

Original Paper

Multimodal Language Literacy Approaches in Enhancing Reading Engagement of University Student in Jiangmen City, China

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Abstract

This study examines the impact of multimodal language literacy approaches employed by reading teachers on students' reading engagement. Utilizing a descriptive-correlational research design, the study assessed respondents' perceptions across six key literacy approaches: reading portfolios, e-books, digital storytelling, interactive reading apps, online book clubs, and multimedia annotations. Additionally, the level of reading engagement was evaluated through dimensions of reading interest, family and cultural influences, strategy use, choice and autonomy, and emotional engagement. Data were collected from a diverse sample of middle school students and analyzed for significant differences and correlations.

The findings revealed that overall, multimodal literacy approaches positively influence students' reading engagement, with an overall significant correlation ($r = 0.254$, $p = 0.000$). Among the approaches, reading portfolios and e-books demonstrated the strongest positive relationships with strategy use, autonomy, and emotional engagement, while interactive reading apps and multimedia annotations exhibited challenges in aligning with students' preferences for reading interest and autonomy. Choice and autonomy emerged as the most significant factor in fostering reading engagement, followed by emotional connection to reading materials.

The study also identified differences in reading engagement based on sex and grade level, with males reporting higher emotional engagement and Grade 4 students perceiving greater family and cultural influence. These findings underscore the importance of tailoring multimodal approaches to address diverse student needs and preferences, as well as leveraging autonomy and emotional connections to enhance reading engagement. This study contributes valuable insights into the role of multimodal

strategies in literacy education and offers recommendations for optimizing their implementation to foster deeper and more meaningful student engagement with reading.

Keywords

Multimodal Language Literacy, Reading Engagement, Online Book

1. Introduction

From a cognitive perspective, literacy involves the mental processes used in decoding written language, comprehending text, and constructing meaning from written symbols. This includes phonemic awareness, vocabulary knowledge, fluency, and the ability to use reading strategies to understand and analyze texts (Mak et al., 2017; Taboada Barber & Klauda, 2020). Literacy requires the ability to not only decode words but also to critically engage with content, synthesize information, and draw inferences (Ho & Lau, 2018).

Integrating multimodal digital literacy approaches into language literacy education provides a comprehensive framework for developing students' reading and writing skills. These approaches recognize the diverse ways in which students interact with texts and leverage digital tools to enhance engagement, comprehension, and critical thinking. By incorporating elements such as reading portfolios, e-books, digital storytelling, interactive whiteboards, online reading platforms, and VR/AR technologies, educators can create dynamic and inclusive learning environments that support the development of 21st-century literacy skills.

The primary interest in this research include reading portfolios, e-books, and digital storytelling. Reading portfolios allow students to compile a comprehensive collection of their work over time, providing a tangible record of their progress and achievements in reading. E-books revolutionize access to reading materials, often equipped with interactive features that enhance engagement and comprehension. Digital storytelling combines traditional narrative techniques with digital media, fostering creativity and enhancing literacy skills by providing a multimodal platform for expression.

By incorporating these multimodal digital literacy approaches, educators can create dynamic and inclusive learning environments that support the development of 21st-century literacy skills. This study aims to assess the effectiveness of these approaches in enhancing reading engagement among university students in __, China, thereby providing insights into best practices for integrating digital tools into literacy education.

1.1 Background of the Study

In recent years, China has undergone significant educational reforms to enhance the quality of education and promote digital literacy among its population. The integration of information and communication technologies (ICT) in education has been a major focus, aiming to bridge the gap between traditional literacy practices and the demands of the 21st century. The Ministry of Education in China has actively promoted the use of digital resources and tools to enhance teaching and learning, recognizing the potential of these technologies to improve educational outcomes (Li et al., 2020).

The landscape of higher education in China is evolving rapidly, with universities increasingly incorporating digital tools and resources into their curricula. This shift is driven by the need to prepare students for a globalized world where digital literacy is essential. The adoption of multimodal digital literacy approaches is part of this broader effort to modernize education and make learning more engaging and effective for students.

Reading engagement, a critical component of literacy, has traditionally been a challenge in the Chinese educational context. Students often face pressures related to high-stakes testing and a rigid curriculum, which can dampen their motivation to read for pleasure and personal growth (Zhang et al., 2018). However, the introduction of digital tools and resources offers new opportunities to enhance reading engagement by making reading more interactive, personalized, and relevant to students' lives.

In this context, multimodal digital literacy approaches, such as reading portfolios, e-books, and digital storytelling, hold great promise. Reading portfolios can help students track their progress and reflect on their learning experiences, fostering a deeper connection to their reading activities. E-books provide easy access to a vast array of reading materials, often accompanied by interactive features that enhance comprehension and engagement. Digital storytelling allows students to create and share their own stories using multimedia elements, promoting creativity and critical thinking skills.

Despite the potential benefits of integrating digital tools into literacy education, there is limited research on the effectiveness of these approaches in the Chinese higher education context. Understanding how multimodal digital literacy approaches impact reading engagement among university students is crucial for developing effective instructional strategies that can be widely adopted. This study aims to fill this gap by providing empirical evidence on the benefits and challenges of using digital tools to enhance reading engagement.

Furthermore, as China continues to modernize its education system, it is essential to identify best practices that can support the development of digital literacy skills. By examining the effectiveness of specific digital tools and resources, this research will contribute to the body of knowledge on how to effectively integrate technology into literacy education. This, in turn, can inform policy decisions and curriculum design, ensuring that students are equipped with the skills they need to succeed in a digital world.

The motivation for conducting this research stems from a deep interest in improving educational outcomes through innovative teaching methods. As an educator, the researcher has observed firsthand the challenges students face in staying engaged with traditional literacy practices. The rapid advancement of technology presents an opportunity to transform these practices and make learning more dynamic and relevant to students' lives.

By exploring the impact of multimodal digital literacy approaches, the researcher aims to identify strategies that can foster a love of reading and improve literacy skills among university students. This research is driven by a commitment to enhancing the quality of education and ensuring that all students have access to engaging and effective learning experiences. The findings of this study will not only

benefit the academic community but also have practical implications for educators seeking to integrate digital tools into their teaching practices.

1.2 Multimodal Digital Literacy Approaches

Multimodal digital literacy approaches have become essential in contemporary education, especially for English as a Second Language (ESL) and English as a Foreign Language (EFL) contexts. The integration of multiple modes of communication—such as text, images, sound, and videos—enhances the learning experience by making it more interactive and engaging. This synthesis explores the significance, components, and implementation of multimodal digital literacy approaches, drawing on various scholarly articles.

The significance of multimodal digital literacy in ESL/EFL education is rooted in its ability to address global and development issues comprehensively. According to Syahril (2019), interdisciplinary teacher education programs that emphasize multimodal literacy can produce teachers capable of critical, systemic, and creative thinking. These programs foster non-cognitive skills such as empathy and communication, crucial for interacting with diverse cultural perspectives. Such competencies are strategic for improving education and accelerating social and economic development in countries like Indonesia.

Critical literacy and multimodal semiotics are pivotal in selecting and using multimodal texts to engage students with contemporary global issues. Midgette, Stewart, and Gonzales (2023) argue that using multimodal texts in EFL classrooms can help students examine implicit biases and power relations. This approach encourages cultural responsiveness and critical framing, allowing students to connect with broader human experiences and global challenges.

The practical application of multimodal literacy in classrooms is evident in the creation and assessment of digital fiction. Fiftinova et al. (2022) conducted a study involving EFL students in South Sumatera, revealing high levels of multimodal literacy. The integration of text, image, sound, and video in creative writing subjects not only enhances students' literacy skills but also promotes positive attitudes towards multimodal writing. This approach underscores the importance of incorporating diverse media to enrich the learning experience.

The development of interactive multimodal e-books is another vital component. Kholis and Azmi (2023) highlight the necessity of e-books that integrate 21st-century skills such as communication, collaboration, critical thinking, and creativity. Their research emphasizes the importance of addressing students' needs, wants, and difficulties in designing these resources. By incorporating various multimodal materials, e-books can significantly enhance students' digital literacy and motivation to learn.

The role of multimodal literacy extends beyond the classroom, as evidenced by the case study of an adult vlogger in China. Xiao (2020) explores how a bilingual speaker uses multimodal resources in vlogs to communicate effectively and engage with a global audience. This study challenges the notion

that EFL learners have limited opportunities to use the language and suggests that educators can build on learners' existing digital practices.

The experiences of refugee youth also illustrate the power of multimodal literacy in expressing identity and culture. Kennedy et al. (2019) document how refugee students use journal and poetry writing in an ESL classroom to navigate their bicultural identities. This third space for self-expression highlights the value of multimodal approaches in supporting diverse linguistic and cultural backgrounds.

Curriculum optimization for EFL students should include multimodal approaches to meet evolving technological demands. Yana, Rozimela, and Hamzah (2024) argue for restructuring academic writing curricula to emphasize multimodal projects. Their research points to the need for curricula that align with students' multimodal paradigms and technological advancements, ensuring a progressive step towards enhancing English language education. By incorporating various forms of communication such as visual, auditory, and kinesthetic elements, EFL students can better engage with and understand the material. Yana, Rozimela, and Hamzah's recommendations highlight the importance of adapting teaching methods to cater to the diverse learning styles of students in an increasingly digital world. By embracing these changes, educators can foster a more dynamic and interactive learning environment that prepares students for success in the modern globalized society.

In teacher preparation programs, multimodal inquiries into literacy assessment encourage critical questioning and engagement with complex social issues. Jacobs and Low (2017) describe how preservice teachers use comics scholarship to explore literacy assessment, fostering a critical perspective on educational practices. This method of using multimodal texts in higher education settings promotes a deeper understanding of assessment and its implications.

Students' perceptions of using digital games like Roblox for multimodal literacy practices further demonstrate the potential of digital technologies in education. Sinar et al. (2023) found that junior high school students perceive digital games as effective tools for improving their English multimodal literacy. This finding suggests that incorporating games and digital formats in teaching can enhance students' engagement and learning outcomes.

The broader context of multimodal literacy involves seeing literacy as a social practice, shaped by the available texts, genres, and media. Maagerø and Tønnessen (2021) discuss how multimodal resources contribute to language learning by providing motivation, support, and cultural understanding. This perspective aligns with the notion that literacy is central to learning and participation in society.

Guided literacy instruction, particularly in reading multimodal English-medium texts, emphasizes the role of students as active designers and interpreters. Tungka (2018) reports that guided literacy instruction helps students navigate and interpret multimodal texts, enhancing their meaning-making process. This approach suggests that multimodal texts can be valuable learning resources beyond traditional classroom settings.

The successful implementation of information literacy programs at the college level, as described by Bombaro (2014), demonstrates the importance of persistence and assessment in building effective

literacy programs. These programs can serve as models for integrating multimodal literacy into higher education curricula. Multimodal digital literacy approaches are becoming increasingly vital in contemporary education, particularly in the realm of English language teaching. These approaches integrate various modes of communication, including text, images, sound, and video, to enhance the learning experience and better prepare students for the complexities of the digital age. This synthesis explores the meaning, importance, and components of multimodal digital literacy, drawing on a wide array of scholarly articles.

The significance of multimodal digital literacy lies in its ability to address diverse learning needs and enhance the comprehension and production of complex texts. Mayer and Trezek (2020) highlight that the inclusion of multimodal elements in sign bilingual programs can significantly impact the literacy outcomes of deaf children, though challenges such as variability in achievement and additional disabilities must be addressed. This underscores the need for comprehensive multimodal strategies to cater to different learning requirements.

Parental involvement plays a crucial role in developing children's English literacy skills. Hemas, Padmadewi, and Dewi (2023) emphasize that parental programs, including conferences and interviews, are essential in bilingual kindergarten settings. However, challenges such as less effective activities and the need for better collaboration between parents and schools highlight the importance of integrating multimodal approaches to foster engagement and effectiveness in literacy programs.

In the context of higher education, Almusharraf and Engemann (2020) discuss the perspectives of postsecondary instructors in Saudi Arabia on using multimodal digital literacy practices. Despite positive attitudes towards these practices, obstacles such as limited technology use and the need for better implementation strategies remain. This indicates the necessity of developing robust multimodal frameworks that can be effectively utilized in diverse educational settings.

The integration of critical multimodal literacy can significantly enhance both conventional literacy and awareness of social issues. Ju (2023) illustrates this through the use of parody films and metaverse-based content in Korean EFL classes, which not only improved students' literacy skills but also broadened their perspectives on disabilities. This approach highlights the potential of multimodal literacy to foster critical thinking and social awareness.

Multimodal digital extensive reading programs, as explored by Khoiriyah and Ilmi (2023), can be instrumental in building strong reading habits in Islamic private schools and boarding schools. Their study shows that sustainable collaboration between teachers, students, and stakeholders is crucial for the successful implementation of these programs. This underscores the importance of community involvement and policy support in promoting digital literacy.

Early childhood education also benefits from multimodal approaches. Faulkner et al. (2014) discuss how storytelling and multimodal literacy can enhance young children's literacy development. By positioning teachers as researchers and focusing on the multimodal engagement of students, this

approach supports the notion that early literacy programs should incorporate diverse media to expand children's literacy knowledge.

Nagy (2020) examines the development of multimodal literacy in higher education English studies, noting that students often struggle with interpreting and producing multimodal texts due to a lack of explicit instruction. This points to the need for curricula that explicitly address multimodal literacy to better prepare students for academic and professional challenges.

The nexus of multimodality, multimodal literacy, and English language teaching is further explored by Camiciottoli and Cubillo (2018), who advocate for the integration of multimodal literacy in higher education settings. Their research suggests that multimodal approaches can enhance language learning by providing richer, more engaging contexts for students.

Workplace literacy programs also demonstrate the impact of multimodal approaches. Nwude and Zajicek (2021) found that participation in such programs positively affected the social networks of low-income Somali refugee workers, highlighting the broader social benefits of multimodal literacy.

Tour and Barnes (2021) explore the experiences of pre-service teachers with digital multimodal composing, emphasizing the need for appropriate scaffolding to maximize learning potential. This suggests that teacher education programs should include comprehensive training in multimodal literacy to better equip future educators.

Yi (2014) reviews empirical research on the possibilities and challenges of multimodal literacy practices for English language learners (ELLs). The findings indicate that while multimodal practices hold significant promise, more empirical research is needed to address the challenges and optimize these practices for diverse learner populations.

Pardede and Dewanti (2022) provide a systematic review of digital literacy research in Indonesian English education, noting that while the field is relatively new, it is rapidly growing. Their review highlights the need for continued research and practical enactments to fully realize the potential of digital literacy in education.

Multimodal digital literacy is crucial for developing comprehensive literacy skills among students, as it transcends traditional text-based learning to include various forms of media and communication. Villamizar (2018) emphasizes that visual literacy in adult English language teaching often simplifies the use of images to complement written texts through technologies. However, there is a need to develop essential 21st-century visual literacy skills, which are critical for academic success and real-world applications.

Parental involvement in children's literacy development is another vital aspect of multimodal literacy. Hemas, Padmadewi, and Dewi (2023) highlight that parental programs, including conferences and interviews, are crucial in bilingual kindergarten settings. Despite challenges such as less effective activities and the need for better collaboration between parents and schools, integrating multimodal approaches can enhance engagement and effectiveness in literacy programs. The importance of parental involvement in promoting multimodal literacy cannot be overstated. By actively participating in their

children's literacy development, parents can provide support, encouragement, and guidance that are essential for success in both academic and real-world contexts. With the right strategies and collaboration between parents and schools, children can gain the necessary skills to navigate the complex digital and visual landscape of the 21st century.

In higher education, Almusharraf and Engemann (2020) discuss the perspectives of postsecondary instructors in Saudi Arabia on using multimodal digital literacy practices. While instructors show positive attitudes towards these practices, they face obstacles such as limited technology use and a lack of effective implementation strategies. This indicates the necessity of developing robust multimodal frameworks that can be effectively utilized in diverse educational settings.

Critical multimodal literacy can significantly enhance both conventional literacy and awareness of social issues. Ju (2023) illustrates this through the use of parody films and metaverse-based content in Korean EFL classes, which not only improved students' literacy skills but also broadened their perspectives on disabilities. This approach highlights the potential of multimodal literacy to foster critical thinking and social awareness.

According to Khoiriyah and Ilmi (2023), multimodal digital extensive reading programs have the potential to play a crucial role in developing robust reading habits in Islamic private and residential schools. Their research demonstrates that establishing a lasting partnership among teachers, students, and stakeholders is essential for effectively implementing these programs. It highlights the significance of community engagement and policy backing in fostering digital literacy. This kind of collaborative effort ensures that students are not only exposed to a variety of texts and media, but also encouraged to analyze and evaluate them critically. By incorporating different modes of communication and expression, students are able to develop a deeper understanding of complex issues and perspectives. Ultimately, the integration of multimodal literacy in educational settings can empower students to become informed and engaged members of society.

Overall, the integration of multimodal digital literacy approaches in education enhances student engagement, comprehension, and critical thinking skills. By incorporating various media forms and digital technologies, educators can create a more dynamic and effective learning environment that prepares students for the demands of the digital age.

1.3 Statement of the Problem

The general objective of this study is to examine the impact of multimodal digital literacy approaches on the reading engagement of university students in Jiangmen City, China. Specifically, the study aimed to answer the following questions:

1. What is the profile of the respondents in terms of:
 - 1.1. sex;
 - 1.2. grade;
 - 1.3. major?

2. What is the assessment of the respondents on the multimodal language literacy approaches of the reading teachers in terms of:
 - 1.1. Reading portfolios;
 - 1.2. E-books;
 - 1.3. Digital storytelling;
 - 1.4. Interactive Reading Apps;
 - 1.5. Online Book Clubs;
 - 1.6. Multimedia Annotations?
3. Is there a significant difference in the assessment of the respondents on the multimodal digital literacy approaches on the reading teachers when profile is used as test factor?
4. What is the assessment of the respondents on their level of reading engagement of the students in terms of:
 - 4.1. Reading Interest;
 - 4.2. Family and Cultural Influences;
 - 4.3. Strategy Use;
 - 4.4. Choice and Autonomy;
 - 4.5. Emotional Engagement?
5. Is there a significant difference in the level of reading engagement of the students when profile is used as test factor?
6. Is there a correlation between assessment of the respondents on the multimodal digital literacy approaches of the reading teachers and level of reading engagement of the students?
7. Based on the results, what reading development plan can be proposed?

1.4 Hypothesis

There is no significant difference in the assessment of the respondents on the multimodal digital literacy approaches on the reading teachers when profile is used as test factor.

There is no significant difference in the level of reading engagement of the students when profile is used as test factor.

There is no correlation between assessment of the respondents on the multimodal digital literacy approaches of the reading teachers and level of reading engagement of the students.

1.5 Significance of the Study

The significance of this study is its potential to enhance the understanding and implementation of multimodal digital literacy approaches in higher education, particularly in the context of university students in China. The study provides valuable insights that can benefit a variety of stakeholders by investigating how these approaches can enhance reading engagement.

Students: The primary beneficiaries of this research are the university students themselves. By identifying effective multimodal digital literacy strategies, the study aims to enhance students' reading engagement, which can lead to improved comprehension, critical thinking, and overall academic

performance. Increased engagement in reading can also foster a lifelong love for learning and better prepare students for the demands of the digital age.

Teachers and Educators: Reading teachers and educators will benefit from this study by gaining a deeper understanding of the effectiveness of various multimodal literacy approaches. The findings can provide educators with evidence-based strategies to incorporate into their teaching practices, thereby creating more interactive and engaging learning environments. This can help educators to better support students' literacy development and address diverse learning needs.

Educational Institutions: Universities and educational institutions can use the insights from this study to develop and implement comprehensive literacy programs that integrate digital tools and multimodal resources. This can lead to an enhanced educational experience for students and contribute to the institutions' goals of fostering academic excellence and innovation in teaching practices.

Policy Makers: Educational policymakers can benefit from the study's findings by gaining empirical evidence on the impact of multimodal digital literacy approaches on student engagement and learning outcomes. This information can inform the development of policies and frameworks that support the integration of digital literacy in the curriculum, ensuring that educational standards align with the needs of the 21st-century learning environment.

Researchers:** The study contributes to the existing body of knowledge on multimodal literacy and reading engagement, providing a foundation for future research. Researchers can build on this study to further explore the nuances of digital literacy practices and their impact on different student populations and educational contexts.

Parents and Guardians: By understanding the benefits of multimodal digital literacy approaches, parents and guardians can better support their children's reading development. This can encourage more effective use of digital tools at home and foster a collaborative approach to literacy that extends beyond the classroom.

1.6 Scope and Delimitation

This study focused on examining the impact of multimodal digital literacy approaches on the reading engagement of university students at Guangdong Jiangmen Preschool Teachers College in Jiangmen City, China. The primary aim was to explore how various digital tools and multimodal strategies influenced students' reading engagement. Those strategies included reading portfolios, e-books, digital storytelling, interactive reading apps, online book clubs, and multimedia annotations. By incorporating these diverse approaches, the study aimed to understand their effectiveness in enhancing students' interest, comprehension, and overall engagement with reading materials.

The respondents of this study were university students who were enrolled in Guangdong Jiangmen Preschool Teachers College. The scope of the study included an in-depth analysis of the demographic profile of these students, specifically considering variables such as sex, grade, and major. This demographic information helped to contextualize the findings and understand if and how different student characteristics influenced their engagement with multimodal literacy approaches.

Furthermore, the study assessed the students' evaluations of the multimodal language literacy approaches employed by their reading teachers. This assessment covered the six key areas: reading portfolios, e-books, digital storytelling, interactive reading apps, online book clubs, and multimedia annotations. Understanding students' perceptions in these areas provided valuable insights into which methods were most effective in promoting engagement.

In addition to evaluating the approaches, the study measured the level of reading engagement among the students. This included examining factors such as reading interest, family and cultural influences, strategy use, choice and autonomy, and emotional engagement. By exploring these dimensions, the study painted a comprehensive picture of how engaged the students were with their reading activities and what influenced their engagement levels.

The study aimed to identify any significant differences in the assessment of multimodal digital literacy approaches and the level of reading engagement based on the students' profiles. This involved statistical analysis to determine if factors like sex, grade, and major significantly affected the outcomes. Finally, the study investigated the correlation between the students' assessment of the multimodal digital literacy approaches and their level of reading engagement. Based on the results, the study proposed a reading development plan tailored to enhance the reading engagement of university students at Guangdong Jiangmen Preschool Teachers College.

1.7 Definition of Terms

Reading portfolios are collections of student work that demonstrate progress and achievements in reading over time. These portfolios may include a variety of artifacts such as reading logs, reflections, book reports, and assessments. In the context of this study, reading portfolios will be used to gauge students' engagement and development in reading.

E-books are digital versions of books that can be read on electronic devices such as computers, tablets, and e-readers. They often include interactive features like hyperlinks, multimedia content, and adjustable text sizes. The study will assess how the use of e-books influences students' reading habits and engagement.

Digital storytelling involves using digital tools to create and share narratives. This can include a combination of text, images, audio, and video to tell a story, often allowing for creative and personal expression. Respondents will assess the role of digital storytelling in enhancing their reading and writing skills.

Interactive reading apps are software applications designed to make reading an interactive experience. The study will evaluate the effectiveness of interactive reading apps in promoting reading engagement. Respondents will be asked about their usage patterns, favorite features, and the impact of these apps on their reading comprehension and motivation. Survey questions will examine how these apps contribute to sustained reading interest and enjoyment.

Online book clubs are virtual communities where members discuss books they have read. The study will assess how participation in online book clubs influences students' reading engagement.

Multimedia annotations involve adding notes, highlights, and other interactive elements to digital texts. These annotations can include text comments, audio notes, hyperlinks, and embedded videos that enhance the reading experience.

Reading interest refers to how much students enjoy and are motivated to read various materials. The study will measure reading interest by asking students how often they read for pleasure and their preferences for different types of reading materials. This will help determine the role of interest in engaging with reading tasks.

Family and cultural influences include the impact of the home environment and cultural background on students' reading habits. Questions will explore the availability of reading materials at home, parental involvement in reading, and cultural attitudes towards literacy. This will help understand how family and cultural factors affect students' reading engagement.

Strategy use involves the techniques students use to understand and remember what they read, such as summarizing and questioning. The study will ask students about the reading strategies they use and how often they use them. This will help identify the connection between strategy use and reading engagement.

Choice and autonomy refer to the extent to which students can choose their reading materials and control their reading activities. Students will be asked about their ability to select what they read and how this autonomy affects their motivation and engagement. This will highlight the importance of giving students control over their reading choices.

Emotional engagement involves the feelings and emotional connections students have with their reading activities. The study will assess how students feel when they read, including feelings of interest, excitement, or empathy. This will show how emotional responses contribute to overall reading engagement.

Reading engagement refers to the degree to which students are motivated, interested, and actively involved in reading activities. This includes both cognitive and emotional aspects, such as the use of reading strategies, interest in reading materials, and the emotional connection to reading tasks. The study will measure reading engagement by surveying students on their reading habits, preferences, and emotional responses to reading activities.

Multimodal language literacy approaches involve the use of multiple forms of media and communication to enhance reading and writing skills. This includes digital tools and resources such as e-books, digital storytelling, interactive reading apps, online book clubs, multimedia annotations, and reading portfolios.

2. Research Methodology

2.1 Research Design

The study used a quantitative approach to systematically collect and analyze numerical data. This approach was suitable for measuring the extent of reading engagement and the effectiveness of

multimodal digital literacy approaches through researcher-made surveys. By using statistical methods, the study provided objective and precise measurements of the variables involved.

The comparative aspect of the design enabled the study to compare different groups of students based on their profiles (such as sex, grade, and major) and their assessments of various multimodal literacy approaches. This comparison helped identify significant differences and patterns in reading engagement across different demographic groups, providing a deeper understanding of how these variables influenced student engagement.

The correlational component allowed the study to examine the relationships between the assessments of multimodal literacy approaches and the levels of reading engagement. By identifying correlations, the study determined whether and how different digital literacy tools and resources were associated with higher or lower levels of reading engagement. This informed educators about which approaches were most effective in enhancing student engagement.

This design was justified because it provided a comprehensive framework to explore the complex interplay between various factors that influenced reading engagement. A quantitative approach ensured that the data collected was reliable and could be generalized to a larger population. The comparative aspect helped to highlight differences between groups, which was essential for tailoring educational strategies to diverse student needs. The correlational component was crucial for understanding the connections between multimodal literacy approaches and reading engagement, guiding future interventions and policy decisions.

In summary, the quantitative comparative correlational design was necessary to achieve the study's objectives of examining the impact of multimodal digital literacy approaches on reading engagement among university students. It provided robust and actionable insights that enhanced literacy education practices in Jiangmen City, China.

2.2 Locale of the Study

This study was conducted at Guangdong Jiangmen MIDDLE SCHOOL, located in Jiangmen City, China. This is a prominent institution dedicated to the training and education of future preschool teachers. The college is well-regarded for its focus on early childhood education and its commitment to integrating innovative teaching methods and technologies into its curriculum.

Jiangmen City, known for its educational and cultural significance, provides a supportive environment for academic research and development. The college's commitment to incorporating multimodal digital literacy approaches makes it an ideal setting for this study. By focusing on this institution, the research aims to gather relevant data from a population that is directly involved in the application and evaluation of multimodal literacy practices.

The selection of Guangdong Jiangmen Preschool Teachers College is strategic, as it represents a typical educational setting where the integration of digital tools and traditional teaching methods is increasingly emphasized. The findings from this study are expected to provide valuable insights that can be applied to similar educational contexts within and beyond Jiangmen City.

2.3 Participants

The participants in this study were purposefully selected from among the students enrolled at MIDDLE SCHOOL in China. The selection criteria ensured that the participants were representative of the population under study and were actively engaged in a reading program at the college. Specifically:

1. The participants were currently enrolled students at MIDDLE SCHOOL in China.
2. Participated in a structured reading program as part of their coursework or extracurricular activities.
3. Included a diverse mix of students in terms of sex, grade level, and major to ensure a comprehensive understanding of the impact of multimodal language literacy approaches across different demographics.
4. Had varying levels of engagement with multimodal digital literacy tools such as e-books, digital storytelling platforms, interactive reading apps, online book clubs, and multimedia annotations.

A sample size of 250 middle school learners was targeted to ensure sufficient data for statistical analysis and to enhance the generalizability of the findings. The purposeful selection of these participants aimed to provide a detailed and nuanced understanding of how multimodal digital literacy approaches affected reading engagement among university students. By focusing on students who were already part of a reading program, the study aimed to evaluate the effectiveness of these approaches in an environment where reading was a significant component of the curriculum. This approach helped to ensure that the findings were relevant and could be applied to similar educational settings.

3. Results and Discussion

This section presents the analysis and interpretation of data gathered in the study. It involves the examination and interpretation of the collected data to uncover patterns, trends, and insights related to the research objectives and questions. It focuses on presenting and analyzing the data in a systematic and organized manner, using appropriate statistical techniques.

Table 1. Profile of Respondents

Variable	Category	Frequency	Percentage
Sex	Male	85	34.0%
	Female	165	66.0%
Grade	1	74	29.6%
	2	88	35.2%
	3	46	18.4%
	4	42	16.8%
Reading Interest	Adventure	45	18.0%

Fantasy	49	19.6%
Mystery	31	12.4%
Realistic Fiction	70	28.0%
Nonfiction	55	22.0%

The data presented in Table 1 provides a comprehensive overview of the respondents' profiles based on three key variables: sex, grade level, and reading interests. The distribution of respondents by sex reveals a notable majority of females, who constitute 66.0% of the sample, while males account for 34.0%. This imbalance in gender representation suggests that the findings may reflect perspectives more heavily influenced by female respondents.

The grade-level distribution shows that Grade 2 students form the largest group, comprising 35.2% of the respondents, followed by Grade 1 at 29.6%. Grades 3 and 4 are less represented, with proportions of 18.4% and 16.8%, respectively. This variation may indicate either a natural demographic trend or the sampling approach employed in data collection, emphasizing the need to consider the potential impact of grade-level diversity on the overall findings.

Regarding reading interests, the respondents exhibit a varied set of preferences. Realistic Fiction emerges as the most preferred genre, capturing 28.0% of responses, followed by Nonfiction at 22.0%. Fantasy and Adventure are also popular, representing 19.6% and 18.0%, respectively. Mystery, while still relevant, appears to be the least favored category, accounting for only 12.4% of the responses. These preferences highlight the diversity of literary tastes among the respondents and may reflect developmental, cultural, or curricular influences on reading habits.

Overall, the data suggests significant variations across sex, grade levels, and reading interests, underscoring the importance of tailoring educational strategies to accommodate diverse learner profiles. The dominance of females in the sample and the prominence of Realistic Fiction and Nonfiction as preferred genres provide critical insights for educators and researchers aiming to foster reading engagement in this demographic.

Table 2. Assessment of the Respondents on the Multimodal Language Literacy Approaches of Reading Teachers in Terms of Reading Portfolios

Indicator	Weighted Mean	Standard Deviation	Qualitative Description	Verbal Interpretation	Rank
1. The reading portfolios used by my teacher help track my reading progress effectively.	2.88	0.63	Agree	Evident	5
2. I receive useful feedback	3.09	0.68	Agree	Evident	2

from my teacher through my reading portfolio.					
3. The reading portfolio encourages me to reflect on my reading habits and strategies.	3.06	0.86	Agree	Evident	3
4. The reading portfolio includes a diverse range of reading materials and activities.	3.11	0.8	Agree	Evident	1
5. I find the reading portfolio helps me set and achieve my reading goals.	2.94	0.75	Agree	Evident	4
6. The reading portfolio makes it easier for me to organize my reading assignments and notes.	2.72	0.7	Agree	Evident	6
Overall Mean	2.97	0.36	Agree	Evident	

The data in Table 2 evaluates the respondents' assessment of multimodal language literacy approaches, specifically through the use of reading portfolios by their teachers. The results are quantified using weighted means, standard deviations, qualitative descriptions, and verbal interpretations, providing a nuanced understanding of the effectiveness of this pedagogical tool. The overall mean score is 2.97, with a standard deviation of 0.36, indicating that respondents generally agree that the use of reading portfolios is evident and contributes positively to their reading experiences.

Robbins (2015) emphasizes that ePortfolios not only showcase students' progress and achievements but also develop their digital literacy skills by requiring them to curate and present their work using various media forms. This capability resonates with the respondents' agreement that reading portfolios effectively track progress, encourage reflection, and include diverse reading materials.

Among the individual indicators, the highest mean score is 3.11 for the statement, "The reading portfolio includes a diverse range of reading materials and activities," which also ranks first. This suggests that students value variety and the inclusion of diverse content in their portfolios, finding this aspect particularly beneficial. The second-highest score, at 3.09, corresponds to the statement, "I receive useful feedback from my teacher through my reading portfolio," highlighting the importance of teacher-student interactions in the feedback process.

Conversely, the lowest mean score is 2.72 for the statement, "The reading portfolio makes it easier for me to organize my reading assignments and notes." Despite its relatively lower ranking, this score still falls within the "Agree" category, implying that while organization is considered evident, it is less impactful compared to other aspects. Another lower-ranking statement, "The reading portfolios used by my teacher help track my reading progress effectively," has a mean score of 2.88, ranking fifth, which points to a moderate perception of effectiveness in progress tracking.

The similarity in responses across most indicators, with all falling within the "Agree" range, demonstrates a consistent level of satisfaction with the use of reading portfolios. Interestingly, the standard deviations range from 0.63 to 0.86, showing moderate variability in responses, particularly for statements involving reflection and diversity of materials. This variability may reflect differences in individual student experiences or preferences regarding the reading portfolio approach.

In the context of this study, the reading portfolios assessed in Table 2 exhibit these characteristics, as they encourage students to reflect on their reading habits, strategies, and progress. The integration of diverse materials and activities within portfolios aligns with the principles of multimodal composing, supporting a comprehensive approach to literacy development. While the data indicates that portfolios help set and achieve reading goals, opportunities exist to further enhance their organizational features and engagement with digital tools, reflecting Robbins' recommendation for robust ePortfolio design in education.

Hence, the findings suggest that reading portfolios are generally effective in supporting students' literacy development, particularly in providing diverse materials and facilitating teacher feedback. However, there is room for improvement in areas such as organizational support and progress tracking. The data underscores the value of incorporating varied resources and actionable feedback to optimize the impact of multimodal literacy approaches in the classroom.

Table 3. Assessment of the Respondents on the Multimodal Language Literacy Approaches of Reading Teachers in Terms of E-Books

Indicator	Weighted Mean	Standard Deviation	Qualitative Description	Verbal Interpretation	Rank
1. E-books provided by my teacher are easily accessible and convenient to use.	3.02	0.67	Agree	Evident	3.5
2. The interactive features in e-books enhance my understanding of the texts.	3.02	0.66	Agree	Evident	3.5
3. E-books include a variety of genres and topics that	3.15	0.74	Agree	Evident	2

interest me.				
4. I prefer reading e-books over traditional print books for my assignments.	3.18	0.74	Agree	Evident 1
5. The e-books used in my class include multimedia elements that make reading more engaging.	2.88	0.7	Agree	Evident 5
6. E-books have helped me improve my reading comprehension skills.	2.85	0.73	Agree	Evident 6
Overall Mean	3.02	0.31	Agree	Evident

Legend: 3.51 – 4.00 (Strongly Agree-Highly Evident); 2.51 – 3.50 (Agree- Evident); 1.51 – 2.50 (Disagree-Slightly Evident); 1.0-1.50 (Strongly Disagree-Not Evident).

The assessment in Table 3 highlights the respondents' perspectives on the use of e-books as part of multimodal language literacy approaches employed by their reading teachers. The overall mean score is 3.02, with a standard deviation of 0.31, indicating that the respondents generally agree that the use of e-books is evident and contributes to their learning experience. This consistent agreement across indicators suggests a positive reception of e-books as a pedagogical tool. Thus, e-books provide teachers with a versatile tool to engage students in reading. The interactive features of e-books can help teachers differentiate instruction and make reading more accessible to all students (Taboada Barber & Klauda, 2020). E-books also offer opportunities for integrating multimedia elements, which can enhance comprehension and retention (Mak et al., 2017).

Among the specific indicators, the highest mean score is 3.18, attributed to the statement, "I prefer reading e-books over traditional print books for my assignments." This suggests a strong inclination among students toward the convenience and functionality of e-books compared to traditional materials. Closely following is the statement, "E-books include a variety of genres and topics that interest me," with a mean score of 3.15, underscoring the importance of diverse content in maintaining students' engagement and interest.

Conversely, the lowest mean score is 2.85, corresponding to the statement, "E-books have helped me improve my reading comprehension skills." While this indicator still falls within the "Agree" category, it suggests that the perceived impact of e-books on comprehension may be slightly less pronounced compared to other benefits. Similarly, the statement, "The e-books used in my class include multimedia elements that make reading more engaging," scored 2.88, highlighting a moderate level of agreement on the effectiveness of multimedia features.

Interestingly, two indicators share the same mean score of 3.02: "E-books provided by my teacher are easily accessible and convenient to use" and "The interactive features in e-books enhance my understanding of the texts." Both rank third, reflecting the utility of e-books in accessibility and their potential to support comprehension through interactive features. The low standard deviations across indicators (ranging from 0.66 to 0.74) indicate a relatively uniform perception among respondents, with minimal variability in their evaluations.

In summary, the findings suggest that students generally view e-books as a valuable component of their literacy development, particularly in terms of preference over traditional materials and the inclusion of diverse content. However, areas such as the use of multimedia elements and their role in enhancing comprehension might require further exploration and optimization. The overall positive reception of e-books highlights their potential as an effective resource in modern literacy education.

Table 4. Assessment of the Respondents on the Multimodal Language Literacy Approaches of Reading Teachers in Terms of Digital Storytelling

Indicator	Weighted Mean	Standard Deviation	Qualitative Description	Verbal Interpretation	Rank
1. Digital storytelling assignments are engaging and help me understand the material better.	3.13	0.6	Agree	Evident	3
2. Creating digital stories allows me to express my creativity.	3.26	0.58	Agree	Evident	1
3. Digital storytelling projects improve my ability to analyze and interpret texts.	3.16	0.68	Agree	Evident	2
4. I enjoy sharing my digital stories with my classmates and receiving feedback.	3.05	0.67	Agree	Evident	5
5. Digital storytelling helps me develop my writing and presentation skills.	3.12	0.74	Agree	Evident	4
6. The use of digital storytelling in class makes learning more interesting and fun.	2.86	0.7	Agree	Evident	6

Overall Mean	3.10	0.32	Agree	Evident
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Legend: 3.51 – 4.00 (Strongly Agree-Highly Evident); 2.51 – 3.50 (Agree- Evident); 1.51 – 2.50 (Disagree-Slightly Evident); 1.0-1.50 (Strongly Disagree-Not Evident).

The data in Table 4 evaluates the respondents' perceptions of digital storytelling as a component of multimodal language literacy approaches implemented by reading teachers. The overall mean score of 3.10, with a standard deviation of 0.32, indicates a general agreement among students that digital storytelling is evident and contributes positively to their learning experience. The results demonstrate consistent approval of this approach, with all indicators receiving scores within the "Agree" range.

The highest-rated indicator is "Creating digital stories allows me to express my creativity," with a weighted mean of 3.26. This finding suggests that students highly value the creative opportunities provided by digital storytelling, which likely fosters engagement and a sense of ownership in the learning process. Closely following is the indicator, "Digital storytelling projects improve my ability to analyze and interpret texts," with a mean score of 3.16. This highlights the perceived value of digital storytelling in enhancing critical thinking skills related to text analysis and interpretation.

The lowest-rated indicator is "The use of digital storytelling in class makes learning more interesting and fun," with a mean score of 2.86. While still categorized as "Agree," this lower ranking may indicate that, for some students, the novelty or interactive nature of digital storytelling does not always translate to increased enjoyment or engagement. Similarly, the indicator "I enjoy sharing my digital stories with my classmates and receiving feedback," with a mean score of 3.05, suggests moderate enthusiasm for the collaborative and feedback aspects of digital storytelling.

The findings reveal minimal variation among the indicators, as reflected by standard deviations ranging from 0.58 to 0.74. This consistency suggests a shared positive perception of digital storytelling among respondents, with differences in responses likely attributable to individual preferences or varying levels of exposure to this method.

In summary, the assessment highlights the effectiveness of digital storytelling in promoting creativity and improving analytical skills, while also supporting writing and presentation development. However, the relatively lower scores in enjoyment and collaborative aspects suggest opportunities to enhance the design and implementation of digital storytelling projects to maximize engagement and collaborative benefits. Overall, digital storytelling appears to be a well-received approach with considerable potential for enriching students' literacy experiences.

Digital storytelling enhances digital literacy by requiring students to work with multimedia platforms, fostering technological competence alongside traditional literacy skills. This is particularly evident in the respondents' perception that digital storytelling helps them develop writing and presentation skills while making learning more interesting. However, while the approach scored highly overall, its lower ranking for enjoyment of feedback and interaction suggests opportunities to enhance collaborative aspects, such as peer review or group storytelling projects, as emphasized by Ratama et al. (2021).

Table 5. Assessment of the Respondents on the Multimodal Language Literacy Approaches of the Reading Teachers in Terms of Interactive Reading Apps

Indicator	Weighted Mean	Standard Deviation	Qualitative Description	Verbal Interpretation	Rank
1. Interactive reading apps provide instant feedback on my reading progress.	3.03	0.76	Agree	Evident	4
2. The games and activities in reading apps make learning more enjoyable.	3.19	0.68	Agree	Evident	1
3. Reading apps help me improve my vocabulary and comprehension skills.	3.04	0.78	Agree	Evident	2.5
4. I use reading apps regularly as part of my reading assignments.	3.04	0.82	Agree	Evident	2.5
5. The interactive features in reading apps keep me motivated to read more.	2.81	0.7	Agree	Evident	5
6. Reading apps provide a personalized reading experience that suits my learning pace.	2.67	0.91	Agree	Evident	6
Overall Mean	2.96	0.32	Agree	Evident	

Legend: 3.51 – 4.00 (Strongly Agree-Highly Evident); 2.51 – 3.50 (Agree- Evident); 1.51 – 2.50 (Disagree-Slightly Evident); 1.0-1.50 (Strongly Disagree-Not Evident).

The data in Table 5 examines respondents' assessments of the use of interactive reading apps as part of multimodal language literacy approaches. The overall mean score is 2.96, with a standard deviation of 0.32, indicating that respondents generally agree that interactive reading apps are evident in their literacy development. The relatively consistent scores reflect a shared perception of the benefits and limitations of this approach.

Interactive reading apps are particularly effective in providing differentiated instruction. By offering customized activities and tracking progress, teachers can use data generated by these apps to make informed decisions about their instructional strategies, as noted by Ho and Lau (2018). The respondents in this study agree that interactive reading apps are engaging and improve vocabulary and

comprehension skills, reflecting their potential to support targeted skill development. However, the lower ratings for motivation and personalized experiences suggest that some apps may not fully meet students' expectations for autonomy or sustained engagement.

The highest-rated indicator is "The games and activities in reading apps make learning more enjoyable," with a weighted mean of 3.19. This suggests that students particularly appreciate the gamified elements of interactive apps, which enhance their engagement and enjoyment during the learning process. Following closely are the indicators "Reading apps help me improve my vocabulary and comprehension skills" and "I use reading apps regularly as part of my reading assignments," both with a mean score of 3.04. These findings highlight the functional utility of reading apps in supporting skill development and their integration into regular academic tasks.

The lowest-rated indicator is "Reading apps provide a personalized reading experience that suits my learning pace," with a mean score of 2.67. While still categorized as "Agree," this score suggests that students perceive less effectiveness in the customization and adaptability of these tools to meet their individual learning needs. Another relatively lower-scoring indicator, "The interactive features in reading apps keep me motivated to read more," has a mean score of 2.81, indicating moderate agreement about the apps' motivational aspects.

The variation in responses is evident in the standard deviations, ranging from 0.68 to 0.91. Notably, the highest standard deviation of 0.91 corresponds to the lowest-rated indicator, "Reading apps provide a personalized reading experience," implying a broader range of perceptions and possibly varying levels of satisfaction with the customization features of the apps.

In summary, the assessment reveals that interactive reading apps are valued for their engaging and enjoyable elements, as well as their role in improving vocabulary and comprehension. However, areas such as personalization and sustained motivation appear to require further enhancement to better meet individual learning needs. Overall, the data underscores the potential of interactive reading apps as effective tools in modern literacy instruction, while also highlighting opportunities for refinement to maximize their impact.

4. Summary, Conclusion, and Recommendations

4.1 Summary of Findings

Profile of Respondents. The study involved respondents from diverse backgrounds, with a higher proportion of females (66%) than males (34%). Most respondents were in Grade 2 (35.2%), followed by Grade 1 (29.6%), Grade 3 (18.4%), and Grade 4 (16.8%). Regarding reading interest, Realistic Fiction (28%) was the most preferred genre, followed by Nonfiction (22%) and Fantasy (19.6%), while Mystery (12.4%) was the least favored. These demographic and interest-based profiles provided a basis for understanding variations in engagement and responses to literacy approaches.

Assessment of the Respondents on the Multimodal Digital Literacy Approaches of Reading Teachers. Respondents generally rated the multimodal digital literacy approaches positively, with Digital

Storytelling achieving the highest overall mean score (3.10), reflecting its ability to foster creativity and enhance analytical skills. E-Books (3.02) and Online Book Clubs (2.98) were also rated favorably, emphasizing their role in providing access to diverse reading materials and promoting collaborative learning. Reading Portfolios (2.97) and Interactive Reading Apps (2.96) were similarly effective but demonstrated opportunities for improvement in specific areas, such as organization and sustained interest. Multimedia Annotations received the lowest score (2.91), suggesting that while interactive, these tools may require adjustments to maximize engagement.

Differences in the Assessment of the Respondents on the Multimodal Digital Literacy Approaches of Reading Teachers. Significant differences emerged based on sex and grade level. Females rated Digital Storytelling significantly higher than males ($p = 0.043$), while males reported slightly higher engagement overall ($p = 0.011$). Regarding grade level, Online Book Clubs received lower scores from Grade 4 students compared to younger grades ($p = 0.001$), reflecting a potential decline in engagement with collaborative reading activities at higher grade levels. Family and Cultural Influences were rated significantly higher by Grade 4 students ($p = 0.024$), suggesting stronger familial and cultural support for older students.

Level of Reading Engagement of the Students. The overall reading engagement mean score was 3.01, with respondents agreeing that they were engaged across all dimensions. Choice and Autonomy (3.16) ranked highest, highlighting the importance of allowing students to select their reading materials and manage their reading schedules. Emotional Engagement (3.14) followed closely, reflecting students' immersion in stories and emotional connections to characters. Strategy Use (3.01) indicated active engagement through techniques like note-taking and context clues, while Family and Cultural Influences (2.95) and Reading Interest (2.82) were moderately influential.

Differences in Level of Reading Engagement of the Students. Significant differences in reading engagement were found based on sex and grade level. Males reported higher emotional engagement ($p = 0.000$) and overall engagement ($p = 0.011$) compared to females. For grade level, Family and Cultural Influences were rated significantly higher by Grade 4 students ($p = 0.024$), reflecting greater familial and cultural support for older students. Choice and Autonomy was rated highest by Grade 3 students ($p = 0.042$), suggesting a peak in autonomy and decision-making at this stage. No significant differences were observed in Reading Interest, Strategy Use, or Emotional Engagement across grade levels.

Correlation Between the Assessment of the Respondents on the Multimodal Digital Literacy Approaches of Reading Teachers and Level of Reading Engagement of the Students. A significant positive correlation ($r = 0.254$, $p = 0.000$) was observed between the overall use of multimodal literacy approaches and students' reading engagement, indicating that effective implementation of these strategies enhances engagement. Reading Portfolios showed strong positive correlations with Reading Interest, Strategy Use, and Emotional Engagement, but a negative correlation with Family and Cultural Influences ($p = 0.048$). E-Books demonstrated significant relationships with Strategy Use and Choice

and Autonomy, while Interactive Reading Apps and Multimedia Annotations had significant negative correlations with Reading Interest and Choice and Autonomy, respectively. Digital Storytelling and Online Book Clubs showed no significant correlations with specific engagement dimensions, highlighting areas for improvement.

5. Conclusion

The diversity of respondents in terms of sex, grade level, and reading interests underscores the varied needs and preferences in literacy engagement. The dominance of Realistic Fiction and Nonfiction as preferred genres highlights the importance of aligning reading materials with these interests to maximize engagement, while the lower interest in Mystery suggests opportunities to introduce and enhance its appeal among students.

Multimodal digital literacy approaches are positively received, with Digital Storytelling standing out for its ability to foster creativity and analytical skills. E-Books and Online Book Clubs also effectively promote access to diverse content and collaborative learning. However, areas such as the organization in Reading Portfolios, sustained interest in Interactive Reading Apps, and the interactivity of Multimedia Annotations require targeted improvements to enhance their effectiveness and student engagement.

Significant differences based on sex and grade level highlight the varying impact of multimodal approaches on different demographic groups. The higher ratings for Digital Storytelling among females and overall engagement among males suggest gender-specific preferences. Grade-level differences, such as the declining engagement with Online Book Clubs among older students, emphasize the need for age-appropriate adjustments to these approaches.

Students are generally engaged across multiple dimensions, with Choice and Autonomy emerging as the most influential factor. The ability to select reading materials and manage reading schedules fosters independence and intrinsic motivation. Emotional Engagement also plays a critical role, as students connect deeply with stories and characters. Strategy Use is a practical contributor to engagement, while Family and Cultural Influences and Reading Interest provide moderate support, offering opportunities for further enhancement.

Gender and grade-level differences in engagement demonstrate the need for tailored approaches to address diverse learner profiles. The higher emotional engagement and overall engagement among males suggest strategies that emphasize emotional connections, while the greater family and cultural influences for Grade 4 students point to the importance of leveraging these supports as students advance. The peak autonomy among Grade 3 students reflects an opportune moment to cultivate independent reading habits.

The positive correlation between multimodal approaches and reading engagement confirms the value of integrating diverse and interactive tools into literacy instruction. Reading Portfolios and E-Books are particularly effective in fostering engagement, while Interactive Reading Apps and Multimedia

Annotations need adjustments to better align with student interests and autonomy. The findings highlight the critical role of thoughtful implementation and customization of multimodal approaches to support all dimensions of reading engagement.

6. Recommendations

Based on the findings, the researcher recommends the following:

Educators should further refine the organization and content of reading portfolios to ensure they align with family and cultural influences, enhancing their relevance and impact. Including culturally diverse materials and integrating family feedback mechanisms can make portfolios more inclusive and supportive of students' backgrounds.

Teachers and schools should leverage the strengths of e-books by incorporating features that enhance emotional engagement, such as interactive storytelling elements or gamified reading challenges. Expanding the variety of genres and aligning e-book content with students' interests can further boost engagement.

Given the varying perceptions of digital storytelling, educators should customize its use based on demographic preferences. Incorporating projects that allow for creative autonomy and age-appropriate themes can maximize its impact, particularly for students who may not currently see its relevance.

To address negative correlations with reading interest and autonomy, developers and educators should focus on creating more customizable and student-centered features in interactive apps and multimedia annotations. Allowing students to personalize their experience and choose how to interact with the content can increase both interest and autonomy.

Schools should prioritize practices that give students greater control over their reading choices, schedules, and materials. Incorporating student-led book selections, personalized reading goals, and flexible assignment formats can help maintain the high levels of engagement associated with autonomy.

Programs that actively involve families in the literacy process, such as family reading nights or workshops, can reinforce the role of cultural influences in reading engagement. Providing culturally diverse reading materials and encouraging discussions about cultural themes in books can further strengthen this dimension.

Educators should consider the specific needs and preferences of different demographic groups when designing literacy programs. For example, males may benefit from approaches that emphasize emotional engagement, while older students may require more sophisticated materials and methods to sustain interest in collaborative activities such as online book clubs.

To deepen emotional connections to reading, teachers can select texts that align with students' developmental stages and interests. Encouraging discussions about characters, themes, and personal connections to stories can enhance emotional engagement and foster meaningful interactions with texts.

Teachers should receive training on effectively implementing and customizing multimodal literacy approaches. Professional development programs can focus on best practices for using digital tools, strategies for promoting engagement across diverse student groups, and methods for integrating family and cultural influences into literacy instruction.

Ongoing assessment and adaptation of multimodal literacy approaches are essential to ensure their effectiveness. Schools should implement feedback systems where students and teachers can provide input on what works and what needs improvement. This iterative process will help create more impactful and engaging literacy experiences for all students.

References

- Aldridge, D. (2019). Reading, engagement and higher education. *Higher Education Research & Development*. <https://doi.org/10.1080/07294360.2018.1534804>
- Almusharraf, N., & Engemann, J. (2020). Postsecondary instructors' perspectives on teaching English as a foreign language by means of a multimodal digital literacy approach. *International Journal of Emerging Technologies in Learning (ijet)*. <https://doi.org/10.3991/ijet.v15i18.15451>
- Barber, A. T., & Klauda, S. L. (2020). How reading motivation and engagement enable reading achievement: Policy implications. *Policy Insights from the Behavioral and Brain Sciences*. <https://doi.org/10.1177/2372732219893385>
- Bean, A. F., Perez, B. I., Dynia, J. M., Kaderavek, J. N., & Justice, L. M. (2020). Book-reading engagement in children with autism and language impairment: Associations with emergent-literacy skills. *Journal of Autism and Developmental Disorders*, 50(3), 923-938. <https://doi.org/10.1007/s10803-019-04306-4>
- Bombaro, C. (2014). Overcoming the barriers to information literacy programs: CALM Lab for English majors at Dickinson College. *Reference Services Review*. <https://doi.org/10.1108/RSR-10-2013-0050>
- Camiciottoli, B. C., & Cubillo, M. C. (2018). Introduction: The nexus of multimodality, multimodal literacy, and English language teaching in research and practice in higher education settings. *System*. <https://doi.org/10.1016/j.system.2018.03.005>
- Cantrell, S. C., & Rintamaa, M. (2019). The nature of rural high school students' reading engagement. *Reading & Writing Quarterly*, 35(5), 419-433. <https://doi.org/10.1080/10573569.2019.1635543>