


Animal learning media in nurturing literacy of elementary school children using QR-Code technology

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Article Info	ABSTRACT
Keywords: Child Literacy, Animal Learning Media, Educational Technology	Education is a critical component in a nation's progress and must be modified to accommodate technological advancements. QR Code is a contemporary trending technology that has the potential to streamline the learning process and promote students' literacy development when implemented in the classroom. The implementation of QR-Code technology in elementary school literacy instruction yields substantial advantages, including enhanced information accessibility, promotion of digital literacy proficiency, and heightened student engagement with the learning process. Therefore, in order to enhance the quality of literacy education at the primary level, it is urgent to conduct research and develop learning methods that incorporate QR-Code technology into the context of literacy instruction for elementary school students.
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INTRODUCTION

Education is an important aspect in the social, economic and political development of a country. Education must be adapted to developments in time and technology. One technology that is currently trending is QR-Code. This technology can be used in education to simplify the learning process and help students develop literacy [1], [2].

The use of QR-Code technology in literacy learning for elementary school children has significant benefits. In the context of literacy learning, the use of QR-Code technology can facilitate students' access to additional information that supports their understanding of lesson material. The use of QR-Code technology in literacy learning for elementary school children can be an effective means of facilitating students' understanding of lesson material. Therefore, research and development of learning methods that integrate QR-Code technology in the literacy context of elementary school children is an urgent matter to do in order to improve the quality of literacy learning at the elementary level. [3], [4].

The urgency of the research is considering technological developments and the need to increase literacy among elementary school children. Based on research that has been conducted, the use of QR-Code in learning has been proven to be effective in improving students' digital literacy skills. The use of QR-Code technology has great potential in increasing digital literacy in elementary school children [5]–[7].

In the educational context, the role of teachers in integrating QR-Code technology is also important. Learning methods that use the QR-Code application need to be adapted to students' abilities[8]. Therefore, research on the use of QR-Code technology in elementary school children's literacy learning also needs to pay attention to the role of teachers in integrating this technology effectively.[9]v. Apart from that, the use of QR-Code technology has also been applied in various learning contexts, including in the development of QR-Code-based e-modules to train students' digital literacy skills on environmental change material.[10]–[14]. This shows that QR-Code technology has great potential in increasing the literacy of elementary school children, especially in facilitating students' access to additional information that supports their understanding of lesson material.

In the context of learning media development, the application of QR code technology has been proven to encourage exploratory activities and the application of knowledge in new contexts, which can increase the scientific literacy of early childhood.[15]–[17]. This shows that the use of QR-Code technology in elementary school children's literacy learning can make a positive contribution in improving students' literacy skills. Based on the urgency and potential benefits of using QR-Code technology in elementary school children's literacy learning, implication of this research to carry out in order to improve the quality of literacy learning at the elementary level.

METHODS

The research will employ the R&D (Research and Development) approach, which involves several crucial stages. These stages begin with conducting preliminary investigations focused on obtaining information about the utilization of QR-Code technology in promoting literacy skills among elementary school pupils. Initial investigations can be conducted by doing literature reviews and searching for past studies that are pertinent to the subject matter of current research [18], [19]. Moreover, the current state of development of animal learning medium based on QR-Codes. The developmental process entails the design of educational resources, the creation of QR-Code content, and the integration of QR-Code technology into literacy learning materials for elementary school children. Following the development process, field testing were carried out to assess the efficacy of the learning medium that had been created [20], [21]. A study was done where elementary school kids were selected as participants, and their replies and the efficacy of educational materials in enhancing literacy were assessed [22]. During the final phase, the assessment of the educational materials is conducted to determine their effectiveness in accomplishing the research goals of promoting literacy among elementary school students. Data analysis include the assessment of students' comprehension, their reaction to the use of QR-Code technology, and the impact of QR-Code technology on enhancing literacy.

RESULTS AND DISCUSSION

There are important implications in the context of elementary school children's literacy learning. The use of QR-Code technology in literacy learning can facilitate students' access to additional information that supports their understanding of lesson material. The use of

QR-Code technology can help students develop digital literacy skills and facilitate access to digital information. And the use of QR-Code technology in literacy learning can increase students' interest in learning and motivate them to develop literacy skills. The use of QR-Code technology in literacy learning for elementary school children has several benefits, including:

a. Increasing Digital Literacy Skills

Using QR-Code can help improve students' digital literacy skills, such as the ability to access, evaluate and use digital information [3].

b. Make it easier to access information

QR-Code allows students to easily access additional information, such as videos, images, or text that supports learning, so that it can improve students' understanding of lesson material [3].

c. Encourage Explorative Activities

The use of learning media with QR codes has been proven to encourage exploratory activities and the application of knowledge in new contexts, which can increase the scientific literacy of early childhood [5].

Thus, the use of QR-Code technology in elementary school children's literacy learning can make a positive contribution in improving students' digital literacy skills and facilitating access to additional information that supports learning.

The adoption of QR-Code technology to enhance the literacy abilities of elementary school pupils has favorable outcomes, as all students who utilize the QR-Code Media demonstrate a notable level of interest and passion in its usage. Based on implementation observations, children demonstrated autonomous use of the QR-Code Media and shown significant enthusiasm in accessing information, seeing photographs, and watching films online.

Students demonstrate autonomous information retrieval skills on digital platforms. Students utilize their smartphones to scan the QR-Code shown on the media. A hyperlink will be displayed to offer additional information pertaining to animal identification. The listed animals are commonly met by pupils in the nearby surroundings. Through careful observations, it has been determined that every student has successfully demonstrated the ability to autonomously utilize the QR-Code Media and do online searches using cellphones. This demonstrates the high usability of the QR-Code Media, as it can be effortlessly utilized even by primary school pupils.



Figure 1. Animal Recognition Qr-Code Media

The QR-Code media depicted in Figure 1 is comprised of numerous species of animals that students encounter on a daily basis. Its purpose is to furnish students with fundamental knowledge pertaining to animal species. Students who scan the QR Code displayed on the media will be redirected to the specified website.

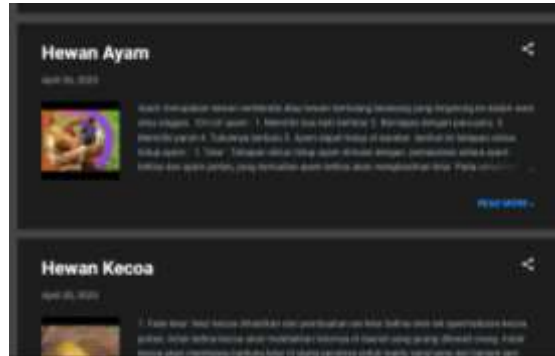


Figure 2. Animal introduction website

Students are directed to the animal introduction website by scanning the QR-Code Board, as illustrated in Figure 2. This website features visual content in addition to textual content, including videos and images. Every video is optimized for the specific species of animal being exhibited and uploaded to YouTube media. This is done in an effort to optimize students' literacy skills by accommodating their individual learning approaches.

Students exhibit a remarkable degree of enthusiasm towards utilizing the QR-Code technology and independently searching the website for information presented in the form of texts, images, and videos. As a result of the implementation, students are capable of independently searching digital media for the desired information and utilizing the system effectively. Furthermore, the presence of this educational resource exemplifies a novel methodology towards fostering literacy skills among elementary school pupils. The integration of QR-Code-based learning materials into the curriculum enhances students' comprehension of animal concepts while concurrently fostering the development of their literacy abilities. QR-Codes provide direct access to multimedia resources containing facts, images, and audio pertaining to a variety of animals. Thus, children can enjoyably and interactively learn about the animal kingdom. One notable benefit of this media is its capacity to foster proficiency in various forms of literacy, such as auditory, linguistic, and visual literacy. Furthermore, by enabling children to autonomously access information, QR-Code technology can serve to promote their learning independence. By adopting this methodology, education is not only rendered more interesting, but it also establishes a solid groundwork of literacy during the formative years, thereby equipping youngsters for forthcoming complexities in the field of education.

CONCLUSION

The implementation of QR-Code technology in primary school literacy instruction offers substantial advantages. Additionally, it can aid in the development of digital literacy skills and provide students with access to supplementary information that enhances their

comprehension of the subject. Positive effects result from the implementation of QR-Code technology to enhance the literacy skills of primary school students, as all pupils demonstrate a strong desire and eagerness to utilize it. Students are enthusiastic about perusing information, viewing images, and watching videos on the internet and are capable of using QR-Code independently. The integration of QR-Code-based learning materials into the curriculum enhances students' comprehension of animal concepts while concurrently fostering the development of their literacy abilities. Therefore, the implementation of QR-Code technology in elementary school literacy instruction may contribute positively to the improvement of students' literacy skills.

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