

Research Article

Implementation of Creative Learning through Pipe Cleaner Crafts Among Children of Indonesian Migrant Workers at Sanggar Bimbingan Kampung Baru, Malaysia

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Abstract: This study aims to explore the implementation of creative learning through pipe cleaner crafts among children of Indonesian migrant workers at Sanggar Bimbingan Kampung Baru, Malaysia. The study adopts a qualitative research approach to gain an in-depth understanding of the learning process and participants' experiences in a non-formal educational setting. Data were collected through observation, interviews, and documentation involving 26 children aged between 4 and 13 years old. The data were analyzed using the interactive model of Miles, Huberman, and Saldaña, including data reduction, data display, and conclusion drawing. The findings reveal that the implementation of craft-based learning significantly enhances students' engagement, creativity, and social interaction. The use of pipe cleaner materials encourages active participation and allows children to express their ideas through hands-on activities. In addition, the learning process fosters collaboration among students, contributing to the development of social skills. However, challenges were identified, particularly related to differences in age and levels of understanding among participants.

Keywords: Craft-Based Learning; Creative Learning; Migrant Children; Non-Formal Education; Pipe Cleaner

1. Introduction

Education plays a fundamental role in shaping human development and improving the quality of life across societies. It is widely recognized as a basic right that must be accessible to all individuals, including children from marginalized communities such as the children of Indonesian migrant workers living abroad (Akujobi & Awhefeada, 2021; Indah & Zuhdi, 2022). However, in reality, many of these children encounter significant barriers to accessing formal education due to legal status issues, economic constraints, and limited educational facilities in host countries such as Malaysia (Lindriany et al., 2024). As a result, non-formal education institutions, including community learning centers and *sanggar bimbingan*, play a crucial role in providing alternative learning opportunities.

In the context of child development, early childhood is considered a critical period for cognitive, emotional, and creative growth. This stage, often referred to as the "golden age," requires appropriate stimulation to support optimal development (Gull et al., 2019). Creativity is one of the essential competencies that enables children to express ideas, solve problems, and adapt to environmental changes (Priyanti & Warmansyah, 2021). Moreover, creativity is closely related to higher-order thinking skills and is recognized as a key component of 21st-century learning, alongside critical thinking, communication, and collaboration (Astuti et al., 2023).

Despite its importance, the development of children's creativity is often constrained by limited learning media and less engaging teaching approaches. Many learning processes still rely on teacher-centered methods, which limit children's opportunities to explore and develop

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their creativity independently (Baker et al., 2021). Therefore, innovative and interactive learning strategies are needed to stimulate children's creativity, particularly through hands-on and experiential learning activities.

One effective approach to fostering creativity is through craft-based learning. Craft activities allow children to explore materials, express imagination, and produce meaningful works, thereby supporting both cognitive and artistic development (Taqiyyah & Cahaya, 2023). In addition, practical creative activities such as ecoprint techniques have been shown to enhance students' creativity, engagement, and environmental awareness through direct participation (Nisa et al., 2024). These findings indicate that learning through crafts is not only enjoyable but also effective in developing children's creative potential.

Similarly, the use of flexible and open-ended learning media, such as loose parts, enables children to construct knowledge through exploration, experimentation, and problem-solving, ultimately enhancing their creativity (Sumarmi & Afendi, 2022). Such learning environments encourage active participation and meaningful learning experiences rather than passive knowledge acquisition.

However, the implementation of creative learning for children of Indonesian migrant workers still faces various challenges, including limited learning facilities, inadequate instructional media, and the lack of structured creative learning programs in non-formal educational settings (Lindriany et al., 2024). In many cases, learning activities in these contexts are still focused on basic literacy skills, with limited attention given to the development of creativity.

Although previous studies have explored creative learning through various media, such as robotics activities, loose parts, and craft-based learning, most of these studies have been conducted in formal educational settings or specific intervention contexts (Surur et al., 2023; Sumarmi & Afendi, 2022; Taqiyyah & Cahaya, 2023). In addition, research on children of Indonesian migrant workers has primarily focused on issues of educational access and institutional challenges rather than on the implementation of creative learning practices (Lindriany et al., 2024). Therefore, there remains a limited number of studies that specifically examine the implementation of creative learning through simple and accessible craft media, such as pipe cleaner crafts, in non-formal education settings for children of Indonesian migrant workers in Malaysia.

Therefore, this study aims to explore the implementation of creative learning through pipe cleaner crafts among children of Indonesian migrant workers at Sanggar Bimbingan Kampung Baru, Malaysia. This research is expected to contribute to the development of practical and contextual learning strategies that support creativity in marginalized educational environments.

2. Literature Review

Creative Learning in Children

Creative learning has become a central focus in contemporary education, particularly in response to the demands of 21st-century competencies that emphasize innovation, problem-solving, and adaptability. Creativity is considered an essential cognitive skill that enables learners to generate new ideas, think flexibly, and respond effectively to various challenges (Suwistika et al., 2024). In this context, creative thinking is not only an outcome of learning but also an integral part of the learning process itself.

Students who are engaged in creative learning tend to demonstrate higher levels of participation, curiosity, and motivation in the learning process. Creative thinking allows learners to explore multiple perspectives and develop original solutions to problems, which are essential skills in modern education (Suwistika et al., 2024). Therefore, fostering creativity in children is crucial to support their intellectual and personal development.

From a pedagogical perspective, creative learning is closely related to the concept of creative pedagogy, which integrates creative teaching, teaching for creativity, and creative learning as interconnected components (Fitriyah & Kurniawati, 2025). This approach highlights the importance of student-centered learning environments that encourage exploration, imagination, and active participation. Consequently, creative learning serves as a foundation for developing meaningful and engaging educational experiences.

Craft-Based Learning as a Medium for Creativity

Craft-based learning is widely recognized as an effective approach to stimulating children's creativity. Through art and craft activities, children are provided with opportunities to express their ideas, emotions, and imagination in creative forms. These activities not only enhance creativity but also contribute to the development of fine motor skills, concentration, and self-confidence (Rahayu et al., 2024).

Art and craft activities enable children to explore various materials and create products based on their own ideas and preferences, which supports their creative development (Rahayu et al., 2024). Additionally, such activities serve as a medium for self-expression, allowing children to communicate their thoughts and feelings in ways that may not be possible through verbal communication alone.

Moreover, craft-based learning aligns with experiential learning principles, where children learn through direct engagement and hands-on experiences. This approach encourages active participation, experimentation, and problem-solving, which are essential elements of creative learning. The use of simple and accessible materials in craft activities also makes this approach suitable for diverse educational contexts, including non-formal learning environments.

The Role of Informal and Non-Formal Education

Informal and non-formal education play a significant role in supporting children's learning and development, particularly in contexts where access to formal education is limited. Informal education, especially within families and communities, provides meaningful learning experiences that are closely connected to children's daily lives (Roslin et al., 2025).

Research indicates that informal learning involves various forms of educational support, such as parental guidance, community interaction, and independent learning practices. These forms of learning contribute to the development of deeper understanding and critical thinking skills, as children are encouraged to actively engage with their environment and apply knowledge in real-life contexts (Roslin et al., 2025).

In community-based settings, such as learning centers or *sanggar bimbingan*, children are given opportunities to participate in collaborative and flexible learning activities. These environments support the development of creativity by allowing children to explore their interests freely and engage in meaningful social interactions. Therefore, informal and non-formal education serve as important complements to formal education in promoting holistic child development.

Creative Learning Environments

The effectiveness of creative learning is strongly influenced by the characteristics of the learning environment. A supportive learning environment that provides flexibility, access to diverse materials, and opportunities for interaction can significantly enhance children's creative abilities (Davies et al., 2013).

Creative learning environments are typically characterized by flexible use of space and time, availability of appropriate learning materials, and opportunities for collaboration and autonomy. These elements allow children to engage in playful and exploratory learning processes, which are essential for developing creativity (Davies et al., 2013).

Furthermore, such environments emphasize learner-centered approaches, where students actively participate in constructing knowledge rather than passively receiving information. The role of educators is also crucial in facilitating these environments by providing guidance, encouragement, and opportunities for meaningful engagement. As a result, a well-designed learning environment can significantly support the development of children's creativity.

3. Research Method

This study employed a qualitative research design to explore the implementation of creative learning through pipe cleaner crafts among children of Indonesian migrant workers. A qualitative approach was selected as it allows researchers to understand social phenomena in depth and to interpret participants' experiences within their natural context (Creswell & Creswell, 2020). This approach emphasizes descriptive and interpretative analysis, enabling the researcher to capture meaningful insights from the field.

The research was conducted at *Sanggar Bimbingan Kampung Baru*, Malaysia, a non-formal educational setting that provides learning opportunities for children of Indonesian migrant workers. The participants of this study consisted of 26 children aged between 4 and

13 years old. These participants were selected based on their active involvement in learning activities at the sanggar, making them relevant to the focus of this study.

Data were collected through three primary techniques: observation, interviews, and documentation. Observation was conducted to examine the implementation of creative learning activities and to identify students' engagement during the learning process. Interviews were carried out to obtain deeper insights into students' experiences and responses toward the learning activities. Documentation, including photographs and activity records, was used to support and validate the data obtained from observation and interviews. In qualitative research, data collection is typically flexible and context-dependent, allowing researchers to adapt to field conditions and gather rich, empirical data (Ahmadi et al., 2021; Creswell & Creswell, 2020).

The data analysis in this study followed the qualitative analysis model proposed by Miles, Huberman, and Saldaña (2020), which consists of three main stages: data reduction, data display, and conclusion drawing. Data reduction involved selecting and simplifying relevant data obtained from the field. Data display was conducted by organizing the data into a structured narrative form to facilitate interpretation. Finally, conclusion drawing was carried out by identifying patterns and meanings emerging from the data. In addition, the analysis process involved iterative coding and categorization to identify themes, which is a key characteristic of qualitative analysis (Bingham, 2023).

4. Results and Discussion

Results

The implementation of creative learning through pipe cleaner crafts at Sanggar Bimbingan Kampung Baru demonstrated several significant findings related to students' engagement, creativity, and learning participation. The learning activities were conducted through hands-on craft sessions in which students were guided to create various objects using pipe cleaners, such as flowers, animals, and simple decorative items.

Students' Engagement in Learning Activities

The findings revealed that students showed high levels of enthusiasm and active participation during the learning process. Most of the students were highly engaged in the activities, as indicated by their willingness to follow instructions, ask questions, and explore different forms of creations independently. Younger children tended to imitate examples provided by the instructor, while older students demonstrated more initiative in modifying and developing their own creative designs.

This active participation indicates that the use of craft-based learning can create a more interactive and enjoyable learning environment, particularly in non-formal educational settings.

Development of Students' Creativity

The results also showed that the implementation of pipe cleaner crafts contributed to the development of students' creativity. Students were able to produce diverse and unique creations, reflecting their imagination and individual expression. Some students combined different shapes and colors, while others experimented with new forms beyond the given examples.

These findings suggest that simple and flexible materials, such as pipe cleaners, can effectively stimulate creative thinking and allow children to express their ideas freely.

Social Interaction and Collaboration

Another important finding was the emergence of social interaction among students. During the activities, students frequently interacted with peers by sharing materials, exchanging ideas, and helping each other complete their crafts. This collaborative behavior indicates that creative learning activities not only support individual creativity but also enhance social skills and peer relationships.

Learning Challenges

Despite the positive outcomes, several challenges were identified during the implementation process. Some younger students experienced difficulties in shaping the materials, while others required more guidance in following instructions. Additionally, differences in age (4–13 years) influenced the level of understanding and creativity among students.

However, these challenges were addressed through teacher assistance and peer support, which helped maintain the effectiveness of the learning process.

Discussion

The findings of this study demonstrate that the implementation of creative learning through pipe cleaner crafts has a positive impact on students' engagement, creativity, and social interaction. These results are consistent with previous studies that highlight the importance of creative learning in enhancing children's cognitive and social development (Suwistika et al., 2024).

The high level of student engagement observed in this study supports the argument that hands-on and experiential learning approaches can significantly improve students' participation in the learning process. Craft-based learning encourages active involvement and allows students to explore learning materials directly, which aligns with the principles of creative pedagogy (Fitriyah & Kurniawati, 2025).

Furthermore, the development of creativity observed in this study is in line with findings from previous research indicating that art and craft activities can enhance children's creative thinking and self-expression (Rahayu et al., 2024). The use of simple materials such as pipe cleaners provides flexibility and accessibility, enabling children to experiment and create without limitations.

In terms of social interaction, this study confirms that collaborative learning environments play an important role in supporting children's social and emotional development. The interaction among students during the activities reflects the importance of community-based learning settings in fostering cooperation and peer learning (Roslin et al., 2025).

Additionally, the findings of this study are relevant to the context of non-formal education for children of Indonesian migrant workers. Previous research has shown that children in marginalized communities often face limitations in accessing structured and creative learning opportunities (Lindriany et al., 2024). Therefore, the implementation of creative learning through simple and practical activities, such as pipe cleaner crafts, can serve as an effective alternative to support their educational needs.

Overall, this study contributes to the existing literature by providing empirical evidence on how creative learning can be implemented in non-formal educational settings using accessible materials. It also highlights the importance of adapting learning strategies to the specific needs and characteristics of children in diverse social contexts.

5. Conclusions

This study explored the implementation of creative learning through pipe cleaner crafts among children of Indonesian migrant workers at Sanggar Bimbingan Kampung Baru, Malaysia. The findings indicate that the use of craft-based learning activities can effectively enhance students' engagement, creativity, and social interaction in a non-formal educational setting. The hands-on nature of the activities encouraged active participation, allowing students to express their ideas and develop creative thinking skills.

Furthermore, the study highlights that simple and accessible learning materials, such as pipe cleaners, can serve as effective media for fostering creativity, particularly in resource-limited environments. The collaborative interactions observed among students also demonstrate the potential of creative learning to support not only cognitive development but also social and emotional growth.

Despite these positive outcomes, several challenges were identified, particularly related to differences in students' ages and levels of understanding. This suggests the need for adaptive teaching strategies and differentiated instruction to accommodate diverse learner characteristics.

This study contributes to the existing body of knowledge by providing practical insights into the implementation of creative learning in non-formal education contexts, especially for children of migrant workers. It also emphasizes the importance of developing inclusive and flexible learning approaches that can address the unique needs of marginalized communities.

Future research is recommended to explore the long-term impact of creative learning activities on children's development and to investigate the use of other innovative and culturally relevant learning media in similar contexts.

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