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Use of Cybergogy in Improving Reading Comprehension among High School Students: A Systematic Literature Review

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Abstract: This systematic literature review investigates the role of cybergogy in enhancing reading comprehension among high school students, driven by the increasing use of digital tools in education. The review analyzed 25 studies, revealing that cybergogy offers significant benefits, such as the practical use of digital tools, flexible learning environments, and improved teaching quality. However, it also identifies several challenges, including digital distractions, insufficient foundational reading skills, logistical and technological constraints, and the dual impact of technology on reading habits. These findings underscore the necessity for a balanced approach to integrating cybergogy, emphasizing the need for targeted interventions to address the identified challenges, enhanced professional development for educators, and improved technological infrastructure. By focusing on these areas, schools can make better use of cybergogy to improve reading skills and help students succeed academically.

Keywords: Cybergogy, Reading Comprehension, Technology, Systematic Literature Review

INTRODUCTION

The modern world heavily relies on information and communication technologies (ICT), which have revolutionized communication by eliminating time and space constraints. In the field of education, fostering reading comprehension through the purposeful integration of writing practices and ICT can significantly enhance both teaching and learning. Educators must continuously update their teaching methods to promote digital and media literacy, equipping students to use ICT effectively. This empowers learners to actively construct knowledge and contribute positively to society (Lopera, 2023).

Lopera (2023) also emphasized that incorporating cybergogy into virtual environments for ICT integration significantly enhances students' reading comprehension and fosters digital and media competence. For instance, in high school classrooms, this could involve using interactive e-books that allow students to annotate and highlight text, promoting active engagement with reading materials. Additionally, platforms like Google Classroom or Moodle can facilitate collaborative learning by enabling students to share insights and discuss comprehension questions online.

Marsaulina (2019) further highlights that implementing computer network-enhanced blended reading strategies transforms the learning environment into a student-centered one, particularly benefiting IT students' reading comprehension. High school teachers, for example, can use blended learning to combine traditional in-class discussions with online forums, where students analyze texts and respond to peer feedback. Similarly, digital tools such as Kahoot or

Quizlet can be used to gamify vocabulary and comprehension exercises, making learning more engaging.

Research also shows that integrating digital tools into reading tasks has a positive impact on students' reading comprehension skills (Salmerón et al., 2022). The effectiveness of cybergogy, as emphasized by Batanero et al. (2021), lies in its ability to boost both reading motivation and comprehension through knowledge-building pedagogy, leading to more advanced online activities and a deeper understanding of texts. For example, high school teachers can implement AI-powered personalized learning tools, such as adaptive reading platforms, that adjust text difficulty based on individual student performance, ensuring tailored support for diverse learning needs.

The benefits of cybergogy in education extend beyond traditional methods, offering flexibility, global accessibility, and contributing to bridging the digital divide (Karmakar & Chatterjee, 2022). In the Philippines, cybergogy has been integrated into the education system since 1996, with the Department of Education (DepEd) leading various ICT-related programs to enhance teaching and learning (De Dios, 2016). In response to the increasing demand for distance learning, contemporary platforms are now used to engage online student communities, facilitating cyber socialization.

Vidal (2022) stresses the critical role of technology in enhancing students' reading proficiency and comprehension. Supporting studies suggest that AI-based technologies implemented in K-12 settings can lead to a 20-40% improvement in reading comprehension and overall academic performance (Srinivasan & Murthy, 2021). However, contrasting perspectives also exist. Budnik & Khyzhniak (2023) found that many students still prefer traditional instructional approaches over virtual learning. Similarly, the efficacy of digital books in improving reading comprehension is debated, with students often favoring printed materials (Putri & Savitri, 2022).

Given these varying viewpoints, a critical gap in the literature exists, thus, this systematic review aims to compare the effects of cybergogy and traditional approaches on high school students' reading comprehension. The review seeks to address this gap by providing robust evidence supporting cybergogy's implementation while also exploring the challenges educators face in effectively utilizing this pedagogical approach. Additionally, the study aims to identify gaps still existing in current literature regarding the comparative effectiveness of cybergogy versus non-technological methods.

The study examined the characteristics of both technological and non-technological approaches in improving reading comprehension among high school students, focusing on recent studies (2018-2024) from Asian countries. Particular attention will be given to ICT-assisted methods and their impacts on reading comprehension in high school settings. Furthermore, the research will highlight cybergogy as a pedagogical framework that incorporates ICTs, interactive multimedia, and heuristic learning approaches to improve reading comprehension.

Ultimately, by synthesizing these findings, the study aims to provide evidence-based insights that can inform effective teaching practices. These insights will be valuable for educators and policymakers seeking to enhance reading comprehension skills among high school students, forming a foundation for innovative and inclusive educational strategies in the digital age.

METHOD

Research Design

This study employed a systematic literature review approach. A systematic literature review (SLR) is a methodological approach that systematically identifies, selects, and critically evaluates research studies to address a well-defined research question (Dewey & Drahota, 2016). Systematic literature reviews are methodologically rigorous investigations that employ database searches to gather research findings. Their primary objective is to provide an impartial and theoretical synthesis of a specific subject or theme. Each identified study undergoes a systematic

evaluation, including the mapping of relevant sources, ensuring alignment with the central research focus and specific questions under investigation.

Unlike traditional literature reviews, systematic reviews aim to capture all relevant studies on a clearly defined research question by employing methodologies that reduce selection, publication, and data extraction biases. This approach ensures a more objective and comprehensive analysis of the available evidence, thus enhancing the reliability and validity of the conclusions drawn.

Research Questions

The study sought to assess the impact of cybergogy interventions on classroom instruction, with a particular emphasis on enhancing the reading comprehension of high school students. To guide this systematic literature review (SLR), the following research questions were formulated:

1. What are the demonstrated benefits of implementing cybergogy in classroom instruction for improving reading comprehension?
2. What specific challenges do educators and students encounter in effectively integrating cybergogy to enhance reading comprehension in classroom settings?
3. What research gaps can be identified based on the existing literature regarding cybergogy's impact on reading comprehension?

These questions aim to provide a comprehensive understanding of the current research landscape, highlighting both the advantages and challenges of cybergogy implementation while identifying areas for further exploration in this field.

Search Strategy

To ensure that relevant studies were included in this systematic literature review, a carefully selected set of keywords was employed, targeting both reading comprehension and cybergogy interventions. For the reading-related studies, keywords such as *reading proficiency, reading skills*, and *reading strategies* were used. For the cybergogy-specific studies in the context of reading, a different set of keywords was employed to address the intersection of digital learning and reading comprehension. These included terms such as *reading digitally*, *online reading*, *computer reading*, *screen-based reading*, *reading of digital text*, *reading with AI-based technology*, and *multimedia and text-based reading*. These terms were chosen to capture a broad range of research focused on reading and cybergogy.

Additionally, Boolean operators AND and OR were used to refine the search process and increase the comprehensiveness of the results. By using Boolean combinations, the search was systematically broadened to include studies that addressed multiple dimensions of cybergogy and reading comprehension, ensuring the inclusion of relevant, diverse literature across different digital and traditional contexts.

In addition, a variety of academic databases were employed to conduct the search. These included widely recognized and respected sources such as Google Scholar, ERIC, Academia, and ResearchGate, among others. The inclusion of multiple databases was vital to capturing a broad spectrum of research, encompassing peer-reviewed journal articles, conference papers, theses, and other scholarly works. The use of these databases and keyword strategies helped ensure that the review encompassed the latest and most relevant studies, offering a comprehensive foundation for analyzing the role of cybergogy in improving reading comprehension.

Inclusion and Exclusion Criteria

The study employed the following inclusion and exclusion criteria to ensure that only the most relevant and high-quality studies were considered in the systematic literature review. The criteria were designed to focus specifically on research examining the impact of cybergogy interventions on reading comprehension among high school students, as well as the use of digital tools and technologies in reading instruction. By applying these filters, the study aimed to gather

empirical evidence that aligns with the research objectives while excluding studies that fall outside the scope of the review. This process was crucial in maintaining the relevance, rigor, and focus of the literature reviewed. The inclusion and exclusion criteria are outlined in table 1.

Table 1. Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Study Focus	Studies focusing on reading development, reading proficiency, skills, strategies, and comprehension.	Studies unrelated to reading proficiency, comprehension, or reading strategies.
Technology in Reading	Studies involving digital environments, AI-driven tools, online reading platforms, and multimedia resources.	Studies that do not involve any form of technology or digital tools in reading instruction.
Cybergogy in Education	Studies discussing cybergogy, online learning, or digital pedagogy in the context of reading instruction.	Studies that focus only on traditional, non-digital instructional methods.
Publication Type	Peer-reviewed journal articles, conference papers, theses, and dissertations.	Non-peer-reviewed articles, opinion pieces, or non-scholarly materials.
Language	English-language studies.	Studies published in languages other than English.
Publication Date	Studies published between 2018-2024 to ensure relevance to current educational practices.	Studies published before 2018 or beyond the scope of recent technological advancements in education.
Geographical Scope	Studies focusing on high school students, particularly in Asia.	Studies focusing on student populations outside the scope of high school or Asia.
Empirical Evidence	Studies that present empirical data, outcomes, or measurable impacts on reading comprehension.	Studies that are purely theoretical or conceptual with no empirical data or measurable outcomes.

By applying these criteria, the review ensures that the selected studies are highly relevant to the investigation of cybergogy's role in improving reading comprehension within high school settings.

PRISMA Flowchart

The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart is used in this study to visually outline the process of selecting and reviewing studies included in the systematic literature review. The flowchart provides a transparent and structured overview of the identification, screening, eligibility, and inclusion phases, ensuring that the process is both methodologically sound and replicable. The flowchart is illustrated in Figure 1.

Initially, a comprehensive search was conducted across multiple databases using predefined keywords and Boolean operators, yielding 74 potential studies. These studies were then subjected to a rigorous screening process based on established inclusion and exclusion criteria, which involved removing duplicates and evaluating titles and abstracts to filter out irrelevant or low-quality studies, narrowing the pool to 60 studies. In the subsequent eligibility phase, full-text articles were carefully reviewed to ensure they met the review's criteria, focusing on their relevance to cybergogy, reading comprehension, and empirical evidence. Ultimately, 35 studies were selected for inclusion in the review, as they best aligned with the research objectives.

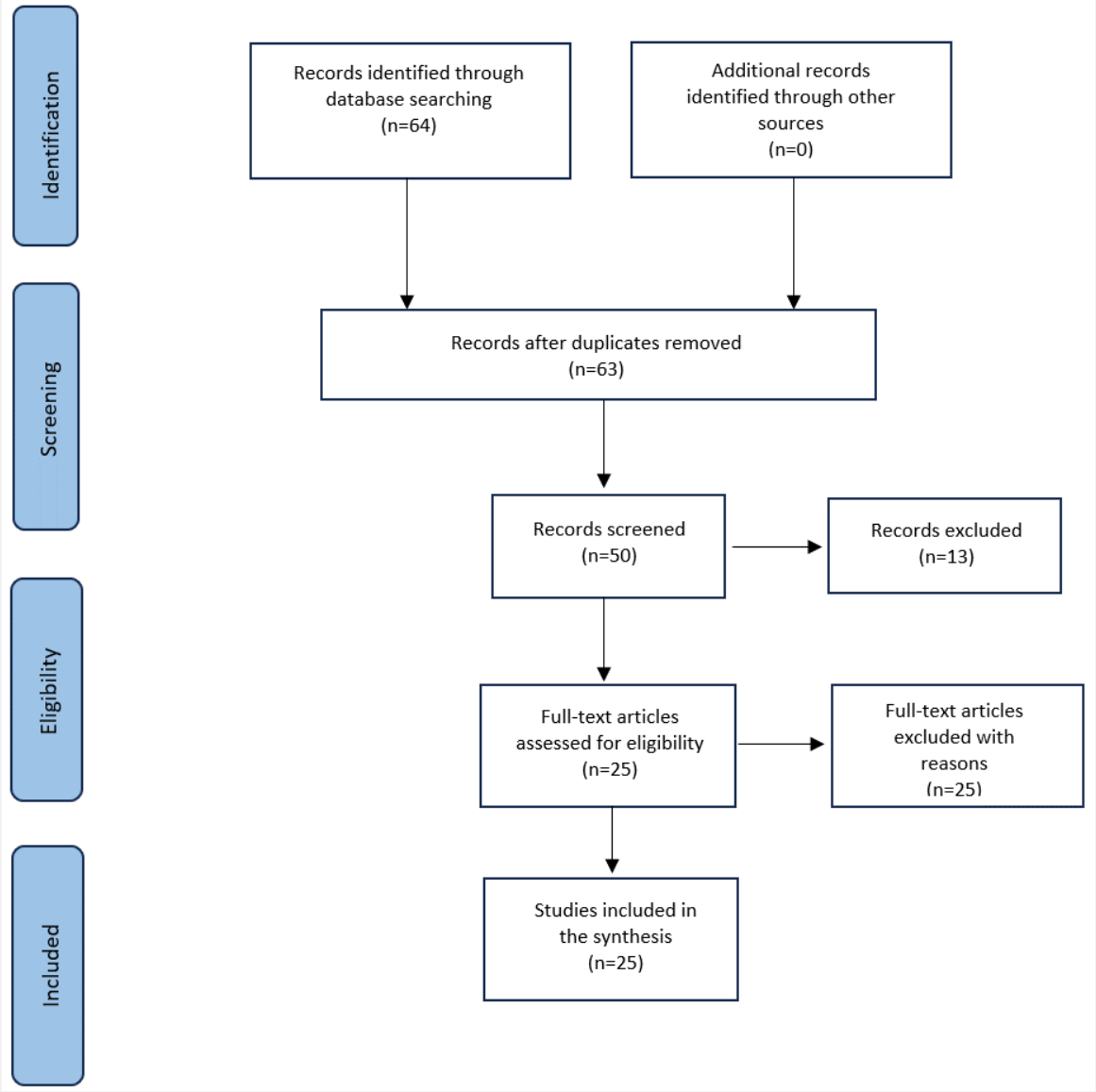

Figure 1. The PRISMA Flowchart of the Study

Data Analysis

In analyzing the findings of the studies included in the review, a thematic analysis was employed to synthesize the data systematically. The process involved, first, the studies were thoroughly reviewed to extract relevant data related to cybergogy and its impact on reading comprehension. Next, manual coding was conducted, where key phrases, concepts, and patterns were identified and labelled. These codes were then grouped into broader categories based on similarities and relationships. Through iterative refinement, overarching themes were generated capturing the core insights and trends across studies.

RESULTS & DISCUSSION

Benefits of Implementing Cybergogy in Classroom Instruction

The implementation of cybergogy has been shown to significantly enhance learning, particularly in improving reading comprehension. As seen in figure 2, this systematic review identified three core themes that illustrate the diverse benefits of cybergogy in classroom instruction.

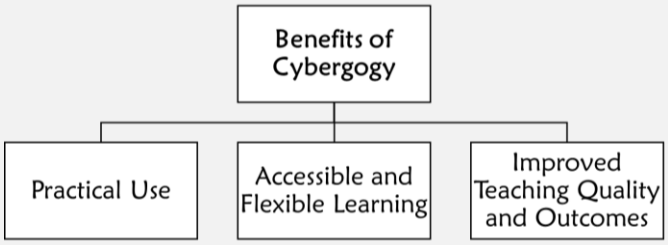

Figure 2. Themes on benefits of implementing cybergogy in instruction.

Theme 1: Practical Use

Cybergogy offers practical solutions that can directly impact students' reading comprehension by integrating digital tools into the learning process. For instance, Capodieci et al. (2020) found that using the Cloze distance program led to substantial improvements in text comprehension, particularly among students facing reading challenges. Similarly, Kalangi et al. (2019) demonstrated that internet browsing as a tool for reading instruction promotes critical thinking while enhancing reading comprehension. Both studies highlight the effectiveness of digital tools in practical learning scenarios, with results indicating substantial improvements in students' ability to comprehend and critically analyze texts.

A key strength of cybergogy in this context is its ability to leverage a wide range of technological tools, from electronic whiteboards (Wahid, 2021) to digital comprehension software like Courselab 2.0 (Noordan & Yunus, 2022), to provide a flexible and adaptable learning environment. The versatility of these tools ensures that educators can tailor their instructional strategies to meet the specific needs of their students, making reading instruction more interactive and engaging.

Cybergogy introduces an active, technology-driven learning environment that makes reading more practical, accessible, and tailored to individual needs, particularly for students who struggle with traditional methods. However, rather than replacing traditional approaches, cybergogy can complement them to create a more balanced and effective learning experience. Traditional methods, such as teacher-led discussions and guided reading sessions, encourage deep engagement and critical thinking, while cybergogy enhances these experiences with personalized learning tools, interactive content, and immediate feedback. For instance, teachers might use traditional classroom discussions to introduce complex texts and follow up with cybergogy tools like interactive quizzes or adaptive e-learning platforms for further exploration. This complementary relationship enables educators to address diverse learning needs, maximize the benefits of both methods, and create an enriched learning environment that supports comprehensive reading development.

Theme 2: Accessible and Flexible Learning

One of the defining features of cybergogy is its ability to offer accessible and flexible learning environments. Studies have shown that virtual environments, facilitated through ICT integration, provide students with the opportunity to engage in blended learning, which can significantly improve reading comprehension (Lopera, 2023; Selvaraj, 2023). The flexibility of these environments allows students to maintain and improve their proficiency outside of traditional classroom settings, adapting to their unique learning needs and schedules.

Lopera (2023) & Selvaraj (2023) both emphasize that cybergogy fosters not only literacy skills but also digital and media competence. This dual development is a key advantage of cybergogy over conventional learning methods, where students may not engage with digital literacy in meaningful ways. Additionally, Pham & Nguyen (2023) demonstrated that blended learning methods, combining traditional and online instruction, improved reading comprehension in Vietnamese high school students.

When compared to traditional classroom instruction, which often limits flexibility, cybergogy's integration of digital tools offers a more personalized learning experience. Students can access learning materials at their own pace, engage in interactive reading tasks, and receive immediate feedback, all of which enhance their comprehension and overall engagement with the material.

Theme 3: Improved Teaching Quality and Outcomes

Masbiran (2021) demonstrated that the integration of internet-based resources significantly enhanced the reading skills of fourth-semester students at the School of Foreign Languages, Persada Bunda. Similarly, Sarjoni et al. (2020) emphasized that educators with advanced knowledge of pedagogical content technology can substantially improve both teaching quality and learning outcomes. This expertise fosters innovation and creativity in the classroom, contributing to the broader goal of strengthening the national education system. The incorporation of technology into pedagogy supports more dynamic and interactive reading activities, leading to improved reading comprehension among students.

Moreover, AI-driven personalized reading platforms have shown considerable promise in enhancing reading comprehension, particularly among senior high school students. Hidayat (2024) reported that students using these platforms outperformed their peers in reading comprehension assessments. Further supporting the benefits of technology in reading instruction, Siregar et al. (2023) found that the REAP (Read, Encode, Annotate, Ponder) strategy significantly improved students' analytical reading skills in the digital age by encouraging structured interaction with texts. In line with these findings, Suparlin et al. (2022) concluded that digital educational platforms, within the cybergogy framework, effectively boost reading proficiency by providing students with engaging, interactive, and adaptive learning experiences.

The systematic review highlights multiple pathways through which cybergogy enhances reading comprehension among high school students. By leveraging digital tools and internet-based resources, educators can design more targeted, engaging, and differentiated reading instruction that addresses the diverse needs of learners. This approach fosters a more dynamic and interactive learning environment, promoting active student participation and deeper engagement with reading materials. Consequently, cybergogy not only improves students' reading skills but also supports the development of critical thinking and digital literacy, making it an effective strategy for modern educational contexts.

Challenges of Implementing Cybergogy in Classroom Instruction

Despite the increasing body of research highlighting the benefits of cybergogy, there remain several critical areas that warrant further consideration, as its implementation is not without challenges. Various studies have underscored the difficulties associated with integrating cybergogy into classroom instruction, identifying four key themes, as depicted in figure 3. These challenges underscore the complexities of integrating technology into educational settings, emphasizing the need to address these issues to fully harness the potential of cybergogy in enhancing learning outcomes.

Theme 1: Excessive and Improper Use of Digital Devices

Research has identified a range of specific challenges that educators face when attempting to implement cybergogy to enhance students' reading comprehension in classroom settings. Vázquez-Cano et al. (2020) point out that while cybergogy aims to integrate digital technology into education, it can inadvertently hinder students' reading abilities and comprehension if digital tools are misused. Excessive engagement with non-educational digital activities, such as online gaming and social media, has been found to divert students' attention away from academic reading tasks, leading to diminished reading skills. This phenomenon is compounded by smartphone addiction, which significantly contributes to cyberloafing behaviors—where students engage in off-task activities during instructional time. Saritepeci (2019) emphasizes the importance

of addressing this issue, suggesting that schools should implement proactive measures, such as seminars on responsible internet usage, to educate students on balancing academic and recreational digital activities. Such initiatives can help mitigate the negative impact of digital distractions and promote more focused engagement with reading tasks in the educational environment. By managing the challenges associated with digital device misuse, educators can maximize the benefits of cybergogy in improving reading comprehension outcomes.

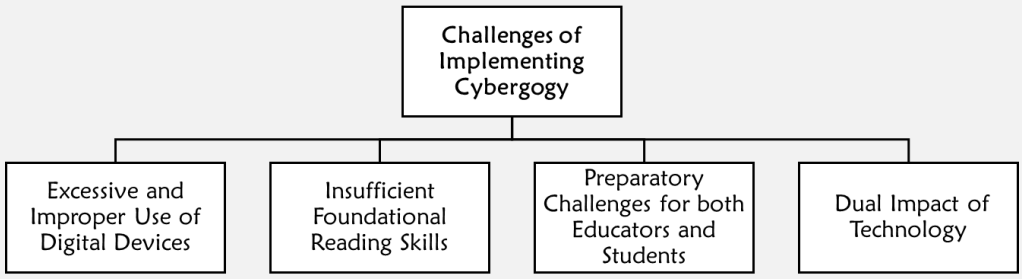

Figure 3. Themes on challenges of implementing cybergogy in classroom instruction.

Theme 2: Insufficient Foundational Reading Skills

Idulog et al. (2023) revealed that despite the integration of technology in classroom instruction, high school students in the Philippines continue to struggle with reading comprehension due to limited foundational reading skills. This deficiency not only impedes their academic progress but also underscores the need for tailored reading programs that address these specific gaps. The lack of instruction in essential skills, such as decoding and reading fluency, can result in high-performing students plateauing at average levels, further emphasizing the importance of foundational literacy skills for all learners (Paige et al., 2020). These findings highlight the critical role of building strong literacy foundations to foster not only academic achievement but also lifelong learning.

To address these challenges, the studies suggest the implementation of targeted interventions. Building robust literacy skills early on is crucial for students to thrive in more advanced reading tasks and overall academic performance. Urbano et al. (2021) proposed targeted strategies to address these gaps, including offering explicit guidance in reading, employing a text-centered instructional approach, and incorporating real-world and cooperative learning activities to make reading more engaging and relevant. These interventions aim to strengthen foundational skills and improve reading comprehension, particularly in technologically integrated educational settings. By focusing on foundational literacy development, educators can better support students' reading proficiency, ensuring that technology enhances rather than hinders their academic growth.

Theme 3: Preparatory Challenges for both Educators and Students

Herdina & Ningrum (2023) identified a range of logistical and skill-related challenges that hinder the effective integration of technology for teaching English reading skills. Key obstacles include insufficient technological infrastructure, slow internet connections, and inadequate teacher training in utilizing digital tools for educational purposes. These limitations not only impact the quality of instruction but also make it difficult for educators to motivate both teachers and students to effectively incorporate technology into English language learning. Additionally, the preparation of appropriate digital materials poses a significant challenge, further complicating the integration process.

Widodo et al. (2020) highlighted a critical issue: the overall lack of readiness for online learning, primarily due to technical problems, insufficient training, and inconsistent internet connectivity. These issues, compounded by software errors and malfunctioning devices, create barriers to students' reading skill development in technology-enhanced learning environments

(Tiglla et al., 2023). The combination of these technical difficulties can disrupt the learning process, resulting in reduced engagement and hindered progress in reading comprehension.

Ajaj (2023) further elaborated on these challenges, identifying several key obstacles such as ineffective teacher management, limited access to technological resources, and poor infrastructure. Despite the recognized benefits of technology integration in education, the persistent issues of insufficient facilities, unreliable internet connections, and a lack of teacher expertise in handling digital tools continue to impede the effective implementation of cybergogy in English language instruction (Herdina & Ningrum, 2023). These studies collectively emphasize the need for comprehensive solutions, including improved infrastructure, targeted teacher training, and the development of effective digital resources, to fully leverage the potential of technology in enhancing reading skills.

Theme 4: Dual Impact of Technology

Digital devices such as e-books and audiobooks have been shown to enhance the reading experience by providing convenience and accessibility, yet they also challenge students' ability to maintain focused reading habits due to constant digital connectivity, highlighting the dual impact of technology on literary consumption (Spjeldnes & Karlsen, 2022). This duality is evident in the work of Diallo (2023), who underscores that while technology fosters independence, motivation, and collaborative learning, it can also lead to negative consequences such as overdependence on devices, eye strain, and distractions from academic tasks. These findings illustrate the complexity of integrating technology into reading instruction, where its benefits and drawbacks must be carefully balanced.

In the classroom setting, teachers often express a preference for traditional instructional methods; however, they increasingly depend on internet access and digital tools to enhance student engagement and provide diverse learning materials. Despite this reliance, challenges persist. According to Ogborn Corpuz (2019), students frequently struggle with engagement due to overstimulation from bright visuals and often rely on copying images or content from online sources, which hampers their ability to organize thoughts and participate in critical analysis. This overreliance on digital materials may detract from the deeper cognitive processes involved in reading comprehension.

Thapliyal (2023) reinforces this perspective by noting that digital literacy presents a paradox in reading development: while it provides expanded access to literature and reading materials via digital platforms, it can simultaneously diminish students' ability to engage in deep reading and develop critical thinking skills. The growing accessibility of digital reading fosters a surface-level interaction with texts, which may undermine students' capacity for sustained attention and thoughtful analysis. Thus, the dual impact of technology on reading presents both opportunities and challenges that educators must navigate to maximize its benefits while mitigating potential drawbacks.

These findings suggest that while cybergogy holds significant potential for enhancing reading comprehension, its benefits must be weighed against its inherent challenges. To maximize its effectiveness, it is crucial to address these obstacles, ensuring that the integration of cybergogy into educational programs is both thoughtful and strategic. By carefully balancing its advantages with its limitations, educators can enhance the quality of instruction and more effectively foster student literacy development in the digital age.

Research Gaps

The systematic literature review highlights several critical research gaps in the study of cybergogy and its impact on reading comprehension, which warrant further investigation to enhance educational practices. The identified research gaps were illustrated in Figure 4.

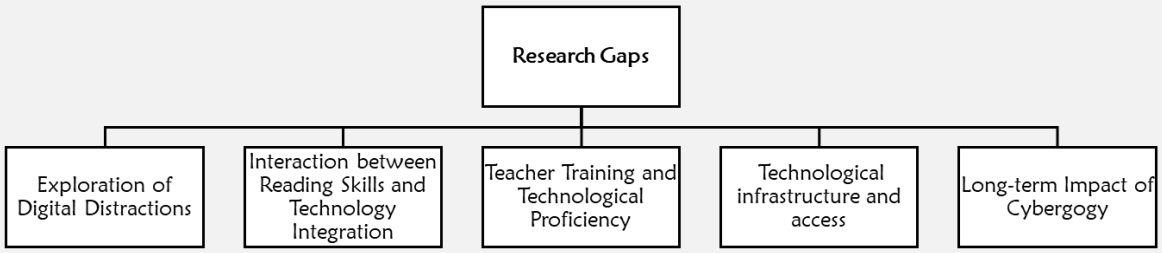

Figure 4. Identified research gaps in the current literature

Gap 1: Exploration of Digital Distractions

One notable gap is the need for in-depth exploration of how digital distractions affect reading comprehension. While the dual impact of technology on reading is acknowledged, there is insufficient research quantifying the extent of these distractions and their specific effects across different educational contexts. Future research should focus on identifying and mitigating digital distractions, exploring strategies that maintain students' focus, and assessing their effectiveness.

Gap 2: Intercation between Reading Skills and Technology Integration

Another significant gap pertains to the interaction between foundational reading skills and technology integration. Current studies suggest that underdeveloped foundational skills may hinder the effectiveness of technological interventions. Research should delve into how technology can be tailored to support students with varying levels of foundational literacy and evaluate targeted interventions that combine technology with foundational skills training.

Gap 3: Teacher Training and Technological Proficiency

Additionally, the review indicates a lack of detailed exploration into effective teacher training and technological proficiency. While challenges related to teacher training are recognized, there is limited research on designing and implementing professional development programs that enhance teachers' ability to integrate cybergogy effectively. Future studies should investigate the impact of such programs on teaching quality and student outcomes, aiming to identify best practices for teacher development.

Gap 4: Technological Infrastructure and Access

Technological infrastructure and access also present a significant research gap. Although logistical challenges like inadequate infrastructure and connectivity are noted, research is lacking on how these factors specifically influence the effectiveness of cybergogy. Future studies should assess how varying levels of infrastructure and access affect the implementation and outcomes of cybergogy and explore strategies to overcome these limitations.

Gap 5: Long-term Impact of Cybergogy

Moreover, the long-term impact of cybergogy on deep reading and critical analysis skills remains underexplored. While digital platforms enhance access to literature, their effect on students' ability to engage in deep reading and critical thinking over time is not well-documented. Longitudinal research should be conducted to evaluate how digital reading tools influence these skills and identify practices that support sustained critical engagement.

Limitation

This study has several limitations that should be considered when interpreting the findings. First, the review primarily focuses on studies published between 2018 and 2024, which may exclude valuable insights from earlier research on cybergogy and its applications. Additionally, the review is limited to studies conducted in high school settings, particularly in Asia, which may not fully represent the global context or the experiences of students in other educational systems.

Potential biases in the reviewed studies also warrant attention. Publication bias is a significant concern, as research with positive findings is more likely to be published, potentially overestimating the benefits of cybergogy. Sample selection bias is another limitation, as many studies involve participants from specific contexts, such as schools with better access to technology, which may not reflect the broader population. Furthermore, the reviewed studies often measure short-term outcomes, such as immediate improvements in test scores, without exploring the long-term impacts of cybergogy on deeper skills like critical thinking and sustained reading comprehension.

CONCLUSION

This systematic literature review has synthesized the current understanding of cybergogy's impact on reading comprehension among high school students. The review reveals that cybergogy offers several notable benefits, including practical applications of digital tools, enhanced accessibility and flexibility in learning environments, and improvements in teaching quality and outcomes. Despite these advantages, the review also identifies significant challenges such as digital distractions, insufficient foundational reading skills, logistical and technological limitations, and the dual impact of technology on reading habits.

This review contributes to the body of knowledge by providing a comprehensive overview of the current knowledge on cybergogy and its implications for reading comprehension. By identifying research gaps and offering evidence-based insights, this review informs future educational practices and policy decisions.

Recommendations for future research include exploring targeted interventions to address foundational skill gaps by designing and implementing intervention programs that integrate foundational literacy skills with digital tools, enhancing professional development programs for educators by developing a comprehensive training workshops that focus on integrating cybergogy into reading instruction, and investigating the long-term impacts of cybergogy on reading proficiency by conducting longitudinal studies that track students' reading development over several years in environments where cybergogy is systematically applied. Moreover, future studies may provide region-specific examples to illustrate how cybergogy could address challenges unique to Asian high school settings, and incorporate a critical lens by discussing ethical considerations, such as data privacy concerns with AI tools and potential over-reliance on digital methods. Addressing these areas will advance the field and facilitate the effective integration of cybergogy into educational settings, ultimately promoting improved reading comprehension and academic success.

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