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Recommended digital apps innovation in developing community enthusiasm environmental management

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ABSTRACT=

Environmental education is actually available through various digital applications or platforms that provide literacy and environmental management facilities. However, the existence of these applications or features is still poorly known and limited information in the community, so that the level of public knowledge of the existence of these applications is still low, so new innovations are needed that can attract interest and increase public participation in their use. This study aims to identify the potential for creating digital applications and design technology-based innovations that can increase public participation. The research method used is qualitative with a literature study approach, where data is obtained from journals, scientific articles, and relevant research reports, as well as conducting observations and interviews. The results of the study are expected to show that most applications can increase public enthusiasm with representative features.

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INTRODUCTION

The environment is the medium in which living beings reside and seek resources, possessing unique characteristics and functions that are interconnected with the existence of living beings within it. Humans, in particular, play a more complex and tangible role. According to Indonesian Law No. 32 of 2009 concerning Environmental Protection and Management, the environment is defined as a unified space that includes all objects, forces, conditions, and living organisms, including humans and their behavior, which influence the continuity of life and the welfare of humans and other living beings.

Environmental education focuses on fostering public awareness, knowledge, and understanding of the environment, its challenges, and behavioral changes towards the environment while promoting efforts to improve environmental quality, anticipate environmental issues, and encourage participation in implementing environmental programs.

Environmental education aims to cultivate responsible environmental behavior, both individually and collectively. This effort is carried out to help develop tangible knowledge about the natural environment, especially regarding how ecosystems function and the impacts of human behavior on the environment. Additionally, it fosters positive perceptions of the value of nature and encourages environmentally friendly habits. It also involves the public in environmental management programs and enhances their psychological and spiritual connection with nature.

Environmental management has become a critical concern in various countries, including Indonesia, due to the evident negative impacts of climate change and environmental degradation. One ongoing effort is to enhance public literacy and participation in environmental management. Various digital applications have been developed to provide practical education, literacy, and environmental management facilities. However, these applications are not yet widely recognized by the public. This lack of awareness poses a significant challenge in increasing public enthusiasm for environmental management.

As stated in Article 13, paragraph (1) of Indonesian Law No. 32 of 2009 concerning Environmental Protection and Management: “Environmental pollution and/or damage control is carried out to preserve environmental functions.”

Paragraph (2) further explains that such control includes:

a. Prevention;
b. Mitigation; and

c. Recovery.

A study conducted by Nurita Andayani et al. (2022) at the Faculty of Pharmacy, Universitas Pancasila, demonstrated that education and waste segregation applications can enhance the understanding and awareness of the academic community about waste management. This program increased understanding by 4.58%, positive attitudes by 0.94%, and caring behavior by 8.94% after the implementation of the waste segregation education program. The study successfully facilitated waste segregation through the provision of specialized facilities and training in biopore creation to support organic waste management.

However, this research had several limitations that present opportunities for further development. First, the approach focused primarily on direct education and the provision of physical facilities within an academic environment, limiting its impact to specific communities. Second, digital technology was not yet utilized as a primary medium to promote environmental literacy and participation on a broader scale.

This study seeks to address these challenges by focusing on the development of the digital application "Uling," which aims to reach a wider audience through technology. This application is designed to tackle challenges such as the public's limited knowledge of environmental management and to motivate positive behavioral changes through interactive features.

Research by Nani Purwati et al. (2021) focused on developing a web-based application called "*Sampling*." This application was designed to assist craftsmen in marketing recycled waste products more efficiently. Using the Rapid Application Development (RAD) method, the application provided a solution to the marketing challenges of recycled products, which had previously relied solely on offline systems. Through this web application, users could access product information, specifications, and online ordering services, thereby expanding the marketing reach.

However, this study emphasized waste management as an economic commodity, with the developed application focusing more on supporting transactions and marketing recycled products. This approach differs from the development of the Digital application, which aims to enhance environmental literacy and public participation in environmental management.

Unlike previous research, which was limited to economic aspects, this study integrates interactive educational features designed to drive behavioral changes in society towards the environment. Moreover, the Digital application targets the general public from diverse backgrounds, not just artisan communities, making its scope broader and its impact potentially more significant.

Thus, this research offers a holistic approach that leverages technology not only as a marketing tool but also as a medium for education and community empowerment. In this context, innovation is needed not only to provide information but also to capture public attention and motivate active participation. The digital application is designed as a potential solution to these challenges by integrating interactive features tailored to societal needs. Through a technological approach, digital application is expected to serve as an effective medium for promoting public participation and increasing awareness of the importance of environmental management. **Problem Statement 1.** What are the public's perceptions, particularly among the younger generation, of the digital application application as a solution for environmental management?, 2. What features do users expect from the digital application to meet the needs of digital environmental management?. 3. What are the main challenges faced in developing and implementing this application in society?. 4. What strategies can be employed to overcome these challenges so that the application can develop and provide maximum benefits?

RESEARCH METHODS

This research aims to explore the role of the digital application in increasing public enthusiasm for environmental management. Using a qualitative approach, data was collected through in-depth interviews with selected respondents. The interviews were conducted in person, targeting respondents chosen via purposive sampling, including environmentally active community members and faculty members involved in environmental management activities. This method was selected to understand the perspectives, experiences, and expectations of the public regarding the digital application. The direct approach provided the advantage of more personal interaction, allowing researchers to observe respondents' non-verbal expressions, resulting in richer and more in-depth data.

The interviews involved several questions designed to evaluate public needs for the digital application, its relevance in meeting digital environmental management needs, and the desired features. Key aspects highlighted during the interviews included public awareness of environmental management, expectations for features such as a point-based reward system, interactive recycling education, and automated reminders for waste segregation. Additionally, the analysis explored the views of younger generations on how the digital application could serve as both an educational tool and a platform for active participation in environmental conservation.

Data analysis was conducted using a thematic approach to identify key patterns emerging from the interviews. Recorded interview data was meticulously transcribed to ensure the accuracy of information. The data was then categorized into themes such as feature requirements, user behavioral changes, and the social impact of the digital application. This analysis also incorporated survey results, providing a more comprehensive overview of the application's role in supporting environmental management.

The digital application holds significant potential as a platform not only to assist the public in waste management but also to enhance environmental awareness. Features such as rewards for eco-friendly activities, interactive information, and local community engagement were considered highly important by respondents. Additionally, younger generations showed strong interest in the application, especially if it offers creative, educational, and relevant content tailored to their needs. These findings indicate that digital application can function not only as a tool for environmental management but also as an effective medium for education.

RESULTS AND DISCUSSION

This chapter outlines the results of interview surveys on the digital application, designed to support efficient environmental management. The discussion includes an analysis of respondent opinions, desired features, development potential, and challenges faced. The analyzed data originates from respondents with backgrounds as students, lecturers, and private employees aged 18-30.

1. Opinions on the Digital Application

Respondents expressed positive views on the application, considering it an innovation suitable for the digital era. One respondent stated:

> *"In my opinion, this is a great innovation in today's digital era."*

This opinion indicates that the application is perceived as effectively utilizing technology to provide solutions for environmental issues. Additionally, the app's potential to raise public awareness was acknowledged:

> *"This application has the potential to increase public awareness of the importance of environmental management."*

This perspective reflects the hope that the app will function not only as a technical tool but also as an educational medium.

2. Potential for Development and Benefits

All respondents agreed that the application has significant potential to grow and offer tangible benefits to the community. They emphasized the importance of public promotion and education to ensure widespread recognition of the app. One respondent noted:

> *"Yes, if people are familiar with this app and understand its functions, it will be very beneficial."*

This statement underscores the necessity for robust marketing strategies and continuous education to reach a broader audience.

3. Desired Features

Respondents proposed several key features to enhance the app's appeal, including:

a. Waste exchange for points or rewards:
"A feature like exchanging waste for points redeemable for items or e-wallet balance."

b. Educational and progress-tracking features:
"Adding a progress-tracking feature for environmental management to motivate users."

c. Ease of reporting environmental issues:
"The ability to easily report various environmental problems such as pollution or waste management issues." These features reflect the community's need for an interactive, practical, and user-friendly application.

4. Efficiency in Data or Activity Management

Most respondents believed the app could enhance efficiency in managing data or activities related to the environment. One suggested:

> *"Perhaps a schedule for waste disposal within the app to help users stay organized."*

Another respondent added that the app could aid project tracking:

> *"Helping project teams track progress, manage tasks, and prepare reports."*

These insights suggest that the app should be designed with features that support time and task efficiency for various needs.

5. Challenges Faced

The application also faces several challenges, including:

a. Effective promotion.
b. Technological gaps in underdeveloped regions.
c. Lack of community engagement.

These challenges highlight the importance of marketing strategies, education, and social inclusion in the app's development.

Despite the availability of digital platforms related to environmental issues, their adoption rate remains low due to limited information and socialization about these platforms. Respondents emphasized:

> *"The existence of these apps or features is not well-known, and information about them is limited, so public awareness remains low."*

In the context of technology adoption, the Technology-Organization-Environment (TOE) framework can help understand factors influencing technological innovation adoption. This framework highlights that technology, organizational, and environmental factors are critical in the adoption process. Although the TOE framework is often applied in organizational contexts, its principles can be adapted to understand technology adoption at the individual or community level (Purwanto, 2021).

Respondents also emphasized the need for simple language in the app to ensure inclusivity:

> *"Simple language must be incorporated because environmental preservation is not just for educated people but also for housewives with limited education."*

This aligns with findings that an intuitive user interface and easy-to-understand language enhance technology adoption across different societal layers (Setiawan & Pujiyanto, 2022).

Regarding design and features, respondents noted that visual information is often easier for people to understand than text:

> *"People now have more of a visual mindset than reading. Therefore, the 'Uling' app should incorporate virtual or visual concepts to guide people toward environmental sustainability."*

They also suggested that content be brief and attention-grabbing:

> *"Visual content should typically be no longer than 12 seconds. Anything longer can make users lose interest."*

This approach is supported by research showing that concise and engaging visual content increases user engagement in digital applications (Setiawan & Pujiyanto, 2022).

Respondents also believed the app's success heavily depends on promotional strategies involving students as agents of change:

> *"With students' involvement, the endorsement reaches wider audiences. If social media influencers promote it, it will attract more viewers."*

This strategy is seen as effective in expanding the app's reach and increasing public awareness of the importance of environmental management. Collaboration among stakeholders, including governments, academics, and communities, has proven effective in addressing environmental challenges through technology adoption (Mongabay Indonesia, 2022).

This study underscores the urgency and relevance of developing the "Uling" application as an innovative solution to environmental management challenges. With an inclusive design, engaging visual content, and strong promotional strategies, this app has the potential to make a significant impact in increasing public enthusiasm for environmental conservation.

CONCLUSION

This study has uncovered the complex dynamics between English language use, anxiety, self-confidence, and the role of environment in the context of Indonesian high school students. Through a mixed methods approach, it was found that anxiety and self-confidence have a very strong and negatively significant relationship, while frequency of English use showed no significant influence on either.

These findings suggest that the problem in foreign language learning is not merely a matter of linguistic exposure, but goes deeper: it relates to the psychological resilience and social support students receive in the learning process. Students' narratives underline that social fears, insecurity, and lack of speaking practice in a supportive environment are major barriers to building confidence and reducing anxiety.

With no significant differences found between regions, this finding indicates that emotional challenges in English language learning are cross-regional and most likely national in nature. Therefore, structural and systemic approaches are needed to create a more empathetic and supportive learning environment.

The transformation of local wisdom within these online communities encompasses five main dimensions, such as: 1. A non-profit orientation that adapts to commercial realities; 2. Digital gotong royong manifested through information sharing and mutual online support; 3. The evolution of community functions from local focus to multidimensional coverage; 4. A culture of digital greetings that maintains familiarity and a sense of kinship; and 5. The development of institutional collaborations ranging from informal cooperation to strategic partnerships.

This phenomenon illustrates that digitalization does not erode local values but instead serves as a means to strengthen, expand, and modernize local wisdom practices to remain relevant to contemporary societal needs. The findings of this research contribute significantly to the development of digital anthropology and media sociology studies, while also highlighting the high adaptability of Indonesian local wisdom in the face of technological change. The success of online communities in integrating traditional values with the realities of modern technology creates a unique digital ecosystem where the spirit of Indonesian communalism is preserved, while also enhancing the effectiveness and reach of public service. This confirms that the digital transformation of local wisdom is not merely a change in platform, but a form of continuous innovation that strengthens the community’s capacity to serve the public interest in the digital age.

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