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The Effect of IoT and Library Services on Reading Interest of High School Students

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Abstract: This study aims to analyze and determine the effect of the Internet of Things (IoT) and library services on the reading interest of high school students in the Ilir Timur 1 District of Palembang. A quantitative approach was employed with a sample of 92 students selected through probability sampling. Data were collected via questionnaires using a 5-point Likert scale across 90 statement items. Analysis utilized simple and multiple linear regression techniques. The findings revealed three significant effects: (1) IoT independently influences students' reading interest; (2) library services independently influence students' reading interest; and (3) both IoT and library services simultaneously exert a significant influence on the reading interest of high school learners in the district. The research innovatively investigates the synergistic influence of technological infrastructure (IoT) and traditional educational resources (library services) on reading engagement within a localized Indonesian context. Schools and education authorities should strategically invest in both digital connectivity and quality library provisions, recognizing their complementary roles in fostering student reading interest. The study contributes empirical evidence to educational technology discourse, validating that reading motivation in the digital age requires integrated enhancement of both physical learning resources and technological access.

Keywords: Internet of Thing, Library Services, Reading Interest

A. Introduction

Indonesia is currently known for its low reading interest (Sulfemi, 2023). This interest is crucial for improving the quality of education. Data from a 2020 survey by the Central Statistics Agency (BPS) indicates that only around 10% of Indonesia's population is an avid reader (Arnawa & Liswahyuningsih, 2025). Many factors contribute to this low reading interest, particularly among school students, such as lack of motivation to read, limited access to literacy resources, and a lack of interest in visiting libraries. Technology also plays a role, both positively and negatively. When many teenagers are preoccupied with online games rather than utilizing technology to enhance information accessibility and learning experiences, libraries, as a source of knowledge, become less appealing to students due to their lack of technological

capabilities, making them boring. Technology must be utilized optimally, especially in the era of Society 5.0, where people no longer need to bother with tasks considered difficult. Society 5.0 is a program where innovation is not solely driven by technological innovations but also by the needs of society (Carayannis & Morawska-Jancelewicz, 2022). In Society 5.0, a super-smart society, it is hoped that international standards such as architecture and data models, currently being reviewed by Smart Manufacturing, will be further expanded and implemented (Ayuningtyas, 2023; Tuppad & Patil, 2022).

The Internet of Things (IoT) is the expansion of internet connectivity into physical devices and everyday objects (Kopetz & Steiner, 2022; Schoder, 2025). The implementation of the Internet of Things (IoT) in libraries is an unstoppable necessity and will become a necessity for library users. The use of the Internet of Things is highly beneficial in libraries because it can address issues such as saving time and effort, enabling users to experience the library's role in maximizing information retrieval (Cheung et al., 2025; Latipul Basri Hutabarat, 2024). Research Al Alim Nasution (2019) states the use of the Internet of Things is highly beneficial in libraries because it can address issues such as saving time and effort, enabling users to experience the library's role in maximizing information retrieval that smart libraries, guided by the principles of accessibility, usability, and sustainability, are expected to address global challenges in this revolutionary era and improve library services. Research Gunaidi et al. (2023) states that technological innovation has been proven to positively influence user satisfaction. Therefore, the Provincial Library and Archives Service needs to continuously develop technological innovation. Based on observations made by researchers, library data at SMA Negeri 15 Palembang City and several other high schools in Ilir Timur 1 District found that student reading interest is still low. One indicator is the low average number of student visits to the library.

For example, in July, with 12 effective days and a total of 945 students visiting, only 78 students visited per day out of a total library membership of 863. Therefore, the data above represents only 1.28% of the total membership for a semester. Furthermore, not all of these 78 students borrowed books. Many only read or borrowed books when assigned by their teachers. Few students independently visited the library to read and discover knowledge and information (Rodin et al., 2024). This lack of interest in reading among students could be due to a lack of understanding of the importance of reading habits or to uncomfortable or boring library facilities, which discourage them from visiting the library. Furthermore, the lack of interest in reading among students is also due to a lack of library services. A well-managed library can be a key catalyst in fostering and enhancing students' interest in reading (Al Farizi et al., 2023). Library services include access to reading resources, the availability of engaging collections, a conducive reading environment, the role of librarians as facilitators for students, integrated literacy programs, and the use of technology supported by infrastructure to create digital libraries.

These service limitations are exacerbated by a lack of training and understanding of the library's strategic role among library staff. Not all schools have librarians dedicated to developing libraries through management and service delivery (Anggraini et al., 2024). Library services include access to reading resources, the availability of comprehensive and engaging collections, a conducive reading environment, the role of librarians as facilitators for students, and literacy programs integrated with technology (Salubi & Majavu, 2024). In this digital era, students prefer interacting on social media and entertainment platforms to reading conventional books. However, the use of the internet has also opened up developments in the world of reading, with the availability of digital books that can be read online more effectively and efficiently. This is expected to foster students' previously declining interest in reading. Based on the description above, the author is interested in researching the effect of IoT implementation and library services on the reading interest of high school students in the Ilir Timur 1 District, Palembang.

B. Methods

This research was conducted at three high schools in the Ilir Timur 1 District: SMA Negeri 15 Palembang, SMA Taman Siswa Palembang, and SMA Quraniyah Palembang. The study was conducted from April 2025 to June 2025. The research method used in this study was a quantitative correlational study. This study aimed to measure and determine the relationship between variables, namely variables X1, X2, and Y. A quantitative approach was used to examine a specific population or sample, using a proportional stratified random sampling technique. Data collection used statistical data analysis instruments to test the established hypotheses. This study used multiple regression analysis to determine the effect of two independent variables on the dependent variable. This study examined the effect of IoT implementation (X1) and library services (X2) as independent variables, with reading interest (Y) as the dependent variable, both partially and simultaneously.

The population in this study was student library visitors at three high schools in the Ilir Timur I District of Palembang City: SMA Negeri 15 Palembang, SMA Taman Siswa Palembang, and SMA Quraniyah Palembang. The sample size was determined using the Slovin formula at 92 respondents. The instrument was tested on 25 students from SMA Methodist 2 in the Ilir Timur I District of Palembang who were not part of the research sample. Validity was tested using corrected item-total correlation with SPSS. A questionnaire item is considered valid if the calculated r-value, which is the corrected item-total correlation, is greater than the table r-value, with a critical correlation value of 5%. Data collection techniques in this study included questionnaires, interviews, observation, documentation, and other methods. A questionnaire is a data collection method that involves providing respondents with a set of written statements to respond to the researcher's requests. In this study, the data collection techniques employed were questionnaires, observation, and documentation.

This study used three instruments: instruments for library services, IoT implementation, and reading interest, which the researcher developed into various measurable parameters. The scale used in the measurements was the Likert scale. The Likert scale was used to measure students' perceptions of IoT implementation, library services, and reading interest. Validity testing in this study was calculated using computer calculations using the Statistical Product and Service Solution (SPSS) version 26 program. The data analysis requirements for the study included normality and homogeneity tests. This was done as a prerequisite for using product-moment correlation analysis and multiple correlation analysis, as product-moment correlation is a parametric statistic. Hypothesis testing used simple linear regression followed by a t-test in SPSS to determine whether each independent variable, namely IoT implementation (X1) and library services (X2), had a significant effect on the dependent variable, namely reading interest (Y), partially. Simultaneous testing used multiple linear regression followed by an F-test in SPSS or manually to determine the joint effect of the independent variables, IoT implementation (X1) and library services (X2), on the dependent variable, namely reading interest (Y).

Hypothesis testing was conducted statistically using partial t-tests.

1) First Hypothesis
H_{a1}: There is a significant effect of IoT implementation on student reading interest in high schools in the Ilir Timur 1 District, Palembang.
H_{01}: There is no significant effect of IoT implementation on student reading interest in high schools in the Ilir Timur 1 District, Palembang.

2) Second Hypothesis
H_{a2}: There is a significant effect of library services on student reading interest in high schools in Ilir Timur 1 District, Palembang.
H_{02}: There is no significant effect of library services on student reading interest in high schools in the Ilir Timur 1 District, Palembang.

3) Third Hypothesis
H_{a3}: There is a significant effect of IoT implementation and library services on student reading interest in high schools in Ilir Timur 1 District, Palembang.
H_{03}: There is no significant effect of IoT implementation and library services on student reading interest in high schools in Ilir Timur 1 District, Palembang.

C. Results and Discussion

Analysis of the Influence of the Application of Iot (Internet of Things) on the Reading Interest of High School

Based on the test results, it can be seen that the Internet of Things variable has a partial and significant effect on reading interest, thus concluding that the first hypothesis is

accepted. The theoretical framework suggests that the Internet of Things influences the reading interest of high school students in the Ilir Timur II District, Palembang. Therefore, if the Internet of Things is good, reading interest is expected to improve. The results of testing Hypothesis 1 using SPSS version 26 indicate that the Internet of Things partially has a positive and significant effect on reading interest, with a calculated t-value of 4.612 > t-table 1.9860. Therefore, Ho1 is rejected and Ha1 is accepted. The significance level is 0.000 < 0.05. The magnitude of the Internet of Things effect on reading interest is 0.191. This means that the Internet of Things variable contributes 19.1% to the reading interest variable, with the remaining 80.9% being influenced by factors outside the Internet of Things variable. This means that the theoretical framework demonstrates a significant influence.

The data description, which includes the average implementation of the Internet of Things, yielded an average score of 4.18, which falls into the excellent category. The dominant indicator for the Internet of Things variable is question 29, "I feel the internet provides greater benefits," with an average score of 4.34. The indicator with the lowest score is "I feel library applications don't require specific skills," with a score of 3.90. Overall, the IoT (Internet of Things) indicator falls into the "Very Good" category. The data description, which includes the average reading interest, yielded an average score of 4.15, which falls into the "Very Good" category. The dominant indicator for the reading interest variable is question 3, "I feel that reading books helps me increase my knowledge of the world," with an average score of 4.59. The indicator with the lowest score is "I often read books before bed," with a score of 3.58. Overall, the reading interest indicator falls into the "Very Good" category.

Respondents' perceptions of the implementation of IoT (Internet of Things) among high school students in Ilir Timur I District, Palembang, yielded an average score of 4.18, which falls into the "Very Good" category. Respondents' perceptions of reading interest averaged 4.15, which is considered excellent. This indicates that the Internet of Things (IoT) and reading interest are already well-established and should be maintained or improved in the future. The indicator with the lowest score was "I feel library applications don't require specific skills." This indicates that technology applications like SLIM in libraries require knowledge and skills, and therefore, all parties involved in library services must understand how to use SLIM application technology in libraries.

This research aligns with Santosa's et al., (2022) research. Efforts to overcome challenges faced in library management include empowering management and librarians. Ayuningtyas's (2023) research states that the emergence of a new era, Society 5.0, will impact human civilization. Society 5.0 has three main components: the Internet of Things (IoT), Big Data, and Artificial Intelligence (Chander et al., 2022). Libraries, as sources of information, are now not only entering the Industrial Revolution 4.0 but also the era of Society 5.0. This requires special attention for libraries to revolutionize themselves by implementing Society 5.0 components to

enhance user experience. The application of IoT can also support digital literacy theory, which emphasizes the importance of accessing, understanding, and evaluating information in the digital age (Martínez-Bravo et al., 2022). Digital literacy focuses not only on reading and writing skills but also involves the effective use of technology to search for and process information. With IoT, students can develop better digital literacy skills, which can indirectly increase their interest in more varied and relevant reading materials (Hasnida et al., 2023; Rakasiwi et al., 2023). Field observations show that students actively use the SLIM application in the library to facilitate their access to books and materials.

Analysis of the Influence of Library Services on Reading Interest of High School Students

Based on the test results, it can be seen that library services have a partial and significant effect on reading interest, thus concluding that the first hypothesis is accepted. The theoretical framework suggests that library services influence reading interest among high school students in Ilir Timur 1 District, Palembang. Therefore, good library services are expected to improve reading interest. The results of testing the second hypothesis using SPSS version 26 indicate that library services have a partial positive and significant effect on reading interest, with a calculated t-value of 4.144 > t-table 1.9860 and a significance value of 0.000 < 0.05. The magnitude of the effect of library services on reading interest is 0.160, which can be interpreted as meaning that library services contribute 16% to the reading interest variable, while the remaining 84% is influenced by factors other than library services. This indicates that, within the theoretical framework, there is a significant influence.

The data description is in the form of an average of 4.23, which is in the very good category. The dominant indicator for library service is question 18, "Librarians prioritize the interests of library visitors," with an average score of 4.41. The indicator with the lowest score is "I feel librarians are brave enough to address issues in the field," with a score of 4.03. Overall, the library service indicators are in the excellent category. The data describing the average reading interest obtained a score of 4.15, which is in the excellent category. The dominant indicator for reading interest is question 3, "I feel that reading books helps me increase my knowledge of the world," with an average score of 4.59. The indicator with the lowest score is "I often read books before bed," with a score of 3.58. Overall, the reading interest indicators are in the excellent category. Respondents' perceptions of library services are in the excellent category. Respondents' perceptions of reading interest obtained an average score of 4.15, which is in the excellent category. This indicates that library services and reading interest are already running well and should be maintained or improved in the future.

The indicator with the lowest score was "I feel librarians are brave enough to handle problems in the field." This indicates that librarians should be able to better resolve various library issues to increase student interest in visiting and reading books. This

research aligns with Ratno & Nadhirin's (2022) study, which found that the SLiMS information system has a positive influence on ease of use. Therefore, it can be concluded that the SLiMS information system plays a role in improving services at the IAIN Kediri Library. Research by Zailani et al. (2022) found that digital library use influences student reading interest. However, research by Akbar et al. (2021) showed a negative impact on student reading interest related to the quality of library services at SDN 52 Buton, Siotapina District.

According to Skøtt (2022), library services are the process of disseminating all kinds of information to the wider community. Library services are one of the main activities in every library. These services directly interact with users and serve as a barometer of the success of library operations. Therefore, the service desk will develop a clear image and image of the library, ensuring that all library activities are directed and focused on providing excellent service as desired by users. Good service is one that leaves users feeling happy and satisfied. Field observations indicate that library services in schools have improved and become more accessible. The SLiMS application, a technology-based application, makes it easier for students to borrow and search the catalog for books they desire (Humaidi et al., 2025).

Analysis of the Influence of the Simultaneous Implementation of the Internet of Things and Library Services on the Reading Interest of High School Students

Based on the test results, it can be seen that the Internet of Things (IoT) and library services simultaneously and significantly influence reading interest, thus concluding that the third hypothesis is accepted. The theoretical framework indicates that IoT (Internet of Things) and library services influence reading interest among high school students in Ilir Timur 1 District, Palembang. Therefore, if the implementation of IoT and library services is successful, it is expected that student reading interest will also improve. The results of testing the third hypothesis using SPSS version 26 indicate that the Internet of Things (IoT) and library services simultaneously have a positive and significant effect on reading interest, with a significance level of $0.000 < 0.05$ and an F-value of $10.795 >$ F-table of 2.70. Therefore, Ho3 is rejected and Ha3 is accepted. The magnitude of the simultaneous effect of the Internet of Things (IoT) and library services on reading interest is 19.5%. This means that, within the theoretical framework, there is a significant influence between IoT and library services on reading interest among high school students in Ilir Timur 1 District, Palembang.

This research aligns with research by Akbar et al. (2021), which showed a negative impact of library service quality on student reading interest at SDN 52 Buton, Siotapina District. Research by Zailani et al. (2022) stated that digital libraries influence student reading interest. Field observations indicate that digitalization, internet utilization, and good library services can increase student visits to the library. These services include the provision of a constantly updated book catalog and the use

of the internet in library services. This increase in library visits ultimately impacts student reading interest.

D. Conclusions

This study reveals the significant but limited role of technological and institutional factors in shaping high school students' reading interest in Ilir Timur 1 District, Palembang. The key findings demonstrate that both the Internet of Things (IoT) and library services exert statistically significant individual influences on reading interest, with IoT contributing 19.1% and library services contributing 16%. Their combined simultaneous influence accounts for 19.5% of the variance in reading interest. While these effects are statistically significant, the most striking finding is the substantial unexplained variance approximately 80% remains attributable to factors outside this study. This indicates that although IoT integration and quality library services matter, they are far from the dominant drivers of adolescent reading behavior. The practical implications are nuanced but important. For schools and district education authorities, these findings suggest that investments in digital infrastructure (IoT) and library improvements are worthwhile but insufficient as standalone strategies. Libraries should evolve beyond traditional book-lending functions to become dynamic learning hubs that leverage IoT for personalized recommendations, digital access, and engaging literacy programs. However, these efforts must be complemented by broader initiatives addressing family literacy environments, peer influence, intrinsic motivation, and the competition from entertainment media. A multi-pronged approach is essential. For future research, the substantial 80% unexplained variance presents a critical agenda. Subsequent studies should investigate other potential determinants such as family reading culture, access to diverse reading materials at home, influence of social media and digital entertainment, teacher modeling of reading behavior, and peer reading communities. A mixed-methods approach combining quantitative surveys with qualitative interviews and focus groups could provide deeper insight into students' lived experiences and motivations. Longitudinal research would help track how reading interests evolve and what interventions yield sustained impact. Finally, comparative studies across different districts or school types would illuminate how contextual factors moderate the influence of IoT and library services on reading engagement.

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