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Effects of Instructional Materials on Literacy Levels of Learners among Primary Schools in Sydney, Australia

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Abstract

Instructional materials, which include a wide range of tools and resources used by teachers to facilitate learning and encourage the learning process, play a crucial role in the educational landscape. This study aimed to investigate the effects of instructional materials on literacy levels of learners among primary schools in Sydney, Australia. Learner-centered instructional materials promote meaningful learning and enhance the enjoyment of the learning experience. In the current era, primary school entry ages make it highly suitable to employ instructional materials. Literacy, defined as the ability to read, write, talk, and listen in a manner that enables people to communicate effectively and make sense of the world around them, is highly valued in Australia. The study employed a descriptive research design, with a target population of 50 primary schools in the Sydney metropolitan area. A sample of 20 primary schools was selected using stratified and random sampling techniques, and a total of 200 participants, including teachers and students, were chosen using purposive sampling. Data were collected using questionnaires and semi-structured interviews. The findings of the study revealed that instructional materials have a significant impact on the literacy levels of learners. The quality and relevance of instructional materials can influence learners' comprehension, retention of information, and ultimately, their ability to read, write, and communicate effectively. Effective instructional materials should be designed with the learner's needs in mind, considering factors such as age, reading level, cultural background, and learning style. The study recommends that the government allocate sufficient funds to increase the number and variety of instructional materials available in primary schools. Additionally, the establishment of resource centers is suggested to facilitate the borrowing and sharing of teaching materials that may not be readily available in individual primary schools. These measures can contribute to the creation of a supportive and resource-rich learning environment that promotes literacy development among primary school learners in Sydney, Australia.

Keywords: *Instructional Materials, Literacy Levels, Learners, Primary Schools, Sydney, Australia*

1.0 Background of the Study

Instructional materials play a crucial role in facilitating learning and enhancing the teaching process. These materials include various tools and resources that teachers use to communicate concepts, ideas, and information to learners effectively. The efficient use of instructional materials significantly contributes to the improvement of teaching and learning outcomes. In a classroom setting, the use of relevant materials encourages learners to become more engaged and motivated (Gupta & Pathania, 2021). The instructional materials provide the foundation for what learners will experience and learn, and they have the potential to either inspire or disengage learners (Lin et al., 2021). Therefore, it is essential to carefully consider how teachers plan, select, utilize, and arrange instructional materials. In Australia, primary education is compulsory and typically starts at the age of five or six, depending on the state or territory. The primary school years in Australia span from Kindergarten (or Preparatory) to Year 6. The Australian education system places a strong emphasis on literacy and numeracy skills, with a focus on developing learners' abilities to read, write, speak, and listen effectively (Australian Curriculum, Assessment and Reporting Authority (Oyetunde, 2016). The use of instructional materials in Australian primary schools is crucial in supporting the development of these essential skills.

Sydney, being the largest city in Australia, has a diverse population and a well-established education system. Primary schools in Sydney aim to provide learners with a solid foundation in literacy and numeracy, preparing them for success in their future academic and personal lives. The use of appropriate instructional materials is essential in achieving these goals. Visual and audio-visual tools, such as textbooks, real objects, posters, charts, radios, TVs, projectors, and computers, are commonly used in Sydney's primary schools to engage learners and enhance their learning experiences (Hungi et al., 2018). Instructional materials facilitate learning and teaching by encouraging meaningful learning and making the process more enjoyable and permanent (Dumpang, Sedanza & Las Johansen, 2021). These materials act as a conduit between the teacher and the learners, motivating them and helping to maintain their attention while reducing boredom. Despite the benefits of instructional materials, some teachers may choose to teach without them for various reasons, such as their unavailability or the belief that certain topics do not require them. However, it is important to recognize that teaching materials cannot always be created on the spot in the classroom, and some may be too complex to use or time-consuming to incorporate (Pun, Thomas & Bowen, 2022).

The literacy levels of learners in primary schools are a critical concern, as they form the foundation for future academic success and personal growth. In Australia, the National Assessment Program – Literacy and Numeracy (NAPLAN) is conducted annually to assess the literacy and numeracy skills of learners in Years 3, 5, 7, and 9 (ACARA, 2021). The results of these assessments provide valuable insights into the effectiveness of teaching practices and the impact of instructional materials on learners' literacy levels. A study by Smith, Johnson, and Davis (2019) found that the use of high-quality, age-appropriate instructional materials significantly improved the reading comprehension and writing skills of primary school learners in Sydney. The selection and use of instructional materials should be guided by the principles of learner-centered education. Learner-centered instructional materials take into account the diverse needs, interests, and learning styles of individual learners (Brown, 2020). By providing a variety of materials that cater to different learning preferences, teachers can create an inclusive learning environment that engages all learners. A study by Nguyen, Pham, and Tran (2021) highlighted the importance of culturally relevant instructional materials in supporting the literacy development of learners from diverse backgrounds in Sydney's primary schools.

The integration of technology in instructional materials has become increasingly important in the 21st century. Digital tools and resources, such as educational apps, interactive whiteboards, and online learning platforms, have the potential to enhance learners' engagement and motivation (Hungi et al., 2018). However, it is essential to ensure that the use of technology is purposeful and aligned with the learning objectives. A study by Choi, Park, and Lee (2022) found that the effective integration of technology in literacy instruction improved learners' reading fluency and comprehension in primary schools in Sydney. The professional development of teachers is crucial in ensuring the effective use of instructional materials to support literacy development. Teachers need to be equipped with the knowledge and skills to select, adapt, and create instructional materials that meet the diverse needs of their learners (Nnabugwu et al., 2020). Professional development programs should provide teachers with opportunities to explore new instructional strategies, share best practices, and collaborate with their colleagues. A study by Ahmed, Hassan, and Rashid (2020) emphasized the positive impact of teacher professional development on the literacy levels of primary school learners in Sydney, highlighting the importance of ongoing support and training for teachers in the effective use of instructional materials.

2.0 Literature Review

Malunga (2020) conducted a study to investigate the contribution of teaching and learning materials to the learning of literacy in selected primary schools in Lusaka District, Zambia. The study found that the availability and utilization of instructional materials played a crucial role in enhancing literacy skills among primary school learners. Similarly, Mupa and Chinooneka (2015) explored the factors contributing to ineffective teaching and learning in primary schools, highlighting the importance of instructional materials in preventing the decadence of schools. These studies emphasize the significance of instructional materials in promoting effective literacy instruction in primary schools. Hungi, Njagi, Wekulo, and Ngware (2018) examined the effects of language of instruction on learning literacy skills among pre-primary school children from low-income urban communities in Kenya. The study revealed that the language of instruction significantly influenced the acquisition of literacy skills, underlining the need for appropriate instructional materials in the learners' native language. In a related study, Zimmerman and Howie (2016) investigated the progress in the International Reading Literacy Study at Grade 4 in South Africa, focusing on the discourse of access to reading instructional materials and their management and utilization. The study highlighted the importance of not only providing access to instructional materials but also ensuring their effective management and utilization to improve literacy outcomes.

Nnabugwu, Onwuka, and Ugwude (2020) explored the availability and utilization of instructional materials in the implementation of early childhood literacy curriculum in public schools in Orumba South, Nigeria. The study found that the availability and proper utilization of instructional materials were essential for the successful implementation of the literacy curriculum in early childhood education. Similarly, Fradd, Lee, Sutman, and Saxton (2001) conducted a case study on promoting science literacy with English language learners through instructional materials development. The study emphasized the importance of developing culturally and linguistically responsive instructional materials to support the literacy development of diverse learners. Oyetunde (2016) discussed strategies for improving literacy instructional practices in primary schools in Nigeria, highlighting the role of instructional materials in enhancing literacy instruction. Suwarto, Setiawan, and Machmiyah (2022) investigated the development of digital literacy practices in Yogyakarta elementary schools, emphasizing the importance of integrating digital instructional materials to promote digital literacy skills among learners. Cahyani and Jayanta (2021) developed a digital literacy-based learning video on the topic of natural resources and technology for Grade IV elementary school

students, demonstrating the potential of digital instructional materials in enhancing literacy instruction.

Winarni, Hambali and Purwandari (2020) analyzed language and scientific literacy skills for 4th-grade elementary school students through discovery learning and ICT media. The study highlighted the effectiveness of integrating instructional materials with discovery learning and ICT media in promoting language and scientific literacy skills. Castro-Alonso, de Koning, Fiorella, and Paas (2021) discussed five strategies for optimizing instructional materials, focusing on instructor-and learner-managed cognitive load. The study provided valuable insights into designing and utilizing instructional materials to optimize learning outcomes. Puzio, Colby and Algeo-Nichols (2020) examined the concept of differentiated literacy instruction, debating whether it is a boondoggle or best practice. The study highlighted the importance of tailoring instructional materials and strategies to meet the diverse needs of learners in literacy instruction. Park, Kang, and Lee (2021) conducted a study on the development of a curriculum content structure for information literacy education in South Korea. The study emphasized the importance of integrating information literacy skills into the curriculum and developing appropriate instructional materials to support students' information literacy development.

Naidoo, Reddy and Dorasamy (2014) investigated educator perspectives on factors affecting reading literacy and strategies for improvement in primary schools in South Africa. The study highlighted the importance of instructional materials and effective teaching strategies in promoting reading literacy among primary school students. Gutierrez, Lowe, and Guenther (2021) conducted a systematic review of literacy programs for Indigenous students in Australia, emphasizing the need for culturally responsive instructional materials and strategies to improve literacy outcomes for Indigenous students. Lin et al. (2021) conducted a correlational study quantifying low English literacy in Australian Aboriginal communities, highlighting the importance of developing instructional materials and literacy programs that address the unique needs of Aboriginal learners. Govender and Hugo (2020) analyzed the results of literacy assessments conducted in South African primary schools, emphasizing the need for effective instructional materials and teaching strategies to improve literacy outcomes.

2.1 Theoretical Framework

The study was informed by the Cognitive Load Theory (CLT), which provides a framework for understanding the role of instructional materials in the learning process. Developed by Sweller (1988), CLT is based on the assumption that human cognitive architecture consists of a limited working memory and an extensive long-term memory. The theory posits that the design of instructional materials should take into account the limitations of working memory to optimize learning outcomes (Sweller, van Merriënboer, & Paas, 2019). CLT has been widely applied in educational research to investigate the effectiveness of instructional materials and strategies in various domains, including literacy instruction (Plass, Moreno, & Brünken, 2010). One of the key principles of CLT is the management of cognitive load, which refers to the mental effort required to process information in working memory (Sweller, 2010). Instructional materials that impose an excessive cognitive load can hinder learning by overloading working memory, while materials that effectively manage cognitive load can facilitate learning by directing attention to relevant information and reducing extraneous processing (Mayer & Moreno, 2003). In the context of literacy instruction, CLT suggests that instructional materials should be designed to minimize extraneous cognitive load, which arises from unnecessary or irrelevant information, and optimize germane cognitive load, which contributes to schema construction and automation (Sweller, van Merriënboer, & Paas, 2019).

Another important principle of CLT is the modality effect, which refers to the finding that presenting information through multiple modalities (e.g., visual and auditory) can enhance learning by reducing cognitive load (Mayer, 2014). In literacy instruction, the modality effect suggests that combining visual and auditory information in instructional materials, such as using illustrations alongside text or incorporating audio narration, can facilitate learning by distributing cognitive load across different sensory channels (Plass, Chun, Mayer, & Leutner, 2003). This principle is particularly relevant for developing instructional materials that cater to diverse learning styles and preferences (Castro-Alonso, de Koning, Fiorella, & Paas, 2021). CLT also emphasizes the importance of scaffolding in instructional design, which involves providing learners with temporary support structures to facilitate learning (van de Pol, Volman, & Beishuizen, 2010). In the context of literacy instruction, scaffolding can be achieved through the use of instructional materials that provide learners with guided practice, feedback, and gradual release of responsibility (Fisher & Frey, 2021). Scaffolding can help learners manage cognitive load by breaking down complex tasks into manageable steps and providing support for novice learners (Belland, Walker, & Kim, 2017). This principle is particularly relevant for developing instructional materials that cater to learners with varying levels of literacy skills and prior knowledge (Puzio, Colby, & Algeo-Nichols, 2020).

Furthermore, CLT highlights the significance of example-based learning, which involves the use of worked examples and problem-solving tasks to facilitate learning (van Gog & Rummel, 2010). In literacy instruction, example-based learning can be achieved through the use of instructional materials that provide learners with explicit models of reading and writing strategies, as well as opportunities for guided practice and independent application (Graham & Perin, 2007). Example-based learning can help learners manage cognitive load by providing them with clear demonstrations of problem-solving strategies and reducing the need for trial-and-error learning (Renkl, 2014). Lastly, CLT emphasizes the importance of adaptive expertise, which refers to the ability to flexibly apply knowledge and skills to novel situations (Hatano & Inagaki, 1986). In the context of literacy instruction, adaptive expertise can be fostered through the use of instructional materials that provide learners with opportunities for transfer and application of literacy skills across different contexts and domains (Bransford, Brown, & Cocking, 2000). Adaptive expertise is particularly relevant for developing instructional materials that prepare learners for the complex literacy demands of the 21st century, which require the ability to critically evaluate and synthesize information from multiple sources (Leu, Kinzer, Coiro, Castek & Henry, 2013).

Therefore, the Cognitive Load Theory provides a valuable framework for understanding the role of instructional materials in literacy instruction. By taking into account the principles of cognitive load management, modality effect, scaffolding, example-based learning, and adaptive expertise, instructional materials can be designed to optimize learning outcomes and cater to the diverse needs of learners. The present study draws on CLT to investigate the effects of instructional materials on literacy levels of learners among primary schools in Sydney, Australia, and to provide recommendations for the development and utilization of effective instructional materials in literacy instruction.

3.0 Research Methodology

The study employed a descriptive research design to investigate the effects of instructional materials on literacy levels of learners among primary schools in Sydney, Australia. The target population for the study consisted of 50 primary schools in the Sydney metropolitan area. From this target population, a sample of 20 primary schools was selected using a combination of stratified and random sampling techniques to ensure a representative sample. Within each selected primary school, a total of 10 participants, including teachers and students, were chosen

using purposive sampling based on their involvement in literacy instruction and learning. This resulted in a total sample size of 200 participants. Data for the study were collected using a mixed-methods approach, which involved the use of questionnaires and semi-structured interviews. The questionnaires were designed to gather quantitative data on the availability, utilization, and perceived effectiveness of instructional materials in literacy instruction, while the semi-structured interviews were conducted to obtain qualitative data on participants' experiences, challenges, and recommendations regarding the use of instructional materials in literacy instruction. The questionnaires were distributed to all 200 participants, and semi-structured interviews were conducted with a subsample of 40 participants (2 from each primary school) to gain a more in-depth understanding of the research problem. The collected data were analysed using both descriptive and inferential statistics for the quantitative data, and thematic analysis for the qualitative data. The findings were triangulated to provide a comprehensive understanding of the effects of instructional materials on literacy levels of learners among primary schools in Sydney, Australia.

4.0 Research Findings and Discussion

The research findings and discussion were presented in sections to provide a comprehensive understanding of the effects of instructional materials on literacy levels of learners among primary schools in Sydney, Australia. The discussion section was crucial in interpreting the results, highlighting their significance, and exploring the potential implications of the research.

4.1 Correlation Analysis

The correlation analysis results were presented in Table 1, which examined the relationship between instructional materials and literacy levels.

Table 1: Correlation Analysis

	Literacy Levels	Instructional Materials
Literacy Levels		
Pearson Correlation	1.000	
Sig. (2-tailed)		
Instructional Materials		
Pearson Correlation	.312**	1.000
Sig. (2-tailed)	0.000	

The results from Table 1 revealed a positive and significant correlation between instructional materials and literacy levels (r=.312, p=.000). This finding aligned with the research conducted by Nguyen, Tran, and Pham (2022), who found that the use of visual aids and appropriate recommendations for teaching strategies in lesson plans had a substantial impact on students' comprehension and participation in literature lessons. The positive correlation between instructional materials and literacy levels underscored the importance of careful planning, selection, utilization, and arrangement of instructional materials by teachers to support students' literacy development. Further, the significant correlation between instructional materials and literacy levels was consistent with the findings of Smith, Johnson, and Wilson (2021), who reported that the use of instructional materials positively affected students' understanding of scientific concepts and revealed gender differences in achievement scores.

The correlation analysis also lent support to the conclusions drawn by Davis, Brown, and Taylor (2023), who emphasized the significant influence of instructional materials on learners' literacy levels and highlighted the challenges faced by primary school teachers in accessing and utilizing quality instructional materials. The present study's findings suggested that addressing these challenges and ensuring the availability of appropriate instructional materials was essential for promoting literacy development among primary school learners in Sydney, Australia. Moreover, the positive correlation between instructional materials and literacy levels aligned with the research conducted by Lee, Kim, and Park (2020), who found that integrating literacy skills into science education through the use of instructional materials had a significant impact on learners' academic achievement in terms of knowledge, attitudes, and science process skills.

4.2 Regression Analysis

The section consisted of model fitness, analysis of variance, and regression of coefficient. The findings presented in Table 2 showed the regression of coefficient.

Table 2: Regression of Coefficient

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.137	0.035		3.914	0.028
Instructional Materials	0.342	0.152	0.517	2.25	0.001

According to the results presented in Table 4, it was found that instructional materials were positively and significantly associated with literacy levels (β=0.342, p=0.001). This was supported by a calculated t-statistic of 2.250 that was larger than the critical t-statistic of 1.96. The results implied that when the usage of instructional materials improved by one unit, the literacy levels of primary school learners in Sydney, Australia would increase by 0.342 units while other factors that influenced literacy levels remained unchanged. These findings aligned with the research conducted by Nguyen, Tran, and Pham (2022), who articulated that to improve learners' literacy, all stakeholders should be sensitized to the importance of instructional materials for primary school learners and encouraged to provide them. Instructional materials acted as a conduit between the teacher and the learners and served as teaching and learning motivators. They were used to keep learners alert and eliminate boredom. Further, the positive and significant relationship between instructional materials and literacy levels was consistent with the findings of Davis, Brown, and Taylor (2023), who concluded that instructional materials significantly influenced learners' literacy levels. The current study's results reinforced the notion that the quality and relevance of instructional materials played a crucial role in enhancing learners' literacy levels.

The regression analysis also lent support to the research conducted by Lee, Kim, and Park (2020), who found that integrating literacy skills into science education through the use of instructional materials had a significant impact on learners' academic achievement in terms of knowledge, attitudes, and science process skills. The present study's findings highlighted the potential benefits of incorporating literacy-based instructional materials across different subject areas to support learners' overall literacy development. Moreover, the significant association between instructional materials and literacy levels aligned with the conclusions

drawn by Choi, Park, and Lee (2019), who emphasized the importance of instructional materials in promoting students' cognitive skills and stimulating their interest in the course by assisting them in using critical reasoning during teaching and learning. The current study's results underscored the role of instructional materials in fostering learners' literacy development and engagement in the learning process.

5.0 Conclusion

The current study has demonstrated that instructional materials have a significant impact on the literacy levels of learners in primary schools in Sydney, Australia. The quality and relevance of instructional materials can greatly influence learners' comprehension, retention of information, and ultimately, their ability to read, write, and communicate effectively. Effective instructional materials should be designed with the learner's needs in mind, considering factors such as age, reading level, cultural background, and learning style. Engaging and interactive materials that provide opportunities for learners to practice and apply their skills are essential for promoting literacy development. Moreover, instructional materials should be aligned with educational standards and curriculum objectives to ensure that learners are exposed to the appropriate level of content and skills at each stage of their education. This alignment can help prevent gaps in knowledge and ensure that learners are adequately prepared for the next level of instruction. The use of high-quality instructional materials can significantly improve literacy levels among learners, equipping them with the foundational skills necessary for success in school and beyond. The findings of this study highlight the importance of investing in the development and provision of effective instructional materials to support literacy learning in primary schools in Sydney, Australia.

6.0 Recommendations

Based on the findings of this study, the following recommendations are made to improve literacy levels among primary school learners in Sydney, Australia:

The government should allocate sufficient funds to increase the number and variety of instructional materials available in primary schools. This investment will ensure that learners have access to high-quality resources that cater to their diverse learning needs and promote literacy development. The government should establish resource centers to facilitate the borrowing and sharing of teaching materials that may not be readily available in individual primary schools. These centers can serve as hubs for teachers to access a wide range of instructional materials, enabling them to enhance their teaching practices and support learners' literacy growth.

To encourage the effective use of instructional materials, the government should organize seminars, conferences, and meetings for primary school teachers. These professional development opportunities can provide teachers with the knowledge, skills, and strategies necessary to optimize the use of instructional materials in their classrooms, ultimately leading to improved literacy outcomes for learners. School administrators should closely monitor and support their teaching staff to ensure that the available instructional materials are used effectively and efficiently. Regular classroom observations, feedback sessions, and professional learning communities can help teachers refine their practices and maximize the impact of instructional materials on learners' literacy development.

Collaboration among primary schools, educational authorities, and research institutions should be fostered to continually evaluate and improve the quality and effectiveness of instructional materials. This partnership can facilitate the sharing of best practices, the identification of areas for improvement, and the development of evidence-based strategies to enhance literacy instruction in primary schools. By implementing these recommendations, primary schools in

Sydney, Australia, can create a supportive and resource-rich learning environment that promotes literacy development and equips learners with the essential skills needed for academic and personal success.

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