative, and collaborative aspects in their work environment. One of the concrete manifestations of these efforts can be seen in the statement of the AM teacher, the companion of class A, who stated:

"As a teacher, we must have many diverse ideas to develop educational game tools. Usually, I share ideas or share with other teachers in developing the game tool. Not only with the teachers in our PAUD, but also with the teachers around us, especially the more senior ones."

This statement shows that the development of APE is the result of a reflective and collaborative thinking process between teachers. Teachers try to explore ideas from various sources, both from personal experience and from discussions with colleagues. In this context, teachers play the role of reflective practitioners who are always looking for ways to improve and enrich their learning practices. Their collaboration is also an important means of building learning communities at the institutional level, which ultimately contributes to improving the quality of early childhood learning. The same thing was expressed by the FU teacher, the companion of class B, who stated:

"Ideas can come from anywhere. When we put together the RPPH, there were often ideas to create a suitable game tool for children. Sometimes, we also share ideas or discuss with fellow teachers in our PAUD, as well as with friends who have the same profession as me"

These results confirm that teachers' creativity emerges situationally and contextually, especially when they are confronted with the child's real needs in daily learning planning. The creation of RPPH is a reflective momentum where teachers adjust the activity design with relevant game tools. This shows the close relationship between pedagogical planning and media innovation, where teachers are able to turn spontaneous ideas into play tools that support children's development holistically. This shows that teachers at PAUD Maranatha have the professional awareness to continue to develop themselves through collaboration and creativity. Teachers view the development of APE not as an additional task, but an integral part of a meaningful learning process.

Craft Activities in Developing Educational Game Tools

Craft activities in PAUD play an important role as a means for teachers to channel creativity while producing educational game tools (APE) that are interesting and meaningful for children. Based on the results of observations at PAUD Maranatha Mararena, Sarmi Regency, craft activities are carried out regularly and become an integral part of the learning process. Teachers use simple materials from the surrounding environment, such as used cardboard, plastic bottles, leaves, sand, or pieces of fabric, to create play tools that fit the learning theme. Through this activity, teachers not only innovate in creating learning media, but also instill creative, independent, and environmental values both for themselves and for the children involved in these activities. The documentation of the teacher's handiwork that produces various educational game tools is shown in Figure 1. One of the concrete manifestations of this activity is illustrated in the statement of the AM teacher, the companion of class A, who stated:

"We use materials that are in the surrounding environment, including used materials. The tools and materials are tailored to the learning theme, and use a variety of methods. For example, we make windmills from scrap cardboard as the main material."



Figure 1. The Teacher's Work

The statement illustrates that teachers have ecological awareness as well as pedagogical ability in associating handicraft activities with learning themes. Teachers strive to develop toys that are relevant to the child's learning context through materials available around the school. This shows the application of the principle of *resourceful teaching*, namely the ability of teachers to use local resources creatively to produce educational learning media. A similar statement was expressed by the FU teacher, a class B companion, who stated:

“Alternatives in developing educational game tools are carried out by utilizing materials available in the surrounding environment, both those that are no longer used and those that are still new. The materials used can be in the form of plants, fruits, water, grass, soil, sand, or cardboard, which are easy to find around the PAUD environment.”

The results of this interview confirm that handicraft activities are not only oriented to product results, but also contain the values of exploration, sustainability, and creativity. Teachers try to adapt the materials used to the availability of nature around the school, so that children can learn through contextual hands-on experiences. Thus, craft activities become a vehicle for teachers to integrate elements of environmental education into daily learning. Overall, these findings show that craft activities are an effective strategy in the development of contextual and sustainable educational game tools. Teachers at PAUD Maranatha Mararena are able to take advantage of local potential to create APE that is in accordance with the characteristics of children and the surrounding environmental conditions. With this approach, teachers are not only media users, but also innovators who play an active role in creating learning experiences that are meaningful, creative, and relevant to children's lives.

Teachers' Flexibility and Creativity

Teachers at PAUD Maranatha Mararena show high flexibility in using various materials to make educational play tools. Teachers adjust the making of the tool to the learning theme, the availability of materials, and the characteristics of the child. AM teacher, class A companion stated:

“Usually, the selection of educational game tools is adjusted to the learning theme. If the theme is difficult to present in real form, we use images as an alternative. We searched for the image through the internet, then printed and pasted it on the board. However, if the theme is quite easy, such as fruits or animals, we present the real object directly in the classroom.”

The statement was reinforced by the FU teacher, a class B companion, who stated:

“The materials used can come from used materials or new materials. However, efforts are made to utilize materials available in the surrounding environment. In principle, we try to maximize what is around first before looking elsewhere.”

The above statement shows that teachers have good adaptive abilities in responding to learning situations and the availability of resources. This flexibility can be seen from the ability of teachers to adapt educational game tools to the learning context, both by presenting concrete media and alternative visuals. This indicates that teachers are not fixated on one type of media, but try to adapt learning strategies to real conditions in the field.

Classroom Elaboration and Creation

The observation results showed that teachers not only created game tools, but also used children's work as part of classroom decoration. The classroom walls are filled with children's works that function as a learning medium as well as a form of appreciation for children's creativity. This is reinforced by the statement of the AM teacher, the companion of class A.

“The tools that have been made are usually used as teaching materials. After use, the tool is pasted on the classroom wall to make the classroom atmosphere more interesting and can be a source of knowledge for children.”

The statement was reinforced by the FU teacher, a class B companion, who added:

“The works are pasted in the classroom so that the classroom atmosphere becomes more attractive and can be reused as an educational game tool for children. Children also become more motivated when they see their work displayed on the wall.”

These statements show that teachers have the initiative to elaborate children's work into a meaningful learning environment. The effort to stick the work on the wall is not only for aesthetic purposes, but serves as a pedagogical strategy to foster a sense of pride and intrinsic motivation in children. The works on display are a form of appreciation for their efforts and creativity, which indirectly strengthens children's confidence and enthusiasm for learning.

Originality in Creating Game Tools

PAUD teacher Maranatha Mararena also showed the ability to innovate in creating unique and original game tools. This effort is made not only to enrich the child's play experience, but also to foster curiosity and active involvement in learning activities. Based on the results of the interviews, teachers try to combine various sources of ideas, both from personal experiences, available teaching materials, and inspiration from the surrounding environment. FU teacher explained

“The creation of educational game tools (APE) is carried out by utilizing real objects, printed images, and tools that are already available.”

The statement illustrates that teachers are not just copying or recycling existing toys, but also trying to adapt them to the context of the classroom and the characteristics of the child. This approach shows the existence of teachers' agencies as innovators who are oriented to children's needs, not just as curriculum implementers. Based on field documentation, various works of children and teachers can be seen displayed on the classroom walls and classroom tables as shown in figure 2.



Figure 2. Teacher and Student Crafts Results Placed on the Classroom Table

This phenomenon shows that originality does not always mean creating something completely new, but rather the ability to process simple ideas into meaningful forms for children. In the context of early childhood education, the creative process has high pedagogical value because it involves divergent thinking skills—that is, open thinking to find many possible solutions to one problem.

Utilization of Educational Game Tools in Learning

The use of educational game tools (APE) at PAUD Maranatha Mararena is carried out in a planned manner and adjusted to the learning needs of children. Based on the results of interviews and observations, teachers do not always use APE every day, but adjust their use to the weekly themes and learning activities listed in the Weekly Learning Implementation Plan (RPPM) and the Daily Learning Implementation Plan (RPPH). This approach shows the pedagogical awareness of teachers to use APE contextually and oriented to children's learning goals. AM teacher explains

“The use of educational game tools is usually carried out during activities. Some children take the time to develop these educational toys while resting. In the teaching and learning process, this tool is used in accordance with the RPPM and RPPH, so it is not used every day.”

This statement indicates that teachers understand the importance of placing educational play tools as an integral part of the learning process, not just an additional activity. Planned use also reflects the teacher's ability to manage learning time and activities flexibly, so that children still have a meaningful play experience. In addition, children's involvement in the development and utilization of play tools during recess shows an integration between learning and play—two key concepts in early childhood learning.

Teachers' Strategies in Using Game Tools

In learning activities at PAUD Maranatha Mararena, teachers play the role of facilitators who are able to manage educational game tools (APE) to create an active, fun, and meaningful learning atmosphere for children. Based on the results of observations and interviews, teachers used various interactive strategies such as demonstrations, singing, role-playing, and questions and answers. This approach shows that teachers not only use play tools as a means of visual aid, but also as a medium to develop two-way communication and emotional involvement of children during the learning process. The AM teacher stated:

“The way to convey learning through this educational game tool is to show the picture in front of the children, then the children are asked to guess and tell their experiences related to the picture.”

While FU teachers added:

“The method used is to imitate together. Children are invited to look at pictures and imitate while singing to make the learning atmosphere more fun.”

These two statements show that the learning strategies applied by teachers integrate cognitive, affective, and social elements simultaneously. Children are not only invited to get to know objects or concepts through toys, but also given the opportunity to express themselves through language, movement, and imagination. This approach is in line with

Vygotsky's theory which emphasizes that children's learning is formed through meaningful social interaction. In this context, teachers function as *more knowledgeable others* (MKOs) who provide scaffolding to help children build understanding through play activities and guided dialogues.

In addition, teachers' strategies in combining APE with singing and question and answer activities are also in line with the integrative thematic learning approach in the PAUD Curriculum. This approach encourages teachers to associate play activities with various aspects of child development – including language, cognition, and social-emotional. From the observation results, it can be seen that teachers are able to liven up the classroom atmosphere by creating a dynamic and interactive learning rhythm. The children seemed enthusiastic, laughing, and actively involved during the activity. This proves that play- and music-based pedagogical strategies are effective in creating a positive learning environment. Thus, teachers' strategies in using educational game tools at PAUD Maranatha Mararena illustrate professional abilities in managing the play-based learning process contextually and creatively. Teachers focus not only on learning outcomes, but also on the interaction process that allows children to explore, imitate, and express their ideas freely. This approach reinforces the principle that play is the primary medium for children to learn and develop holistically.

The Role of Teachers and Parents in the Development of APE

Efforts to develop educational game tools (APE) at PAUD Maranatha Mararena cannot be separated from collaboration between teachers and parents. Both have complementary roles in fostering creativity, motivation, and children's interest in educational play activities. Teachers act as facilitators and motivators in the school environment, while parents provide moral, material, and emotional support at home so that children's play activities can continue consistently. AM teachers emphasized the importance of the role of teachers in guiding and motivating children.

"The role of teachers is very important because children need facilitators who can guide, direct, and motivate them to be interested in developing educational play tools."

The statement was reinforced by the FU teacher who conveyed:

"The role of teachers and parents is very influential in increasing children's interest in educational game tools. The way teachers educate greatly determines children's interest in learning."

Both quotes show that the success of APE development depends not only on the availability of tools or materials, but also on the quality of interaction and support provided by the child's surrounding environment. In this context, teachers function as *role models* in fostering the spirit of exploration and creativity, while parents play a role in strengthening children's learning experiences outside of school. The synergy between the two creates a continuity between formal and non-formal learning that is very important for early childhood. Overall, the collaboration between teachers and parents at PAUD Maranatha Mararena shows a real form of implementation of the principles of community-based education, where all parties are actively involved in the child's learning process. This

collaboration is an important foundation in creating a rich, contextual, and sustainable learning environment between home and school.

DISCUSSION

The results of the study show that teachers have made active and creative efforts in developing APE as a means of supporting early childhood learning. This effort includes the process of designing, making, and utilizing game tools by utilizing simple materials available in the surrounding environment. These findings show that teachers not only play the role of learning implementers, but also as media designers who are able to adapt play tools to children's needs and characteristics. This is in line with the opinion of Trimantara & Mulya (2019) who emphasized that teachers' creativity in developing APE has a great influence on improving the quality of the learning process and children's involvement in play-and-learning activities. In this context, PAUD teachers show a form of professional actualization that integrates pedagogical, technological, and cultural aspects in learning practices (Dewi et al., 2023; Hasanah et al., 2022).

The creative process of teachers in developing APE is carried out through the stages of exploring ideas, making simple designs, and testing their use in the classroom. This activity demonstrates teachers' ability to think reflectively and adapt learning activities to the local context. As explained by Wigati and Wiyani (2020), teachers need to have awareness to utilize the surrounding environment as a learning resource that is rich in educational potential. These findings are also in line with the opinion of Widayati et al. (2021) that innovative teachers are able to create contextual learning experiences by utilizing the resources available around children. Thus, teachers who are able to process simple materials into educational play tools means that they have fostered pedagogical independence and innovation in learning practices, as emphasized by Damanik et al. (2022) that creativity is an essential professional competence for early childhood educators.

The findings of this study also confirm the importance of using used materials and local resources in the development of APEs. Teachers, for example, use materials such as plastic bottles, cardboard, grains, and pieces of fabric to create an engaging and functional learning medium. This kind of practice is in line with the results of Puspitasari et al. (2022) research which emphasizes that the use of used goods as APE materials not only fosters creativity, but also teaches children ecological values such as concern for the environment and frugal attitudes. Dewi et al. (2023) also added that *the eco-based learning* approach through APE made from recycling can increase children's awareness of environmental sustainability. Thus, the development of APE based on local materials has pedagogical, ecological, and social dimensions that reinforce each other.

In addition to the material aspect, the role of teachers as creative facilitators is also seen in the way they actively involve children in the process of making and using APEs. Children's involvement in the manufacture of toys provides hands-on experience that encourages fine motor development, hand-eye coordination, and social skills through cooperation. Widayati et al. (2021) emphasized that when children participate in the creation of learning media, the process becomes a means of contextual learning that fosters a sense of belonging and intrinsic motivation. This is reinforced by Hatta (2021) and Damayanti et al. (2022) who show that the use of APE made with children can significantly improve cognitive and social-emotional

aspects. Therefore, the role of teachers is not only limited to creating media, but also guiding children to learn through meaningful concrete experiences.

Furthermore, the results of the study show that teachers' creativity develops due to the support of the principal and cooperation between teachers in sharing ideas and good practices. The collaboration creates an innovative culture in the PAUD environment, where every teacher is encouraged to continue to innovate. These findings reinforce Vygotsky's view (in Hanum et al., 2024) about the importance of social interaction and collaboration in developing individual abilities, including in the professional context of teachers. A supportive work environment can be a *proximal development zone* (ZPD) for teachers to grow creatively and professionally. Sari et al. (2022) emphasized that participatory leadership of school principals is an important factor in building a reflective and innovative culture in early childhood education institutions.

In terms of implementation, PAUD teachers are able to integrate the game tools they create into various learning themes, such as nature, family, and the surrounding environment. This integration shows the teacher's ability to combine the cognitive, motor, social-emotional, and moral aspects of children through meaningful play activities. In line with Piaget's theory of cognitive development, active and concrete play experiences are an important basis for the formation of a child's thinking scheme. The results of this study also support the view of Rakhmawati (2022) that APE not only functions as an auxiliary medium, but also as a tool to build social interaction and the construction of children's knowledge independently. Thus, the development of APE not only improves children's skills, but also strengthens the process of internalizing basic concepts through fun activities.

Another important finding is that teachers have the awareness to adapt game tools to local socio-cultural conditions. Some of the game tools developed reflect Papuan culture, both from the shape, motif, and materials used. This shows the integration of local values in play activities, as recommended in the Early Childhood Education Curriculum which emphasizes the importance of strengthening cultural identity. According to Hatta (2021), early childhood education needs to be based on cultural values and local wisdom so that children know themselves and their environment from an early age. This practice is also in line with the research of Salama et al. (2023) and Sari (2024) which affirms that the integration of local cultural values in learning contributes to strengthening children's character.

Thus, all of the findings of this study illustrate that the development of educational game tools by teachers is not only a technical activity, but an integral part of the pedagogical process that is oriented towards the formation of children's character, creativity, and independence. Teachers appear as learning innovators who are able to optimize local potential to create a meaningful learning environment. These results support the view that the development of creative and contextual APE is one of the effective strategies in improving the quality of early childhood learning in Indonesia, especially in areas with limited resources (Dewi et al., 2023; Firda et al., 2023; Hasanah et al., 2022).

CONCLUSION

The results of this study conclude that the efforts of PAUD teachers in developing educational game tools (APE) have reflected professionalism, creativity, and adaptive ability to limited resources. Teachers take the initiative to use simple materials and used items to

create learning media that is interesting, contextual, and in accordance with the needs of early childhood development. This effort not only increases children's involvement and learning motivation, but also fosters ecological awareness and character values through meaningful play activities. In addition, the results of the study show that collaboration between teachers, support from school principals, and understanding of children's characteristics are determining factors for success in the development of APE.

The implications of this study show the importance of continuous training for PAUD teachers so that they are able to develop and utilize educational game tools innovatively and according to the local cultural context. Educational institutions and local governments need to provide support in the form of facilities, mentoring, and forums for sharing good practices between teachers to foster a creative learning ecosystem in the early childhood education environment. In addition, the results of this study can serve as a basis for further research that explores the relationship between teachers' creativity in the development of APE and the improvement of cognitive, social-emotional, and motor skills in early childhood in more depth.

LIMITATIONS AND FUTURE RESEARCH

This research has several limitations that need to be considered. First, the research was conducted in a limited scope, namely only in one early childhood education institution, so the results could not be generalized widely to other early childhood education contexts with different social conditions and resources. Second, the relatively short research time limitation, which only lasted for two months in the first semester of the 2023–2024 school year, caused the data collection process to not fully capture the dynamics of teacher behavior changes in the long term. Third, this study only uses interview and observation techniques without being accompanied by triangulation of more diverse instruments, such as document analysis or product studies by teachers and children, so that the depth of data is still limited to qualitative descriptions.

Based on these limitations, further research is recommended to expand the research location to include several PAUD institutions with different characteristics, so that the results can provide a more comprehensive picture of the variety of educational game development practices. Future research can also use a *mixed-method approach* by involving quantitative data to measure the effectiveness of educational play tools on the development of children's cognitive, social-emotional, and motor aspects. In addition, the use of classroom action research (PTK) design can be an alternative to see firsthand the impact of the implementation of educational game tools on the early childhood learning process.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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