TECHNOLOGY USE IN LEARNING TO READ: A LITERATURE REVIEW

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PENGGUNAAN TEKNOLOGI DALAM BELAJAR MEMBACA: TINJAUAN PUSTAKA

ARTICLE HISTORY	ABSTRACT
	Abstract: *Learning to read in the 4.0 revolution era should be more focused on learning in the use of technology. Hence, the purpose of the research in this article was to analyze the learning process based on methods, analytical techniques, and findings in the terms of applying reading learning technology findings and analyzing the findings of publications on Google Scholar and Scopus. The type of research was literature research using a systematic review, which provided an overview of the publication of articles with the number of found data 56 articles. After conducting the review process, it was obtained that 25 articles matched the criteria. The research results showed that the most publications on the use of technology were in 2014, 2019, and 2021. Related to the place of publication, most publications used Scopus and Sinta 3 as many as 6 articles. The use of research was based on the research methods, which were mostly used on development methods at 48%. Thus, it could be seen from the results of the research that the use of technology in learning to read is able to improve reading skills.* ***Keywords: technology, learning to read, articles***
      Published: 20 Oktober 2022 *20th October 2022*	***Abstrak:*** *Pembelajaran membaca di era revolusi 4.0 lebih menitikberatkan pada pembelajaran pemanfaatan teknologi sehingga tujuan dari penelitian ini adalah untuk menganalisis proses berdasarkan metode, teknik analisis, dan temuan dalam hasil penggunaan teknologi pembelajaran membaca dan pembelajaran membaca. menganalisis temuan publikasi di Google Scholar dan Scopus. Jenis penelitian ini adalah studi kepustakaan dengan menggunakan tinjauan sistematis yang memberikan gambaran publikasi artikel dengan jumlah pencarian data ditemukan 56 artikel setelah menggunakan proses review menghasilkan 25 artikel yang sesuai dengan kriteria. Hasil penelitian ditemukan publikasi penggunaan teknologi terbanyak pada tahun 2014, 2019, dan 2021. Dilihat dari tempat publikasi, publikasi terbanyak berada di Scopus dan Sinta 3 sebanyak 6 artikel. Penggunaan penelitian terlihat pada metode penelitian yang sebagian besar menggunakan metode pengembangan sebesar 48%. Sementara itu, dapat dilihat dari hasil penelitian bahwa pemanfaatan teknologi dalam pembelajaran membaca mampu meningkatkan keterampilan membaca.* **Kata Kunci:** *Teknologi, Pembelajaran Membaca*

INTRODUCTION

Learning to read will follow the times so as not to lag behind the motivation of generation Z (Hautala, 2020), (Al-Ahdal, 2020) they prefer learning by using technology to obtain information and understanding (Başar, 2017). They use technology to assist in making full use of their free time in increasing self-esteem and reducing students' dependence on others (Malgorzata, & Krystyna, 2020; Katarina, et al, 2020; Chanyawudhiwan, & Mingsiritham, 2022). The development of technology is currently so rapid that it has a direct impact on education so that it must begin

to adapt (Arlinwibowo, et al, 2022) in the process of learning to read so that students will be moved to always read. Schools as educational institutions must begin to adapt to technology as a delivery in the learning process which in the past was very dependent on reading books, library manuals, and teachers as sources of information. In the 5.0 industrial revolution or often called the 21st century, there has been a growth in the digital world that is able to access information widely to help students learn more easily (König et al, 2020; Arlinwibowo et al, 2020; Sefriani et al, 2021). Learning to read must follow developments in the use of technology so that students are more interesting in participating in learning (Crijnen, 1998).

Learning to read has many benefits for students in translating the meaning contained in reading information (Akyol, 2013) fluency in reading is explained by three components, the first is word recognition and word differentiation, this will create a component of accuracy in reading fluency in finding relevant information. students want to be discovered (saat & zenç, 2022). Students at the school level are taught and guided in reading activities the quantity and complexity of texts they need to read at the tertiary level and the writing level required of them can be overwhelming for students at the first year level. This could be due to the fact that the school system does not place such high demands on them (Boakye & Linden 2018; Boakye & Mai 2016), and also because they are no longer being mentored and closely supervised by their teachers and parents. Furthermore, students are introduced to highly technical words in their content subjects, which makes reading in these subjects daunting and effortless for some of them (Boakye, 2021), therefore, it is also important for a teacher to develop technologies that will used in learning to read.

Utilizing technology in the process of learning to read is an option in the middle of the 21st century and the current development is so fast in utilizing technology. Aims to improve the quality of learning. In learning using technology, teachers must have the opportunity to increase their creativity, especially using technology in the classroom can certainly increase student enthusiasm because creative teaching makes students not bored (Arlinwibowo et al., 2022). The use of information technology in the learning process or based on information and communication technology is considered a tool that can provide reading learning reform in the classroom (Fu, 2013). Improving the quality of education and making it easier for teachers to connect learning with contextual cases and real-life situations (Boholano, 2017). Mention that today's schools must have a curriculum that is integrated with information technology. Every education policy has its advantages and challenges (Retnawati et al, 2017). In addition, the more science develops, the more complex the problems that are increasingly difficult to reason or solve traditionally (Marsigit et al, 2020). Technological intervention is necessary to solve today's problems.

Not all schools or teachers are able to develop technology in reading (Kurniaman, & SB. Sismulyasih, 2019), therefore, researchers are also still lacking in developing technology in learning because careful planning and appropriate content are needed. in learning to read. The importance of describing the use of technology in learning makes trends and methods used to produce technology-based learning. The research objectives are: 1) to analyze the research process based on the methods, analytical techniques, and findings produced in the use of reading learning technology; 2) analyze the findings of research publications on Google Scholar and Scopus in the use of reading learning technology.

METHOD

The type of research used is a literature study using a systematic review that provides an overview of the publication of articles (Dixon-Woods, 2011). Sources that can be accounted for to build a provable evidence base

based on research recommendations. All data was obtained from a comprehensive search through Google Scholar, Scopus, Sinta with the help of the search "Publish or Perish 7" to speed up data discovery with the keywords "Technology", "Learning Reading", and "Learning Reading Technology". keywords in the database both in English and Indonesian. All data collected that have been published in non-accredited, accredited, and Scopus journals are netted in keywords. Searching the data found 56 articles stored in research data documents, after documenting the articles were analyzed according to the criteria by looking at learning and assessment in reading in elementary schools by producing 25 articles that matched the criteria. The article review process can be seen in Figure 1.
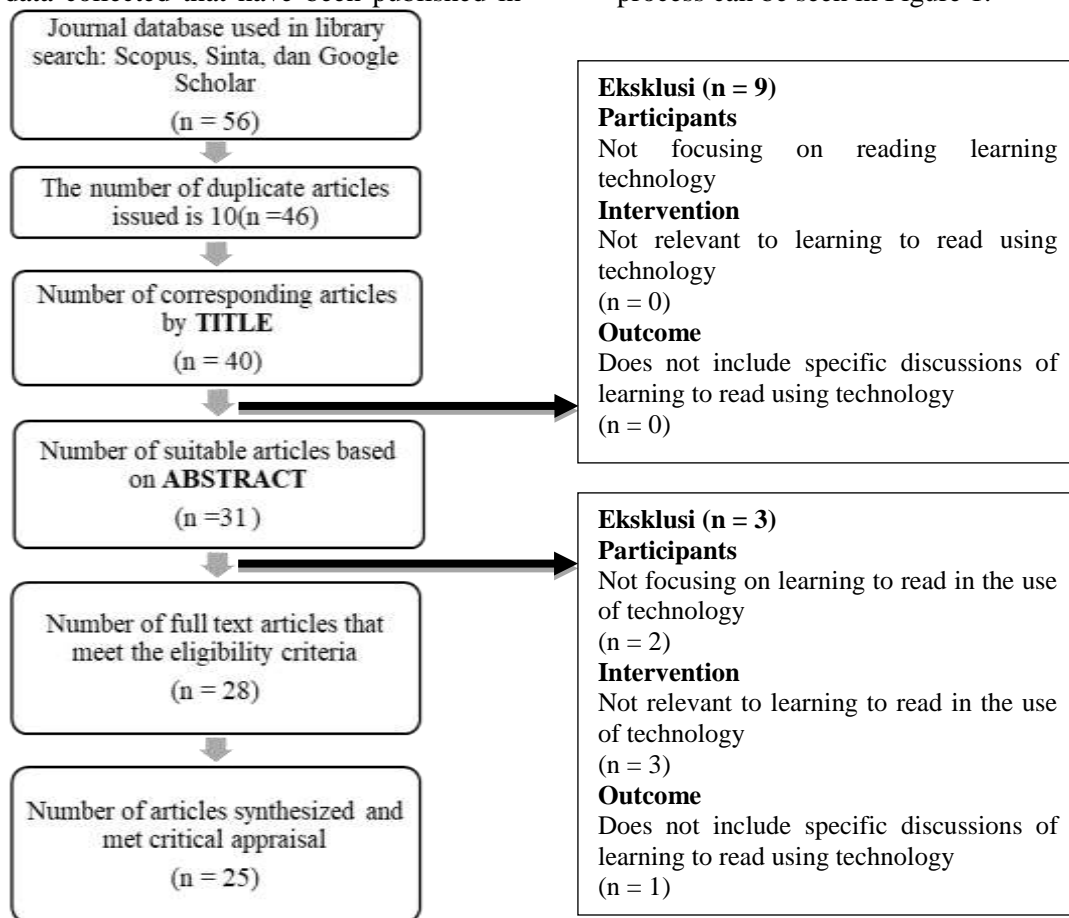

Figure 1. Article Review Process

Findings and Discussion

The results of this article review see how breakthroughs in learning to read by using technology are used, or the development of technology as a supporter in the process of learning to read. The use of technology will make it easier to teach students to read by looking at literature review research on methods, analytical techniques and the resulting findings. Figure 2 presents the data findings in the 2010-2022 publications.
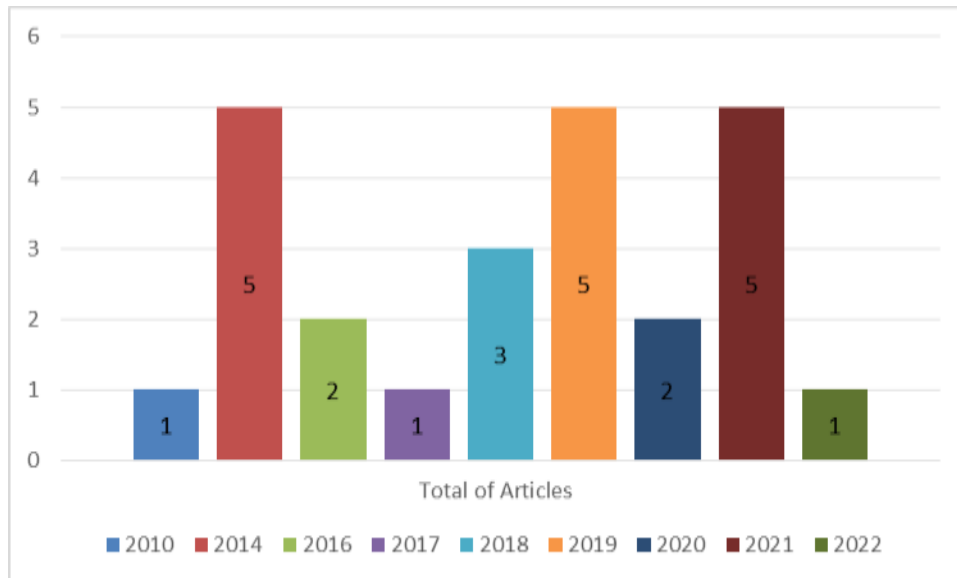
Figure 2. Article Review Data for 2010-2022

In accordance with Figure 2, it can be seen that the most use of technology in learning to read was in 2014 with a total of 5 articles, in 2019 and in 2021 as many as 5 articles. The next presentation will be seen in the publication of articles on Scopus, Sinta, and Non-Sinta as material to be used as references for researchers in developing and using technology in learning to read.
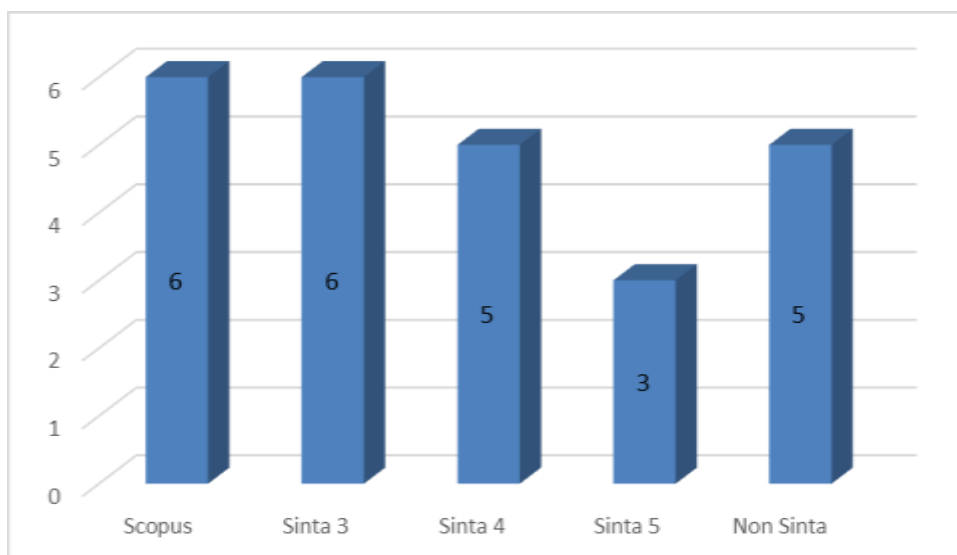

Figure 3. Review Data Seen By Publications

The article data seen in publications consists of 6 Scopus articles, 6 nationally accredited rankings of 3, 5 articles published in nationally accredited journals ranked 4, 3 articles in nationally accredited journals ranked 5, and 5 articles in journals that are not

nationally accredited. Accredited journals are journals indexed in the Science and Technology Index (SINTA) to assess journal performance based on accreditation standards held by the Ministry of Research, Technology and Higher Education. To be clearer the use of technology used in learning to read will be seen in table 1.

Table 1. Use of Technology and Research Methods

Study	Reading Learning Technology	Research Methods
Isdiyanto, & Suyata (2014)	Computer Media	Development
Maulidina, et al (2018)	Game Based Learning	Research And Development R&D
Ahmadi (2010)	The Glenn Doman Method is Multimedia-Based	Classroom Action Research (CAR)
Putrislia, & Airlanda (2021)	Picture Story E-Book	Four-D Model
Aminin, et al (2022)	E-Learning Learning to Read	Qualitative Research Approach
Faroqi, & Maula (2014)	Interactive Multimedia Application for Learning to Read, Write and Count (Calistung)	Development
Sholeh, et al (2021)	Google Classroom	Quantitative
Karaman, et al (2018)	Marbel Letters Mobile Version Application	Quantitative
Aulia, et al (2018)	Tsaqifa	System Development Life Cycle Method Or It Can Be Abbreviated SDLC
Marlini, & Rismawati (2019)	Macromedia Flash	Research And Development R&D
Ali, & Patombongi (2016)	Android-Based Reading Learning Educational Game	Development
Sugiyani, et al (2014)	Multimedia-Based Educational Application	Development
Hasanudin (2016)	Bamboomedia Bmgames App	Research And Development R&D
Annisa (2017)	Computer Assisted Language Learning (Call) Method	Research And Development R&D
Muftianti (2019)	Information Technology-Based Interactive Teaching Materials	Quasi Experiment
Gae, et al (2021)	Animated Videos	Addie Development
Wamesea (2021)	Zoom Meeting	Classroom Action Research (CAR)
Atikah, et al (2021)	Google Classroom	Study of literature
Endiawan, et al (2020)	Android E-Book Based Short Stories	Quasi Experimental Design And Nonequivalent Control Group
Amorim, et al (2019)	Escribo Play Video Game	Experiment And Control Group

Sabatini, et al (2019)	Twenty-first-Century Reading Engineering Utilization of Scenario-Based Judgment Assessment Systems	Qualitative
Hautala , et al (2020)	Game Based Rating	Development
Mize, et al (2019)	Rubric For Evaluating Reading Applications For Learners	Development
Syofriend (2014)	Information Technology	Classroom Action Research (CAR)
Dina, et al (2014)	Adaptive Learning Technology	Quantitative

The results of the synthesis show several findings in the use of technology used in learning even though the use or development that will be used in learning is different. Several studies in the use of technology as a basis provide convenience for teachers, and students are more attractive in learning to read (Kurniaman, et al, 2022). The use of research and development methods of 48% is the most widely used, while other methods are used as implications for the use of technology in learning to read in improving reading skills. To see the results of the use and development of reading learning technology will be seen in table 2.

Table 2. Analysis Techniques and Research Results

Study	Analysis Techniques	Results
Isdiyanto, & Suyata (2014)	Descriptive statistics	Produce computer-aided reading learning media software.
Maulidina, et al (2018)	Product Trial	Game based learning produces learning that is able to stimulate children's intellectual, emotional, and psychomotor skills.
Ahmadi (2010)	Descriptive statistics	The use of the glenn dominant multimedia method can improve students' reading skills and reading interest.
Putrislia, & Airlanda (2021)	Validity Test and Descriptive Technique Percentage	The e-book learning media contains reading learning materials that discuss the process of the occurrence of rain with results that are suitable for use and can be used in learning to read
Aminin, et al (2022)	Interview, Observation and Written Test	The application of E-Learning is very relevant to learning to read because learning to read is not only done in face-to-face learning, through e-learning learning can also be done, either synchronously or face-to-face via video conferences. literacy tasks can also be carried out asynchronously.
Faroqi, & Maula (2014)	Descriptive statistics	Calistung interactive media applications can make children more active and not dependent on teachers, can solve problems, and can also improve facilities and infrastructure in the calistung learning process.
Sholeh, et al (2021)	Quantitative descriptive	Google Classroom is effectively used in educational administration practicum courses

		because students and lecturers can easily access it according to the needs of the lecture.
Karaman, et al (2018)	Questionnaire	Application development in terms of ease of use and meaning of symbols in the system and assessment with more multi-attribute assessments, thereby improving the quality of learning media. The mobile version of Marbel letters, the quality of information and the quality of service so that it affects the use of a good mobile version of Marbel learning media
Aulia, et al (2018)	Interview	The chatbot application that has been built can make learning interactive and easy to use by users.
Marlini, & Rismawati (2019)	Product Trial	The macromedia flash-based early reading learning media developed in this study is very valid in terms of content, language, presentation, and graphics.
Ali, & Patombongi (2016)	Descriptive statistics	This educational game provides learning to children about the Science of Learning to Read. The interface design is attractive, making the application an attractive learning medium according to the needs of children.
Sugiyani, et al (2014)	Product Trial	Educational applications can make it easier for students to learn to read with a combination of animation, images, sounds in each learning material, so it can improve the process of teaching and learning activities, especially for learning letters and numbers. This educational application is packaged in the form of an interactive CD, which can be used by anyone, and can be used anywhere. Learning methods are effective and efficient and will accelerate and increase the creativity of students to support the teaching and learning process.
Hasanudin (2016)	Product Trial	The Bamboomedia BMGames Apps smart reading application can be used as a medium for learning Indonesian on the competency standard of understanding short texts by reading aloud with the basic competence of reading aloud syllables and words with proper pronunciation. Bamboomedia BMGames Apps smart reading application can cultivate the character values of honesty, hard work, curiosity, and love of reading. By bringing science and technology, this application is able to prepare students to face the ASEAN Economic Community (AEC) or the ASEAN Economic Community (AEC).
Annisa (2017)	Descriptive statistics	The final product of this development research is computer-aided reading learning media software for grade 1 elementary school students that is ready to be used both in the teaching and learning

		process in the classroom or used independently.
Muftianti (2019)	Descriptive statistics	Media in the form of interactive CDs is expected to increase students' learning motivation so that learning is interesting and fun. The interactive CD is in the form of a magazine consisting of a collection of rubrics with the theme of local wisdom combined with moving animation content, audio, and matching color combinations.
Gae, et al (2021)	Observation	Information technology-based teaching materials compiled by researchers can affect students' teaching skills in elementary language subject skills.
Wamesea (2021)	Observation, Interview, and Questionnaire	Animated video media that is oriented towards reading comprehension for fourth grade students, especially on Indonesian content, can be declared suitable for use in the learning process. With the existence of animated video media oriented to reading comprehension for fourth grade students, especially on Indonesian content, it is hoped that it can increase students' motivation to study independently during the covid-19 pandemic.
Atikah, et al (2021)	Interview, Observation, and Test/Assignment	The use of Zoom Meetings as a learning tool during the COVID-19 pandemic in replacing face-to-face classes is very effective in improving students' reading skills. foster a positive response to students in intensive reading skills. and can also train students' abilities in using technology from an early age
Endiawan, et al (2020)	Library Data Collection, Reading and Recording, and Processing Research Materials	The use of the Google classroom application in subjects has proven to be effective because it can improve student learning outcomes through planning, processes, results and student learning evaluations.
Amorim, et al (2019)	T-Test, Data Normality Test And Homogeneity Test Also Test Independent Sample Test	The use of tablets and cellphones given the development of Android e-book comic literacy becomes more interesting for students, also students feel happy and interested in reading illustrated stories, especially the stories are presented in moving image animations.
Sabatini, et al (2019)	Descriptive statistics	Ecribo Play Video Game helps to understand how the mediation of technology provided by teachers, or parents, affects reading and writing development
Hautala , et al (2020)	Observation and Interview	SBA techniques to address some of the construction aspects of our assessment framework to improve the measurement of reading comprehension. Aspects of this construction include goal-driven reading, understanding digital sources and genres, evaluation and integration of

		multiple sources, incorporating reading strategies, use of more disciplined content and literacy processes, and increasing use of reasoning and social modelling, including perspective taking and evaluation.
Mize, et al (2019)	Descriptive statistics	Game-based assessment was successfully used to identify students with reading difficulties with acceptable reliability. Game-based assessment to reliably assess reading skills in a cost-efficient manner in the classroom. Game-based assessment can also be applied to educational games to support the development of students' reading well.
Syofriend (2014)	Descriptive statistics	First, the teacher must have a deep understanding of what is being taught and a proper understanding of what students should know and be able to do. Second, any struggling reader's strengths and needs must be identified before using a rubric. and Third, rubrics should be used to build a supportive learning environment, which requires teachers (a) to use educational applications as tools only, not stand-alone educational tools (CY Lee & Cherner, 2015), (b) provide feedback to students , especially if the application does not offer feedback or error detection, and (c) use evaluation rubrics as planning tools and checklists to ensure various aspects of reading instruction are addressed and carried out with a comprehensively targeted level of assistance for struggling readers.
Dina, et al (2014)	Interview and Observation	Children's reading development activities are easier to implement by using good media technology in this case is computer media. Today's computer media is very much needed, as are children in developing reading skills. Children with literacy are easier to use computer media that is supported by reading ability software.

Technology-based learning is developing very rapidly in the 4.0 era in learning (Gaudreau, et al, 2020). The use of technology as a learning medium used to increase effectiveness and efficiency in achieving learning objectives. In particular, learning to read can make the attraction and interactivity of students meaningful in learning. Learning to read used by Dina, et al (2014) states that children's reading development is easier to implement by using good media technology in this case is computer media (Saefudin, & Munjiatun, 2022). Today's computer media is very much needed, as are children in developing reading skills (Lestari, & Putra, 2022). Children with literacy are easier to use computer media that is supported by reading ability software (Pradina, 2022). Because students can follow various technological developments quickly, and get direct use of developing technology so that students will improve their reading skills (Eldelena et al, 2022)

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CONCLUSION

The conclusions in this study are to find the most published research results in the use of technology in 2014, 2019, and 2021. Judging from the places where the most publications are on Scopus and Sinta 3 as many as 6 articles. The use of research seen in research methods that mostly use development methods is 48%. Meanwhile, it can be seen from the results of the research that the use of technology in learning to read is able to improve reading skills. suggest that the application of technology in the classroom improves teaching strategies for educators in terms of taking the teacher's time to use for better attention and control over children's performance.

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