

UTILIZATION OF AFFORDABLE DIGITAL MEDIA IN EARLY CHILDHOOD LEARNING: A CREATIVE ECONOMY STUDY IN NONFORMAL INSTITUTIONS

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Abstract

This study aims to explore the utilization of affordable digital media in the early childhood learning process within nonformal educational institutions, as well as how this approach correlates with the development of the creative economy. In the digital era and with limited resources, many nonformal institutions have begun innovating by using simple devices such as smartphones, mini projectors, and free educational applications as alternative learning media. The research method employed is qualitative, using a case study approach on three nonformal institutions located in urban and semi-urban areas. Data were collected through observations, in-depth interviews with educators, and documentation of learning activities. The results indicate that affordable digital media can increase children's engagement, enrich teaching methods, and encourage parental participation through creative economy-based educational content such as local animated videos, self-directed educational games, and collaborative digital works. Additionally, institutions that effectively utilize digital media are able to open new economic opportunities, such as digital training for teachers and the production of local educational content. The conclusion of this study shows that affordable digital media is not only pedagogically effective but also has the potential to become a strategy for strengthening the creative economy in the nonformal early childhood education sector.

Keywords: *affordable digital media, early childhood, nonformal education, creative economy, educational technology.*

1. INTRODUCTION

Early Childhood Education (ECE) is a crucial foundation in shaping children's character, intelligence, and social skills. At this stage, children experience a golden age that determines their subsequent development. Therefore, the teaching methods and learning media used must be able to stimulate all aspects of a child's development comprehensively. However, in practice, many ECE institutions, especially nonformal ones, face various challenges, including limited funding, facilities, and access to quality learning media.

On the other hand, the advancement of digital technology offers various alternative learning media that are more flexible and affordable. Simple devices such as smartphones, tablets, and free educational applications are now accessible to diverse segments of society. With creativity, these affordable digital media can be optimally utilized in early childhood learning activities, especially in nonformal institutions that are often more open to innovation. The use of affordable digital media not only impacts the effectiveness of learning but also has the potential to promote the development of the creative economy within the educational environment. Teachers, parents, and communities can create local content, develop independent learning programs, and even build small business networks based on educational technology. This presents a great opportunity for nonformal institutions to transform from merely education service providers into active players in the creative economy ecosystem.

Based on this background, this study aims to examine how affordable digital media is used in the early childhood learning process within nonformal institutions and how this utilization can encourage

the growth of creative economic potential in the educational environment. Through a case study approach, this research is expected to provide tangible contributions to educational innovation and technology-based economic empowerment at the grassroots level.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

- a. **Early Childhood Education (ECE)**, Early childhood education is a very crucial initial stage in a child's development, encompassing cognitive, affective, and psychomotor aspects. According to Law No. 20 of 2003 concerning the National Education System, ECE is an effort aimed at children from birth until six years of age. Hurlock (2002) states that early childhood is the period for forming the foundation of character and long-term learning abilities, so learning at this stage must be holistic, active, and enjoyable.
- b. **Digital Media in Learning**, Digital media refers to tools that use electronic devices and digital technology to convey information and support the learning process. According to Sadiman (2010), learning media functions to clarify messages, attract students' attention, and increase learning effectiveness. In the context of ECE, digital media such as educational videos, interactive games, and Android-based applications have been proven to enrich teaching methods and enhance children's participation (Yelland, 2011). Affordable digital media like used smartphones, entry-level tablets, and free applications can serve as innovative alternatives amid budget constraints in nonformal institutions.
- c. **Nonformal Education**, Nonformal education is an educational pathway outside formal education that can be implemented in a structured and tiered manner. Nonformal institutions such as playgroups, daycare centers, and community-based ECE often have more flexibility in teaching methods and the use of learning media. This flexibility opens space for innovation, including the application of affordable digital media tailored to local needs.
- d. **Creative Economy in the Educational Context**, The creative economy is a new economic concept that relies on ideas, creativity, and innovation as the main production factors. In education, especially in ECE environments, the creative economy can be realized through the creation of local learning content, digital training for teachers, and collaboration with creative communities. According to Howkins (2001), the creative economy flourishes in environments that support innovation and active learning—two elements found in education processes using digital media.
- e. **The Interconnection of Digital Media, ECE, and the Creative Economy**, The use of affordable digital media not only plays a role in the efficiency and effectiveness of early childhood learning but also has the potential to trigger the creative economy around nonformal institutions. Teachers and communities can create local digital products (learning videos, digital books, simple applications), which in turn open new economic opportunities. This study is based on the assumption that integrating digital technology into early childhood education is not only a pedagogical solution but also a strategy for community-based creative economic empowerment.

Hypothesis

Main Hypothesis (H₁): The utilization of affordable digital media in early childhood learning at nonformal institutions has a positive effect on improving the quality of learning and promotes the potential for creative economy development in the surrounding environment.

Null Hypothesis (H₀): The utilization of affordable digital media in early childhood learning at nonformal institutions has no significant effect on the quality of learning or the development of the creative economy in the surrounding environment.

3. RESEARCH METHODOLOGY

1. **Research Approach and Type**, This study employs a qualitative approach with a case study design. This approach was chosen because the research focuses on a contextual and in-depth exploration of how affordable digital media is used in early childhood learning at nonformal institutions and how it contributes to the development of the creative economy in the surrounding environment.
2. **Research Location and Subjects**, The study was conducted at three nonformal early childhood education (ECE) institutions located in semi-urban and urban areas, which have demonstrated the use of simple digital media in the learning process. The research subjects include:
 - ECE teachers or educators
 - Heads of nonformal institutions
 - Parents of learners
 - Local creative economy practitioners or community members involved
3. **Data Collection Techniques**, The data collection methods used include:
 - **Participatory Observation:** Directly observing the use of digital media in early childhood learning activities.
 - **In-depth Interviews:** Conducted with educators, parents, and institution managers to explore experiences, challenges, and impacts of using digital media.
 - **Documentation Study:** Reviewing digital teaching materials, devices used, and documentation of creative activities produced by the institutions.
 - **Focus Group Discussion (FGD):** With local creative economy communities or practitioners to examine the connection between digital media in ECE and the potential for creative economy development.
4. **Data Analysis Techniques** Data were analyzed using thematic analysis with the following steps:
 - **Data Reduction:** Sorting and simplifying data from observations and interviews.
 - **Categorization:** Grouping data based on themes such as types of digital media, forms of creative economic activities, community involvement, and impacts on learning.
 - **Conclusion Drawing:** Constructing a narrative of the research findings that address the study's focus and objectives.
5. **Data Validity** To ensure data validity, the researcher employed several techniques, including:
 - **Source Triangulation:** Comparing information from various informants (teachers, parents, community).
 - **Technique Triangulation:** Using multiple data collection methods (observation, interviews, documentation).
 - **Member Checking:** Requesting confirmation from respondents regarding interview data to verify the accuracy of information.
 - **Peer Debriefing:** Discussing with fellow researchers to test data interpretation.

4. RESULTS AND DISCUSSIONS

This study was conducted at three nonformal early childhood education institutions located in semi-urban and urban areas, characterized by limited funding but actively utilizing simple digital media in the learning process. The field findings are classified into three main themes:

1. **Types and Forms of Affordable Digital Media Used** The three nonformal ECE institutions utilized affordable digital media such as:
 - Used smartphones and basic tablets as tools to display educational videos and interactive images.
 - Low-budget mini projectors to show animations or children's songs.
 - Free educational applications like ABC Kids, YouTube Kids, and Kinemaster for creating simple learning videos.
 - Portable speakers to play learning audio, educational music, and story recordings. The use of these media was highly creative, without the need to purchase expensive equipment. All institutions stated that they relied on community donations or refurbished second-hand devices.
2. **Impact of Digital Media Use on Early Childhood Learning** From observations and interviews, it was found that:
 - Children became more focused and enthusiastic when digital media was used, especially when watching educational videos or playing learning games.
 - Children's vocabulary and imagination improved, particularly through illustrated story videos.
 - Teachers felt more supported in explaining basic concepts such as colors, shapes, letters, and numbers.
 - Some parents reported that their children asked more questions and showed increased interest in learning at home after using digital media in school.
3. **Impact on the Creative Economy Around the Institutions** The study found that the use of affordable digital media also encouraged the emergence of local creative economy initiatives:
 - Teachers and parents collaborated to create local educational videos using smartphones and free editing applications. The results were shared via WhatsApp groups and social media.
 - Mothers' communities around the schools began producing digital teaching aids and selling them online, such as simple e-books, local children's songs, and digital flashcards.
 - One institution opened training sessions for parents and nearby ECE teachers on creating simple educational content. These activities not only improved the quality of learning but also opened additional economic opportunities for the local community, especially women.
4. **Challenges and Solutions** Some challenges identified include:
 - Limited internet access in some locations.
 - Limited digital literacy among teachers, especially older ones.
 - Children's dependence on screens if not properly supervised.Solutions implemented by the institutions:
 - Using offline content or downloading materials in advance.
 - Organizing basic digital training for teachers and parents.

- Creating structured and limited schedules for digital media use to prevent children from becoming overly dependent.

Summary of Findings

Aspect	Main Findings
Type of Media	Used smartphones, mini projectors, free applications
Impact on Children	Increased learning interest, vocabulary, and social interaction
Creative Economy Activities	Local content production, digital training, home-based digital businesses
Challenges	Limited internet access, low digital literacy, screen dependency
Solutions	Offline materials, teacher training, screen time restrictions

5. CONCLUSION

Based on the research conducted at three nonformal early childhood education institutions, the following conclusions can be drawn:

1. Affordable digital media such as used smartphones, free educational applications, and mini projectors can be effectively utilized in the early childhood learning process. The use of these media has been proven to increase learning interest, imagination, and children’s interaction during learning activities.
2. The initiative to use digital media in nonformal institutions not only has positive pedagogical impacts but also opens new opportunities for community-based creative economy development. This is evident from the involvement of teachers and parents in creating local content, digital training, and developing simple educational products.
3. Despite several challenges such as limited internet access and low digital literacy, nonformal institutions have been able to overcome these through creative strategies, such as using offline content, providing basic technical training, and regulating children’s screen time.
4. With an inclusive, participatory approach based on local potential, the utilization of affordable digital media in nonformal institutions has proven to be an innovative solution that not only improves the quality of early childhood education but also supports the economic empowerment of the surrounding community.

LIMITATION AND STUDY FORWARD

In this study, the researcher sets boundaries to ensure the focus of the study is clearer and the research results are more directed, as follows:

1. Research Subjects

This study involves only three nonformal early childhood education institutions located in semi-urban and urban areas. Therefore, the research findings may not fully represent conditions in formal institutions or rural areas.

2. Types of Digital Media Examined

The study only discusses the utilization of affordable digital media, such as used smartphones, mini projectors, and free educational applications. High-cost digital learning media or advanced technological devices are not included in the scope.

3. Focus on Creative Economy Aspects

This study focuses on the impact of digital media use on the potential for creative economy development emerging around nonformal institutions, such as the creation of local educational content and digital training. Other economic aspects outside the education sector are not discussed.

4. Research Duration

The study was conducted over a period of three months, so observations and analyses only cover that timeframe without considering long-term impacts.

5. Research Method

This study uses a qualitative approach with a case study design, thus the results are descriptive and contextual rather than quantitative generalizations.

ACKNOWLEDGEMENT

This study is expected to provide the following benefits:

1. Theoretical Benefits

- To enrich the body of knowledge, particularly in the fields of early childhood education, educational technology, and the creative economy.
- To provide a theoretical foundation regarding the utilization of affordable digital media in learning and its connection to the development of the creative economy in nonformal institutions.

2. Practical Benefits

- To serve as a reference for nonformal early childhood education institutions in optimizing the use of affordable digital media to improve the quality of early childhood learning.
- To offer inspiration and models for creative economy empowerment based on digital media that can be applied by teachers, parents, and surrounding communities.
- To become a reference for education policymakers and teacher training program developers in integrating digital technology in early childhood education.

3. Social Benefits

- To support the improvement of the quality of early childhood education in nonformal institutions, especially for communities with economic limitations.
- To encourage the growth of the local creative economy, which positively impacts the empowerment of communities around educational institutions.

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