BIBLIOGIA
Library Sciences
https://nawalaeducation.com/index.php/JB/index
Volume 2 Nomor 2, September 2025
e-ISSN : 3062-682X
DOI : https://doi.org/10.62872/6byvz220

Utilizing Augmented Reality Technology to Increase Reading Interest in College Libraries

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ARTICLE INFO

Accepted : August 12, 2025
Revised : August 20, 2025
Approved: September 17, 2025
Published: September 24, 2025

Keywords:
augmented reality; reading interest; library; students.

ABSTRACT

This study aims to describe the use of Augmented Reality (AR) technology to increase students' reading interest in university libraries. The method used is descriptive qualitative with data collection techniques through observation, in-depth interviews, and documentation of students and librarians directly involved in the use of AR. The results show that the application of AR in catalogs and collection promotions can attract students' attention, increase motivation to visit the library, and foster interest in exploring reading collections. Students feel more motivated because the reading experience becomes interactive and enjoyable, while librarians consider AR effective as a medium for literacy promotion. Obstacles found include limitations in technological infrastructure, user devices, and the need for librarian training. Overall, the use of AR has been proven to make a positive contribution in connecting academic literacy with digital technology, making it relevant to support library transformation in the modern era.

INTRODUCTION

The phenomenon of low student interest in reading is still a challenge in higher education, even though access to information is becoming easier through the development of digital technology (Riski, 2021). This condition indicates a gap between the availability of abundant knowledge resources and students' motivation to utilize them optimally.

Many students are more interested in short, instant content on social media than reading academic literature that requires concentration and deep understanding (Liu et al., 2023). This results in low critical analysis skills, literacy skills, and mastery of academic concepts, which should be acquired through intensive reading activities. Therefore, innovative strategies are needed to increase the appeal of reading, one of which is utilizing interactive technologies such as Augmented Reality (AR), which can provide a more engaging, contextual learning experience that aligns with the characteristics of today's digital generation.

College libraries have an important role as literacy centers, academic reference sources, and study spaces for students, but are often considered less attractive because the presentation of collections is still conventional (Irvani & Rahmah, 2025). Neatly arranged bookshelves do provide a variety of literature, but they are less able to adapt to the needs and preferences of a digital generation accustomed to visual, interactive, and instant content.

As a result, student interest in visiting and utilizing libraries tends to decline, despite their significant potential as a means of developing information literacy, research, and creativity. This situation demands innovation in collection management and presentation, for example through the use of digital technology and Augmented Reality (AR), so that libraries function not only as book repositories but also as dynamic, interactive, and relevant learning spaces (Hannah et al., 2019).

Augmented Reality (AR) has emerged as an interactive technological innovation that is capable of providing a more engaging, immersive, and contextual learning experience by combining virtual objects into the real environment (Pramanik, 2024). This technology not only provides more vivid visualizations but also creates a two-way interaction between the user and the content being studied, making the learning process more enjoyable and easier to understand.

In the context of education and literacy, AR can be used to enrich library collections, provide additional explanations through animation or multimedia, and even present interactive simulations that support deeper conceptual understanding. Thus, AR has great potential to be an innovative solution for increasing student interest in reading and engagement, while also addressing the challenge of low literacy in the digital age (Dargan et al., 2023).

The use of Augmented Reality (AR) in the world of education has been widely applied, especially in the fields of interactive learning, visualization of science materials, and simulation of practices that are difficult to do directly (Nuraeni et al., 2024). However, the specific use of AR in libraries to encourage reading interest is still very limited and suboptimal. However, implementing AR in libraries has the potential to provide a more engaging reading experience by presenting additional information in the form of animations, videos, or 3D simulations integrated with the book collection. This not only increases students' interest in visiting the library but can also strengthen their engagement in understanding the reading content more deeply. This limited application of AR in libraries presents a significant gap for developing innovations to support literacy in higher education (Aulianto, 2020).

Students tend to be more interested in digital media that is visual and interactive compared to conventional text, because it is in accordance with the characteristics of the digital generation which prioritizes speed, convenience, and a fun learning experience (Andrian et al., 2023). In this context, Augmented Reality (AR) has the potential to be an effective solution to bridge literacy with modern technology, by presenting more lively, interactive, and contextual reading content (Shihab et al., 2023). Through AR, text can be enriched with visual, audio, and animated elements that can capture students' attention and enhance their understanding of the material. Thus, AR serves not only as an entertainment tool but also as an innovative tool that can transform the way students interact with reading and build stronger literacy habits in the digital age.

Previous research on Augmented Reality (AR) has generally focused on its application in classroom learning contexts, particularly in science, engineering, or medicine, which require complex concept visualization. Meanwhile, very little research has specifically explored the use of AR in libraries as an innovative tool to increase student reading interest. Yet, libraries have great potential as literacy centers that can combine conventional collections with interactive technology to create a more engaging reading experience. Furthermore, most literacy research to date has focused on conventional strategies, such as literacy seminars, book promotions, or reading campaigns, which are often less effective in reaching the digital generation. This gap highlights the need for new research on the use of AR in libraries, so that we can present more creative alternative solutions that are tailored to the needs and characteristics of today's students.

The novelty of this research lies in the innovative approach offered by integrating Augmented Reality (AR) technology into library services as an effort to increase student reading interest. Different from previous research that focused more on the application of AR in the classroom, this study makes a new contribution by connecting interactive digital technology with academic literacy culture in the library environment. In addition, this study presents a qualitative perspective based on the direct experiences of students and librarians in assessing the effectiveness of AR, thus providing a deeper understanding of how immersive technology can influence reading motivation and user interaction patterns with library collections.

The purpose of this study is to describe how Augmented Reality (AR) technology is applied in university library services, while also exploring the experiences of students and librarians in utilizing AR as a means of increasing reading interest. Furthermore, this study also aims to analyze the role of AR as a literacy technology innovation that can strengthen the function of libraries in the digital era, so that libraries are not only places to provide conventional collections, but also develop into interactive learning spaces relevant to the needs of the digital generation.

METHODOLOGY

This study uses a descriptive qualitative approach to explore the experiences, perceptions, and responses of students and librarians regarding the use of Augmented Reality (AR) technology, with a focus on the meaning and interpretation of research subjects regarding AR in increasing reading interest (Rashid et al., 2019). The research location was conducted in a college library with subjects including student users, librarians, and AR technology managers selected through purposive sampling based on direct involvement with AR.

Data were collected through observations of AR usage and student interactions, in-depth interviews with students, librarians, and library managers, and documentation in the form of photographs, notes, internal reports, or archives of AR implementation. The research instrument used was the researcher as the primary instrument with an interview guide, field notes, and observation sheets as supporting instruments. Data analysis was carried out through data reduction, presentation of data in narrative form, tables, or diagrams, and drawing conclusions to answer the research questions. Data validity was maintained through source triangulation through comparisons of interview data, observations, and documentation, member checking with informants, and discussions with colleagues to ensure the validity of interpretations. The research procedures included determining the research focus, determining the location and subjects, data collection, data analysis that took place from beginning to end, and preparation of the research report (Khoa et al., 2023).

In this study, participants consisted of students, librarians, and AR technology administrators selected through purposive sampling based on their direct involvement in utilizing Augmented Reality services in libraries. A total of 20 participants participated, consisting of 15 students, 3 librarians, and 2 AR technology administrators.

The participating students came from various faculties, aged 19–22, and were mostly in their third–fifth semesters. They were selected because they are active library users and the primary target of the AR-based reading interest improvement program. The participating librarians are staff responsible for circulation, reference, and collection promotion on a daily basis, providing perspective on the effectiveness of AR from a literacy service management perspective. Meanwhile, the AR technology managers consisted of library IT staff who play a role in the installation, maintenance, and development of AR content, and were able to explain the technical challenges faced in its implementation.

By involving these three categories of participants, this study seeks to obtain a more comprehensive picture of AR utilization, from the perspective of users, service providers, and technology managers. This is expected to strengthen the validity of the research results and provide a deeper understanding of AR's effectiveness in increasing reading interest in university libraries.

RESULTS AND DISCUSSION

The research results show that the application of Augmented Reality (AR) in libraries is carried out through various media, such as book catalogs, interactive posters, and collection locators. Students can scan specific codes or markers to display additional information in the form of synopses, short videos, and related reading recommendations. This feature successfully creates a more engaging reading experience, where students feel more motivated and encouraged to explore the library's collection more broadly compared to conventional methods.

From a librarian's perspective, AR is seen as an effective means of promoting collections because it can increase the visibility and appeal of previously under-requested books. However, there are challenges to overcome, particularly related to limited technological infrastructure and technical skills in managing and developing AR content. A visible positive impact is an increase in the frequency of student visits to the library and increased exploration of the collection, particularly books equipped with AR features.

AR integration with digital literacy

Augmented Reality (AR) serves as a bridge that connects students' digital habits with academic literacy needs (Chang et al., 2023). Students accustomed to consuming visual, interactive, and fast-paced content in the digital world find relevance when libraries introduce AR technology as part of their literacy services. Through AR, information previously presented conventionally in text form can be enriched with more engaging multimedia elements (Buchner et al., 2022), so that the reading process becomes not only a cognitive activity but also a fun, contextual learning experience that aligns with the learning styles of the digital generation. In this way, AR can strengthen the library's appeal while simultaneously motivating students to engage more actively in literacy activities (Rejeki et al., 2024).

In line with the uses and gratifications theory, students use AR because this technology is able to provide satisfaction, ease of access, and new experiences that are not offered by traditional literacy methods (Tom Dieck et al., 2024). AR allows students to obtain additional information quickly, relevantly, and interactively, thus fulfilling their need for practical and enjoyable learning. This shows that students' choice to use AR is not only based on the technological aspect, but also because AR can meet their psychological, social, and academic needs. In other words, the implementation of AR in libraries not only addresses the challenge of low reading interest but also creates a literacy ecosystem that aligns with the dynamics of student needs in the digital era (Hartati & Fathurrahman, 2025).

Increasing interest in reading through interactivity

Interactive visualizations presented through Augmented Reality (AR) technology are able to encourage students' curiosity to explore more information from library collections (Saleh et al., 2022). Displaying synopses, animations, and explanatory videos that appear when scanning codes or markers makes reading more

engaging and extends beyond text. This motivates students to explore and understand the material in greater depth, while also expanding the learning experience to be more dynamic.

Furthermore, AR adds a new dimension to reading, a practice often considered monotonous and boring. With interactive elements, reading is no longer a one-way cognitive process but rather a multisensory experience involving visuals, audio, and direct interaction. This innovation makes literacy activities feel more alive, contextual, and in keeping with the characteristics of the digital generation, making libraries not just spaces for providing books but also centers for creative and immersive learning.

Implementation constraints

This study also identified several limitations that need to be considered in implementing Augmented Reality (AR) in libraries. One of the main obstacles is limited device availability, as not all students have smartphones with specifications that support optimal AR use (Andrian et al., 2023). Furthermore, specialized training is needed for librarians to be able to manage, develop, and utilize AR technology in library services. Another challenge is that not all students are familiar with using AR, so adaptation time is needed to truly utilize this technology to its full potential.

In terms of academic implications, the research results show that AR has great potential as an innovative strategy to promote literacy in higher education. By integrating AR, libraries can increase reading interest while strengthening their educational function as learning resource centers. AR can also help students understand academic content more easily and engagingly, so that literacy activities are not limited to reading books but also involve interactive experiences that support deeper mastery of the material (Rodin et al., 2024).

Practically, libraries need to develop more diverse AR content that is relevant to students' academic needs to ensure its effective use. Furthermore, the sustainability of AR programs can be strengthened through collaboration between libraries, technology faculty, and application developers to deliver continuously evolving innovations (Cook et al., 2019). This collaboration not only supports system maintenance and development, but also opens up opportunities for multidisciplinary research and practice that can make a real contribution to improving literacy in the digital age.

CONCLUSION

In conclusion, the use of Augmented Reality (AR) in university libraries is able to provide an interesting and immersive interactive experience for students, while proving its effectiveness in increasing reading interest, which is reflected in the increasing enthusiasm of students in exploring the collection and the increasing frequency of visits to the library. Students consider AR as an innovation that facilitates access to information, while librarians see it as an effective means of promoting collections, although there are still obstacles in terms of technological infrastructure, librarian skills, and limitations of user devices. Thus, the application of AR provides academic and practical contributions because it successfully connects traditional literacy with digital technology, making it a relevant strategy in supporting the transformation and development of libraries in the digital era.

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