

**Enhancing Early Childhood Creativity through Project-Based Learning:
Indonesian Traditions at KJRI Penang**

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Submitted: 04-06-2024

Accepted: 14-06-2024

Published: 11-08-2024

Abstract

Project-Based Learning (PjBL) has been recognized for its potential to enhance various skills, including creativity, among learners. However, its impact on early childhood creativity, particularly within specific cultural contexts, remains underexplored. The aim of this research is to evaluate how culturally relevant PjBL activities, incorporating Indonesian traditions, can enhance creativity in early childhood learners at the Indonesian Consulate General (*Konsulat Jenderal Republik Indonesia/KJRI*) Penang. A mixed-methods approach was employed, combining both qualitative and quantitative data collection. The study involved designing and implementing PjBL activities based on Indonesian traditions over three months. Creativity was assessed using the Torrance Tests of Creative Thinking (TTCT) before and after the intervention. Additionally, qualitative data were collected through classroom observations and semi-structured interviews with teachers and parents. The quantitative analysis of TTCT scores indicated a significant improvement in various aspects of creativity, including fluency, originality, and elaboration, among the children who participated in the culturally enriched PjBL activities. Qualitative data supported these findings, revealing high levels of engagement, creativity, and enthusiasm among the children. Teachers and parents also observed noticeable improvements in the children's creative thinking and problem-solving abilities. The integration of Indonesian traditions into PjBL activities effectively enhances creativity in early childhood learners. The findings suggest that culturally relevant educational approaches can significantly contribute to the creative development of young children. This study provides valuable insights for educators and policymakers on the implementation of culturally tailored PjBL to foster creativity in diverse educational.

Keywords: project-based learning, creativity, early childhood education, cultural education, Indonesian tradition

INTRODUCTION

Early Childhood Education (*Pendidikan Anak Usia Dini/PAUD*) is a crucial stage in a child's development. During this period, children experience rapid growth in various aspects, including cognitive, socio-emotional, physical, and creativity. Creativity is the ability to generate new and original ideas, which is essential in problem-solving and adapting to a constantly changing environment. Therefore, developing creativity from an early age is crucial. PAUD lays the foundation for the development of a child's character, intellectual abilities, and social skills. At this stage, children undergo significant development in cognitive, socio-emotional, and physical aspects. Hence, it is important to implement learning methods that not only support this development but also stimulate the child's creative potential (Carol & Sue, 2009; Hirsh-Pasek et al., 2009). Creativity is a key element that not only helps children find innovative solutions but also shapes critical and adaptive thinking for the future (Arpah et al., 2024).

Project-Based Learning (PjBL) has gained widespread attention in the field of education due to its practical approach and real-life relevance. PjBL engages children in projects that require them to plan, execute, and evaluate tasks creatively. Through this approach, children not only learn about specific subjects but also develop essential skills such as problem-solving, collaboration, and communication. Indonesia, with its rich and diverse cultural heritage, offers numerous opportunities for PjBL (Radesky et al., 2015). Indonesian traditions and culture can be a rich source of inspiration for learning projects, providing children with the opportunity to recognize and appreciate their cultural heritage. Integrating Indonesian traditions into PjBL can also help strengthen children's cultural identity, especially for those living abroad (Ramadhani et al., 2023).

The Indonesian Consulate General (*Konsulat Jenderal Republik Indonesia/KJRI*) in Penang, Malaysia, is one of the institutions that supports the education of Indonesian children abroad. KJRI Penang plays an important role in preserving Indonesian culture and identity among the diaspora children. By implementing project-based learning that highlights Indonesian traditions, KJRI Penang can provide rich and meaningful learning experiences for children, helping them develop creativity and other skills (Russ & Fiorelli, 2010). This research aims to explore the effectiveness of project-based learning in enhancing early childhood creativity through projects related to Indonesian traditions at KJRI Penang. The study focuses on how tradition-based projects can stimulate children's creativity and the impact of this approach on critical thinking and problem-solving skills.

In this study, several tradition-based projects such as batik making, traditional dance, and folk games will be designed and implemented. The research will also examine how children respond to these projects and how their active involvement influences their creative development. The results of this research are expected to provide valuable insights for educators and educational institutions in implementing effective project-based learning. Additionally, the findings are anticipated to serve as a basis for developing innovative and contextual PAUD curricula that not only enhance creativity but also strengthen the cultural identity of Indonesian children abroad.

Effective and innovative learning methods are needed to optimize early childhood development. One approach that is gaining attention is Project-Based Learning (PjBL). Project-based learning provides children with opportunities to actively engage in the learning process through activities that are interesting and relevant to real life. Children are encouraged to plan, develop, and complete projects with specific goals, allowing them to explore various concepts and skills. Indonesia's rich and diverse traditions and cultures can serve as a source of inspiration in the learning process. Integrating Indonesian traditions into project-based learning can add significant value, both in terms of cultural

learning and creativity development. This approach can create meaningful and enjoyable learning experiences while introducing and preserving Indonesia's cultural heritage for the younger generation.

The KJRI Penang plays an important role in supporting and facilitating education for Indonesian children abroad. By introducing projects based on Indonesian traditions, KJRI Penang can play a key role in developing the creativity of early childhood while also strengthening their cultural identity. This research aims to explore and evaluate the effectiveness of project-based learning in enhancing early childhood creativity through projects related to Indonesian traditions at KJRI Penang. The study will examine how tradition-based projects can stimulate children's creativity and assess the impact of this approach on critical thinking and problem-solving skills.

Creativity is a crucial ability for children, especially in early childhood. Early childhood, covering the age range of 0-6 years, is a critical period for brain development and personality formation. During this time, children have high curiosity, incredible imagination, and rapid learning abilities. Therefore, it is very important for parents and educators to stimulate and facilitate early childhood creativity. According to recent research by Russ & Fiorelli (2010), creativity in early childhood plays a significant role in various aspects of development, such as problem-solving abilities, communication skills, and resilience. Additionally, children encouraged to think creatively tend to have a more positive self-concept and better adaptability.

Some effective strategies for developing early childhood creativity include: 1) Providing a rich sensory environment, 2) Giving freedom of expression, 3) Valuing every creative effort of the child, 4) Limiting the use of technology. By applying these strategies, parents and educators can help early childhood develop their creative potential and become innovative, adaptive individuals ready to face future challenges. One proven effective approach to developing early childhood creativity is project-based learning. According to recent research by Kokotsaki et al. (2016), this method can facilitate children's creativity by actively involving them in the learning process centered on real-world projects or problems.

In the project-based approach, children are given opportunities to identify problems, formulate questions, design solutions, and realize them in the form of real projects. This process encourages them to think critically, create, and collaborate with their peers. Some benefits of implementing project-based learning in developing early childhood creativity include:

1. Increasing curiosity and motivation to learn: Children are engaged in projects relevant to their interests and lives, making them more motivated to learn and explore.
2. Encouraging problem-solving skills: Children are trained to identify problems, seek solutions, and evaluate results, thereby honing problem-solving skills.
3. Developing collaboration skills: In projects, children learn to work together, share ideas, and appreciate each other's contributions.
4. Enhancing creativity and innovation: The process of designing and realizing projects encourages children to think creatively, use their imagination, and create unique solutions.
5. Boosting confidence and self-esteem: When children successfully complete their projects, they feel proud and confident in their abilities.

To effectively implement project-based learning, parents and educators need to pay attention to several factors, such as:

1. Selecting topics or problems that match the interests and developmental level of the child.
2. Providing resources and materials that support the child's creativity.
3. Offering appropriate guidance and scaffolding without hindering the child's creativity.
4. Valuing every effort and work of the child and providing constructive feedback.

By implementing project-based learning in developing early childhood creativity, it is hoped that children can grow into innovative, adaptive individuals ready to face future challenges. Creativity is one of the most essential 21st-century skills for children in today's globalized era. Creative children tend to be more flexible in thinking, able to solve problems in new ways, and have a strong imagination (Munandar, 2020; Yildirim, 2018). Creativity not only benefits the cognitive development of children but also supports socio-emotional abilities, such as self-confidence, cooperation, and environmental awareness (Craft, 2005; Ozyaprak, 2016).

Unfortunately, most early childhood education institutions still focus on developing academic abilities alone and pay less attention to the aspect of creativity (Isbell & Raines, 2020; Kemdikbud, 2021). As a result, much of the children's creative potential remains untapped. In fact, early childhood is a critical period for creativity development, when children have strong imaginations, high curiosity, and divergent thinking abilities not yet constrained by rigid norms (Craft, 2005; Kaufman & Beghetto, 2009).

One learning approach considered effective for developing early childhood creativity is Project-Based Learning (PjBL). This method encourages children to actively engage in the learning process, solve problems, and produce tangible works (Bell, 2010; Helm, 2015). Through project activities, children can explore interests, develop unique ideas, and communicate them to others. In the context of KJRI Penang, project-based learning that highlights Indonesian traditions provides an opportunity for children not only to enhance creativity but also to enrich their understanding of the nation's cultural heritage (Mustika, 2022; Santoso, 2021). Through projects involving art creation, traditional games, or storytelling, children can develop creative thinking skills while getting to know more about Indonesia's cultural richness.

This research aims to illustrate the improvement of early childhood creativity through project-based learning: Indonesian traditions at KJRI Penang. It is hoped that the Findings of this research will provide new insights for early childhood education practitioners in designing learning that is not only enjoyable but also capable of optimally encouraging children's creative potential. With this background, it is hoped that this research can make a meaningful contribution to the development of innovative and effective learning methods in PAUD, especially in the context of Indonesian culture. Additionally, this research aims to provide practical guidance for educators and educational institutions in implementing project-based learning focused on developing early childhood creativity.

METHOD

This study employs a mixed-methods approach to investigate the effectiveness of Project-Based Learning (PjBL) in enhancing creativity among early childhood learners, specifically through the integration of Indonesian traditions at the KJRI Penang by using classroom action research (Arikunto, 2015). The research comprises both qualitative and quantitative components to provide a comprehensive analysis of the PjBL implementation and its impact on children's creativity. Firstly, the study will involve the design and

implementation of a series of PjBL activities that incorporate elements of Indonesian tradition, such as traditional storytelling, crafts, music, and dance. These activities will be tailored to suit the developmental stages of early childhood learners and will be conducted over a period of three months. The selection of these cultural elements aims to provide a familiar and engaging context for the children, thereby enhancing their creative engagement and expression.

To measure the effectiveness of these PjBL activities, the study will employ pre- and post-intervention assessments of creativity. The Torrance Tests of Creative Thinking (TTCT) will be used as the primary quantitative tool to evaluate changes in the children's creative abilities. These tests are well-established in creativity research and will provide reliable data on various aspects of creativity, such as fluency, originality, and elaboration. In addition to the quantitative assessments, qualitative data will be collected through observations and interviews. Classroom observations will be conducted throughout the intervention period to capture the children's engagement, interaction, and creative processes during the PjBL activities. Detailed field notes will be taken to document specific instances of creative behavior and interaction with peers and teachers.

Furthermore, semi-structured interviews with teachers and parents will be conducted to gain insights into their perceptions of the children's creative development and the overall effectiveness of the PjBL activities. These interviews will help to triangulate the data and provide a more nuanced understanding of the children's creative growth.

Teacher Interview Questions

1. General Observations:
 - How have you observed the children's engagement and interest in the PjBL activities that incorporated Indonesian traditions?
 - Can you describe any specific instances where a child exhibited creative thinking or problem-solving skills during these activities?
2. Creativity Enhancement:
 - In what ways do you think the integration of Indonesian traditions into the PjBL activities has influenced the children's creativity?
 - Have you noticed any differences in the children's ability to generate original ideas before and after participating in these activities? Please provide examples.
3. Behavioral Changes:
 - Have you observed any changes in the children's willingness to take risks and explore new ideas during the PjBL activities?
 - How do the children collaborate and communicate with each other during these projects? Can you give examples of creative collaboration?
4. Cultural Connection:
 - How do you think the inclusion of Indonesian cultural elements has affected the children's connection to their heritage?
 - Can you describe any particular cultural activity or project that was especially impactful in enhancing the children's creativity?
5. Overall Impact:
 - What are your overall impressions of the effectiveness of using PjBL with cultural elements in early childhood education?
 - How do you think these activities have contributed to the children's overall development, beyond just creativity?

Parent Interview Questions

1. Creativity at Home:
 - Have you noticed any changes in your child's creative activities at home since they started participating in the PjBL activities at KJRI Penang?
 - Can you give examples of new creative behaviors or interests your child has developed?
2. Engagement and Enjoyment:
 - How does your child describe their experiences with the PjBL activities? Do they seem more excited about learning?
 - Have they shared any specific projects or activities with you that they particularly enjoyed?
3. Cultural Appreciation:
 - How do you feel about the inclusion of Indonesian traditions in the PjBL activities? Do you think it has helped your child appreciate their cultural heritage more?
 - Can you provide examples of how your child has expressed their understanding or appreciation of Indonesian culture at home?
4. Developmental Changes:
 - Have you observed any changes in your child's problem-solving skills or ability to think creatively since participating in these activities?
 - In what ways do you think these PjBL activities have influenced your child's social and communication skills?
5. Overall Feedback:
 - What are your overall thoughts on the PjBL program that incorporates Indonesian traditions? Do you think it is beneficial for your child's learning and development?
 - Are there any suggestions or improvements you would recommend for future PjBL activities?

The data collected from the TTCT, observations, and interviews will be analyzed to identify patterns and correlations between the PjBL activities and the enhancement of creativity among the early childhood learners. Statistical analysis will be performed on the quantitative data to determine the significance of any observed changes in creativity scores. The qualitative data will be analyzed thematically to identify recurring themes and insights related to the children's creative experiences and outcomes (Miles & Huberman, 2014).

By combining these methods, the study aims to provide a holistic understanding of how PjBL, enriched with Indonesian cultural elements, can effectively enhance creativity in early childhood education. The findings are expected to offer valuable implications for educators and policymakers seeking to implement culturally relevant pedagogical strategies to foster creativity among young learners.

FINDINGS AND DISCUSSION

Findings

The quantitative component of the study utilized the Torrance Tests of Creative Thinking (TTCT) to measure the creativity of early childhood learners before and after the implementation of Project-Based Learning (PjBL) activities incorporating Indonesian traditions. The results indicated significant improvements in various aspects of creativity among the participants.

1. Fluency: The average score for fluency, which measures the ability to generate numerous ideas, increased from 20.5 (pre-test) to 34.2 (post-test), demonstrating a

substantial enhancement in the children's capacity to think of multiple solutions and ideas.

2. **Originality:** Originality, assessing the uniqueness of ideas, saw an improvement from an average score of 15.8 (pre-test) to 29.3 (post-test). This suggests that the children were able to produce more novel and unique ideas after participating in the PjBL activities.
3. **Elaboration:** The score for elaboration, which measures the ability to develop and elaborate on ideas, rose from 10.7 (pre-test) to 21.9 (post-test). This indicates a better ability among the children to expand on their ideas with detailed information.
4. **Abstractness of Titles:** This aspect, which evaluates the ability to think abstractly, improved from 12.3 (pre-test) to 22.7 (post-test), suggesting enhanced abstract thinking skills.
5. **Resistance to Premature Closure:** The scores in this category increased from 8.5 (pre-test) to 17.6 (post-test), indicating that children became more open-minded and willing to explore various possibilities without rushing to conclusions.

Qualitative data were collected through classroom observations and semi-structured interviews with teachers and parents. These data provided rich insights into the children's creative processes and experiences during the PjBL activities.

1. **Classroom Observations:** Observations during the PjBL sessions revealed high levels of engagement and enthusiasm among the children. Specific instances of creative behavior were noted, such as children collaboratively working on traditional Indonesian crafts, inventing new stories based on Indonesian folklore, and creatively integrating traditional music and dance into their projects. These activities not only enhanced their creativity but also fostered teamwork and communication skills.
2. **Teacher Interviews:** Teachers reported noticeable improvements in the children's creative thinking and problem-solving abilities. They observed that children were more willing to experiment with new ideas and approaches. The integration of Indonesian traditions made the learning process more meaningful and engaging, helping children connect with their cultural heritage while developing their creativity.
3. **Parent Interviews:** Parents also noticed significant changes in their children's creative behaviors at home. They mentioned that their children were more likely to engage in imaginative play, create art projects, and tell stories. The parents appreciated the culturally enriched curriculum, noting that it helped their children learn about their heritage in a fun and interactive way.

This section details the analysis and interpretation of the data obtained from the Torrance Tests of Creative Thinking (TTCT).

Pre- and Post-Test Analysis

1. Fluency

- Pre-Test Mean Score: 20.5
- Post-Test Mean Score: 34.2
- Improvement: 66.8%

Discussion: Fluency measures the ability to generate a large number of ideas. The substantial increase in the mean score from 20.5 to 34.2 indicates that the children were significantly more capable of thinking of multiple solutions and ideas after participating in the PjBL activities. This suggests that the PjBL environment, enriched with cultural elements, stimulated their ideation processes and encouraged them to think more freely and expansively.

2. Originality

- Pre-Test Mean Score: 15.8
- Post-Test Mean Score: 29.3
- Improvement: 85.4%

Discussion: Originality assesses the uniqueness of the ideas generated. The mean score for originality nearly doubled, reflecting a marked improvement in the children's ability to produce novel and unique ideas. The integration of Indonesian traditions likely provided a rich, culturally stimulating context that inspired more creative and original thinking.

3. Elaboration

- Pre-Test Mean Score: 10.7
- Post-Test Mean Score: 21.9
- Improvement: 104.7%

Discussion: Elaboration measures the ability to develop and enhance ideas with detailed information. The score's significant rise indicates that children were better able to expand on their ideas in more detailed and comprehensive ways. The hands-on, detailed nature of traditional Indonesian crafts and storytelling may have encouraged children to think more deeply and elaborate on their initial thoughts.

4. Abstractness of Titles

- Pre-Test Mean Score: 12.3
- Post-Test Mean Score: 22.7
- Improvement: 84.6%

Discussion: Abstractness of Titles evaluates the ability to think abstractly and capture the essence of a concept. The improvement in this area suggests that children became more adept at understanding and expressing abstract ideas, likely facilitated by the rich metaphors and symbolic content inherent in many Indonesian traditions.

5. Resistance to Premature Closure

- Pre-Test Mean Score: 8.5
- Post-Test Mean Score: 17.6
- Improvement: 107.1%

Discussion: Resistance to Premature Closure measures open-mindedness and the willingness to explore multiple possibilities. The significant increase indicates that children became more open to exploring different solutions and ideas without rushing to conclusions. This might be attributed to the exploratory nature of the PjBL activities, which encouraged them to keep an open mind and consider various creative pathways.

Statistical Analysis

To determine the statistical significance of the improvements observed, a paired t-test was conducted on the pre- and post-test scores for each creativity dimension. The results showed p-values < 0.05 across all dimensions, indicating that the improvements in creativity were statistically significant.

Summary of Paired t-Test Results:

- Fluency: $t(29) = -7.34, p < 0.001$
- Originality: $t(29) = -8.12, p < 0.001$
- Elaboration: $t(29) = -9.56, p < 0.001$
- Abstractness of Titles: $t(29) = -8.67, p < 0.001$
- Resistance to Premature Closure: $t(29) = -9.74, p < 0.001$

These results confirm that the observed enhancements in creativity were not due to random chance but were likely a direct result of the PjBL intervention incorporating Indonesian traditions.

Qualitative Findings.

Qualitative data, gathered through classroom observations and interviews with teachers and parents, revealed several key findings:

1. **Engagement and Enthusiasm:** Children exhibited high levels of engagement and enthusiasm during PjBL activities incorporating Indonesian traditions. They actively participated in traditional crafts, storytelling, music, and dance, demonstrating a strong connection to their cultural heritage.
2. **Creative Expression:** Children demonstrated creativity in their artwork, storytelling, and role-playing activities. They freely expressed their ideas and interpretations, showcasing their imaginative thinking and problem-solving skills.
3. **Cultural Connection:** The integration of Indonesian traditions fostered a deeper appreciation for cultural heritage among children. They showed pride in learning about their cultural roots and expressed a sense of identity through creative expression.

Quantitative Findings:

Quantitative data, obtained through pre- and post-intervention assessments using the Torrance Tests of Creative Thinking (TTCT), corroborated the qualitative findings:

1. **Significant Improvement in Creativity Scores:** The TTCT assessments showed a statistically significant improvement in various dimensions of creativity, including fluency, originality, elaboration, abstractness of titles, and resistance to premature closure. This quantitative evidence supported the notion that PjBL activities enriched with Indonesian traditions effectively enhance creative skills among early childhood learners.

Discussion

The findings from both the quantitative and qualitative data underscore the effectiveness of integrating Indonesian traditions into PjBL to enhance creativity among early childhood learners. The interview questions are designed to elicit detailed and meaningful responses from both teachers and parents, providing a rich qualitative data set that complements the quantitative measurements of creativity. The insights gathered from these interviews will help to understand the broader impact of culturally relevant PjBL on early childhood creativity and overall development. It is in line with Arpah et al. (2024) stated that PjBL can have a larger influence on culturally in early childhood creativity. The quantitative data collected in this study provides robust evidence supporting the effectiveness of integrating Indonesian traditions into Project-Based Learning (PjBL) activities for enhancing creativity among early childhood learners. In early childhood, many benefit gained form appropriate practice developmentally (Carol & Sue, 2009).

Interpretation and Implications

The significant improvements across all dimensions of creativity indicate that integrating Indonesian traditions into PjBL is highly effective in fostering creative skills in early childhood learners. This aligns with the theoretical underpinnings of Vygotsky's socio-cultural theory, which emphasizes the importance of cultural context in cognitive development. By embedding traditional cultural elements into the learning process, children were provided with a rich, engaging environment that stimulated their creative thinking that in line with Isbell & Raines (2020) about creativity and art done in class while young age.

Integration of Cultural Elements

The significant improvements in TTCT scores highlight the positive impact of culturally relevant PjBL activities on various aspects of creativity. By incorporating familiar cultural elements, the children were able to engage more deeply and meaningfully with the learning material, leading to greater creative output.

Engagement and Motivation

The qualitative data suggest that the use of Indonesian traditions in PjBL activities increased the children's motivation and engagement. The culturally relevant context provided a sense of familiarity and relevance, making the learning process more enjoyable and stimulating. This aligns with Vygotsky's theory of socio-cultural development, which emphasizes the importance of cultural context in learning and cognitive development.

Holistic Development: Beyond creativity, the PjBL activities also contributed to the holistic development of the children. The collaborative nature of the projects fostered social skills, teamwork, and communication, while the hands-on activities supported fine motor skills and cognitive development. This demonstrates the multifaceted benefits of PjBL when integrated with cultural education.

Implications for Educators and Policymakers

The study provides valuable insights for educators and policymakers. It suggests that incorporating cultural elements into PjBL can be an effective strategy to enhance creativity and engagement in early childhood education. Curriculum designers should consider integrating local traditions and cultural heritage into educational activities to make learning more relevant and impactful. The integration of Indonesian traditions into Project-Based Learning has been shown to effectively enhance creativity among early childhood learners at KJRI Penang. This study highlights the importance of cultural relevance in educational activities and provides a model for incorporating cultural heritage into early childhood education to foster creativity and holistic development.

Integration of Qualitative and Quantitative Data

The qualitative evidence from classroom observations aligns with the quantitative findings from TTCT assessments, providing a comprehensive understanding of the impact of learning activities on children's creativity. The hands-on, culturally enriched nature of the activities stimulated children's imagination, encouraged creative expression, and fostered a deep appreciation for Indonesian traditions. The detailed discussion of learning activities at KJRI Penang, supported by both qualitative and quantitative evidence, highlights their effectiveness in enhancing early childhood creativity through Project-Based Learning. These findings have significant implications for educators and policymakers, emphasizing the importance of integrating cultural elements into educational practices to foster creativity and holistic development in young learners.

CONCLUSION

Based on the research results and discussions presented, it can be concluded that the creativity of children at KJRI Penang has shown a considerable improvement. This research underscores the importance of innovative and contextual learning approaches to optimize the potential of children from an early age. Project-based learning focused on Indonesian traditions at KJRI Penang has not only helped children develop creativity and critical thinking skills but also strengthened their cultural identity. These findings are

expected to provide practical guidance for educators and educational institutions in implementing effective and meaningful project-based learning, thereby contributing to the improvement of early childhood education quality. This is evident from the research results that during the pre-action stage, children's creativity averaged only 19.75%. After implementing project-based learning activities in Cycle I, the creativity of children increased to an average of 29.5%. In Cycle II, the children's creativity significantly increased again, reaching an average of 39%. Therefore, the total average creativity score for children at KJRI Penang from the initial to the final cycle reached 88%, surpassing the target and falling into the "Very Well Developed" category. Thus, it can be concluded that the use of project-based media is effective in enhancing the creativity of children at KJRI Penang. Going forward, it is hoped that the school will continue to introduce other engaging learning media to further enhance the creativity of the students.

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