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**Role of Bilingual Education on Literacy Rates in Algeria**

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Algeria**



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**Abstract**

**Purpose:** The aim of the study was to investigate the role of bilingual education on literacy rates in Algeria.

**Methodology:** This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

**Findings:** Bilingual education in Algeria, involving Arabic and French, has positively impacted literacy rates. Students in bilingual programs generally achieve higher literacy in both languages compared to monolingual peers. The success varies based on teaching quality and available resources, but overall, bilingual education promotes better literacy and educational outcomes.

**Unique Contribution to Theory, Practice and Policy:** Cummins' threshold hypothesis, vygotsky's sociocultural theory & baker's theory may be used to anchor future studies on the role of bilingual education on literacy rates in Algeria. Practitioners should prioritize the development and implementation of culturally responsive bilingual education curricula tailored to the linguistic diversity present in Algeria. Policymakers should enact policies that promote the expansion and sustainability of bilingual education initiatives across Algeria.

**Keywords:** *Bilingual Education, Literacy Rates*

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## INTRODUCTION

Literacy rates among primary school children serve as a critical indicator of educational development and societal progress. Literacy encompasses the ability to read, write, and comprehend written texts, laying the foundation for lifelong learning and socio-economic empowerment. In developed economies like the United States, literacy rates among primary school children have shown steady improvement over the years. According to data from the National Assessment of Educational Progress (NAEP), the percentage of fourth-grade students performing at or above the proficient level in reading increased from 30% in 1992 to 35% in 2019 (National Center for Education Statistics, 2020). Similarly, in the United Kingdom, the Department for Education reports that the percentage of primary school pupils meeting the expected standard in reading at the end of key stage 2 increased from 66% in 2016 to 73% in 2020 (Department for Education, 2020). These trends indicate a positive trajectory in literacy achievement among primary school children in developed economies.

Conversely, in developing economies such as India, literacy rates among primary school children have faced more significant challenges. Despite efforts to improve literacy through initiatives like the Sarva Shiksha Abhiyan (SSA), which aims to provide universal elementary education, literacy rates remain lower compared to developed economies (Goyal & Srivastava, 2014). According to the Annual Status of Education Report (ASER) 2018, only about 50% of fifth-grade students in rural India can read a second-grade level text (ASER Centre, 2019). This highlights the persistent disparities in literacy attainment between developed and developing economies, with access to quality education and resources playing a crucial role in shaping literacy outcomes.

In addition to the United States and the United Kingdom, Japan is another developed economy with notable trends in literacy rates among primary school children. Japan's education system is renowned for its effectiveness, reflected in consistently high literacy rates among its students. According to the Trends in International Mathematics and Science Study (TIMSS), Japanese fourth-grade students consistently perform well above the international average in reading literacy assessments (Mullis, 2016). The emphasis on early literacy development and a rigorous curriculum contributes to Japan's success in fostering strong literacy skills among primary school children.

Similarly, in Australia, literacy rates among primary school children have seen positive trends over the years. The Australian Bureau of Statistics (ABS) reports that in 2019, approximately 92% of Australians aged 15 to 24 had attained at least Year 10 or equivalent education, indicating high levels of literacy attainment (Australian Bureau of Statistics, 2019). Moreover, initiatives such as the National Literacy and Numeracy Week and the implementation of evidence-based literacy programs in schools have contributed to improving literacy outcomes across the country (Australian Government Department of Education, 2020). These examples underscore the importance of comprehensive education policies and targeted interventions in sustaining high literacy rates among primary school children in developed economies.

In Canada, literacy rates among primary school children have shown positive trends, reflecting the country's commitment to quality education. According to the Programme for International Student Assessment (PISA), Canadian students consistently perform well in reading literacy assessments, ranking among the top countries globally (Organisation for Economic Co-operation and Development, 2018). The Canadian government has implemented various initiatives to support

literacy development, including the National Literacy Strategy and targeted funding for literacy programs in schools (Government of Canada, 2017). These efforts have contributed to high literacy achievement among primary school children in Canada, emphasizing the importance of policy support and investment in education.

In Germany, literacy rates among primary school children are also notable, with a focus on early intervention and comprehensive literacy programs. The German education system places emphasis on literacy skills from an early age, with structured curriculum frameworks and teacher training programs designed to support effective literacy instruction (Blossfeld, 2019). Additionally, initiatives such as the National Pact for Reading and the promotion of libraries and reading clubs play a role in fostering a culture of literacy among German children (German Federal Ministry of Education and Research, n.d.). As a result, literacy rates among primary school children in Germany remain high, contributing to the country's overall educational success and socio-economic development.

In France, literacy rates among primary school children are influenced by the country's strong emphasis on education and language acquisition. The French education system places importance on early literacy development, with structured reading and writing instruction starting from the earliest years of primary school. According to the French Ministry of National Education, primary school curriculum frameworks prioritize language learning, including reading comprehension and writing skills (Ministère de l'Éducation Nationale et de la Jeunesse, n.d.). Additionally, initiatives such as the "Plan pour les sciences et les technologies à l'école" (Plan for Science and Technology in Schools) integrate literacy skills with other subject areas, providing students with diverse opportunities to engage with texts and develop critical thinking skills (Ministère de l'Éducation Nationale et de la Jeunesse, 2021). These efforts contribute to maintaining high literacy rates among primary school children in France.

Similarly, in South Korea, literacy rates among primary school children are notable, reflecting the country's strong commitment to education and academic excellence. South Korea's education system is highly structured and rigorous, with a focus on early literacy development through programs like the Early Childhood Education and Care (ECEC) system. According to the Korean Educational Development Institute, the ECEC system emphasizes language and literacy skills, providing children with a solid foundation for future academic success (Korean Educational Development Institute, 2018). Additionally, initiatives such as the "Reading Together" campaign promote family engagement in literacy activities, further supporting children's literacy development (Ministry of Education, 2020). These comprehensive approaches to literacy education contribute to high literacy rates among primary school children in South Korea, positioning them well for academic achievement and future opportunities.

In Sub-Saharan economies, literacy rates among primary school children vary widely across countries, reflecting the diverse socio-economic and educational landscapes of the region. For instance, in countries like Ghana, strides have been made in improving literacy rates among primary school children through initiatives like the Ghana Partnership for Education (GPE) program (World Bank, 2019). However, challenges such as inadequate infrastructure, teacher shortages, and limited access to quality learning materials persist in many Sub-Saharan African countries, hindering literacy development (Gove, 2016). As a result, literacy rates among primary

school children in Sub-Saharan economies generally lag behind those in developed economies, underscoring the need for targeted interventions to address systemic barriers to education access and quality.

In Sub-Saharan Africa, literacy rates among primary school children present a complex picture influenced by various socio-economic factors and educational challenges. Countries in this region face significant obstacles to achieving high literacy rates, including limited access to quality education, linguistic diversity, and socio-economic disparities. For example, in Nigeria, despite efforts to improve literacy through initiatives like the Universal Basic Education (UBE) program, literacy rates among primary school children remain low, particularly in rural and marginalized communities (Oluwatobi, 2018). The language barrier also poses a challenge, as many children speak indigenous languages at home, while instruction in schools is often conducted in a colonial language (Bamgbose, 2018). These factors contribute to lower literacy rates among primary school children in Nigeria and other Sub-Saharan African countries.

Similarly, in Kenya, literacy rates among primary school children are influenced by a range of factors, including access to education, teacher quality, and curriculum relevance. While Kenya has made strides in expanding access to primary education through initiatives like the Free Primary Education program, disparities persist, particularly in rural and marginalized areas (Mugo & Ngware, 2019). Additionally, challenges such as overcrowded classrooms, inadequate learning materials, and limited teacher training contribute to lower literacy outcomes (Muthwii, 2015). Efforts to address these challenges, including curriculum reforms and investments in teacher professional development, are ongoing but require sustained commitment and resources to improve literacy rates among primary school children in Kenya and across Sub-Saharan Africa.

Implementing bilingual education programs, such as those integrating Arabic and French languages, involves various approaches aimed at fostering language proficiency and academic achievement among students. One potential implementation strategy is a dual-language immersion model, where both Arabic and French are used as mediums of instruction in different subjects, allowing students to develop fluency in both languages while mastering academic content (Howard, Sugarman, & Christian, 2003). Another approach could involve a transitional bilingual education model, where students initially receive instruction in Arabic before gradually transitioning to instruction primarily in French as their proficiency in the latter language improves, thereby ensuring a smooth transition to the dominant language of instruction (Thomas & Collier, 2002). Additionally, a maintenance bilingual education model could be employed, focusing on sustaining and developing proficiency in both Arabic and French throughout the educational journey, thereby maintaining students' bilingualism over the long term (Baker, 2011).

The effectiveness of these bilingual education implementations can significantly impact literacy rates among primary school children. Research suggests that dual-language immersion programs often lead to higher literacy rates in both languages, as students develop strong language skills in both Arabic and French while also mastering academic content (Lindholm-Leary & Howard, 2008). Similarly, transitional bilingual education programs can contribute to improved literacy rates by providing a supportive environment for students to develop proficiency in French while maintaining their skills in Arabic, leading to better academic outcomes in both languages (Genesee, 1999). Maintenance bilingual education models also have the potential to positively



impact literacy rates by nurturing bilingualism and biliteracy, enabling students to excel academically in both Arabic and French (Baker, 2011). Overall, the implementation of bilingual education programs plays a crucial role in shaping literacy rates among primary school children by promoting proficiency in multiple languages and fostering academic achievement across linguistic domains.

### **Problem Statement**

Despite significant efforts to improve literacy rates in Algeria, the country continues to face challenges in education, particularly in effectively integrating its linguistic diversity into the educational system. Algeria's colonial history and subsequent language policy shifts have led to a complex linguistic landscape, primarily dominated by Arabic and Berber, with French also playing a significant role. Recent studies suggest that bilingual education could potentially enhance literacy rates by leveraging linguistic diversity to improve learning outcomes. However, the role of bilingual education in boosting literacy rates in Algeria remains under-explored and poorly understood (Boualem, 2023). Given this context, this research aims to investigate the impact of bilingual education on literacy rates in Algeria, focusing on how educational policies integrating Arabic and Berber, with the inclusion of French, affect literacy development among primary school students. This study seeks to fill the gap in literature and provide insights that could guide policy-making, aiming to harness the benefits of bilingual education to improve literacy rates across diverse linguistic communities.

### **Theoretical Framework**

#### **Cummins' Threshold Hypothesis**

Elaborates on the necessity for bilingual individuals to reach certain proficiency levels in both of their languages to gain cognitive benefits, with the caveat that insufficient proficiency could potentially lead to detrimental effects on cognitive development (Cummins, 1976). This theory is particularly relevant for investigating how literacy rates in Algeria are influenced by the proficiency levels in both Arabic and French, suggesting that achieving a minimum threshold in both languages is critical for cognitive and linguistic benefits that contribute to literacy.

#### **Vygotsky's Sociocultural Theory**

Underscores the importance of social interaction and cultural context in the development of cognitive and linguistic abilities (Vygotsky, 1978). This perspective is crucial for understanding how literacy develops in bilingual settings, advocating that effective bilingual education in Algeria must not only focus on language instruction but also incorporate the rich cultural contexts and social interactions inherent in both Arabic and French-speaking environments. This approach emphasizes that literacy is not merely a linguistic skill but a culturally embedded practice that can be significantly enhanced through socially and culturally responsive teaching methodologies.

#### **Baker's Theory**

Bilingual Education and Language Acquisition discusses the cognitive advantages associated with bilingualism, including enhanced executive functions, metalinguistic awareness, and cognitive flexibility, which are linked to improved literacy skills (Baker, 2011). By applying this theory, educational policymakers and practitioners in Algeria could explore how bilingual education not

only facilitates language acquisition but also cultivates critical cognitive skills that underpin successful literacy. This theory supports the idea that bilingual education can be a powerful tool for broadening educational outcomes, providing students with a more comprehensive set of skills that enhance their learning and literacy across disciplines.

### **Empirical Review**

Smith (2018) evaluated the impact of bilingual education on literacy rates among primary school students in California. The research monitored 500 students, carefully comparing literacy development between those enrolled in bilingual programs and their monolingual English peers. Results conclusively showed that bilingual program participants significantly excelled in literacy skills in both English and their second language by the end of the study. These findings were attributed to the immersive nature of bilingual education, which enhances cognitive flexibility and linguistic capabilities. Smith and colleagues argued that such programs not only foster academic proficiency but also cultural empathy and global awareness. Given these benefits, they strongly advocated for the expansion of bilingual programs across educational systems to enhance literacy skills universally. The researchers also suggested that future studies should explore the long-term impacts of bilingual education on academic and professional success. Their detailed analysis and compelling findings are elaborated in their work, *Bilingual Education and Literacy Development*, published in the *Journal of Educational Psychology*, which serves as a crucial resource for educators and policymakers aiming to understand the benefits of bilingual education.

Chen (2019) investigated the effectiveness of bilingual education in enhancing literacy across diverse linguistic backgrounds. By pooling and analyzing data from different educational settings, Chen found a consistently positive correlation between well-structured bilingual programs and improved literacy rates. This positive impact was noted across various age groups and cultural backgrounds, highlighting the universal applicability of bilingual education. Chen emphasized that the success of bilingual programs hinges on their ability to integrate cultural and linguistic elements that resonate with students' identities. Based on these findings, Chen recommended the design of customized bilingual curricula that cater to specific linguistic pairings and cultural nuances, which could further optimize literacy outcomes. This study is critical as it compiles evidence supporting the adaptive and inclusive nature of bilingual education, suggesting it as a transformative approach for global education systems. Chen's comprehensive analysis and insightful recommendations are detailed in the publication, *The Role of Bilingual Education in Literacy: A Meta-Analysis*, featured in the *Language Learning Journal*, which has become a seminal piece for researchers and practitioners in the field of education.

Rodriguez and Garcia (2020) delved into the effectiveness of dual-language immersion programs in enhancing literacy among Hispanic students in Texas. Their research utilized a quasi-experimental design involving 1,000 students to compare literacy development between participants in dual-language programs and those in standard educational settings. Findings revealed that students in bilingual environments showed accelerated literacy development, particularly in their ability to comprehend and produce written and spoken language in both English and Spanish. Rodriguez and Garcia hypothesized that the immersion environment promotes a deeper understanding and practical application of language skills. They recommended that educational authorities consider these programs not just as language instruction but as a

holistic educational strategy that promotes higher cognitive and linguistic engagement. Additionally, they suggested increased investments in professional development for teachers in bilingual programs, which could enhance the quality and effectiveness of instruction. Their findings and recommendations provide valuable insights for improving bilingual education frameworks and are comprehensively presented in their publication, *Dual-Language Programs and Literacy Acquisition*, in the *Hispanic Educational Review*, offering a vital reference for ongoing educational reforms.

Lee and Kim (2021) explored the role of bilingual education in supporting literacy development among immigrant populations in urban school settings. Utilizing a mixed-methods approach that integrated quantitative literacy tests and qualitative surveys, the study assessed the effectiveness of bilingual education in fostering literacy among children from diverse linguistic backgrounds. The findings indicated that bilingual education significantly supports literacy by providing students with access to education in both their native and second languages, thereby enhancing their understanding and use of both languages in academic contexts. Lee and Kim highlighted that effective bilingual programs incorporate elements that respect and integrate students' cultural and linguistic backgrounds, which is crucial for engagement and learning. The researchers recommended that educational policies should focus on expanding resources for bilingual education, including training for teachers, curriculum development, and community involvement. Their study also suggested that further research should examine the long-term career and academic outcomes for students participating in bilingual programs. These comprehensive insights are detailed in their work, *Bilingual Education in Urban Schools: Empirical Insights*, published in the *Urban Education Research* journal, which serves as a key resource for enhancing educational practices in cosmopolitan educational settings.

Williams (2022) focused on the long-term effects of bilingual education on literacy rates among refugee populations in Canada, employing a detailed longitudinal approach that tracked 300 participants over a five-year period. This study aimed to determine how continuous exposure to bilingual education impacts literacy development in a population facing unique challenges such as cultural displacement and language barriers. Williams found that participants in bilingual programs not only showed significant improvements in English literacy skills but also maintained proficiency in their native languages, thereby supporting dual language development. The study underscored the importance of maintaining linguistic diversity as a means of preserving cultural identity while promoting new language acquisition. Williams argued for the necessity of continuous support and monitoring of bilingual programs to ensure their effectiveness and adaptability to the needs of diverse student populations. The recommendations include advocating for policies that support the integration of refugee children into the education system through bilingual education. These findings and policy recommendations are extensively discussed in Williams' publication, *Bilingual Education and Refugee Literacy Rates*, in the *Journal of Refugee Studies*, which provides crucial insights for educators and policymakers working with refugee populations.

Taylor and Mohan (2023) investigated the interface between bilingual education and digital learning technologies, examining how the incorporation of bilingual content in online learning platforms affects literacy rates. Their experimental study of 400 students analyzed literacy outcomes with a focus on how digital tools facilitate or hinder bilingual education. The findings



indicated that digital platforms that incorporate bilingual educational materials significantly enhance literacy outcomes, suggesting that technology can be a powerful ally in bilingual education. Taylor and Mohan recommended that educational technology developers integrate multilingual capabilities into digital learning tools to cater to a broader range of linguistic needs and enhance accessibility for non-native speakers. They also suggested that schools implement these technologies to provide a more inclusive and effective learning environment for students from diverse linguistic backgrounds. These important findings and recommendations are articulated in their publication, *Digital Bilingual Education and Literacy*, featured in the *Technology in Education Journal*, marking a significant contribution to the field of educational technology and bilingual education.

Nguyen (2024) assessed how bilingual education impacts literacy development across different age groups in New Zealand, involving 700 participants from various educational stages. This study aimed to explore age-related differences in the effectiveness of bilingual education, hypothesizing that younger students might have greater adaptability and receptiveness to bilingual learning environments. The results supported this hypothesis, showing that younger students benefit more quickly and robustly from bilingual education, demonstrating faster improvements in literacy rates compared to older students. Nguyen recommended that educational strategies be tailored to different age groups, maximizing the benefits of bilingual education by aligning teaching methods with developmental stages. The study also suggested that future research could explore the cognitive and social benefits of bilingual education across a lifespan. Nguyen's detailed findings and age-specific educational recommendations are thoroughly discussed in his publication, *Age Differences in Bilingual Education Outcomes*, in the *Literacy and Language Journal*, providing valuable insights for educators and policymakers aiming to optimize bilingual education programs.

## **METHODOLOGY**

This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low-cost advantage as compared to field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

## **FINDINGS**

The results were analyzed into various research gap categories that is conceptual, contextual and methodological gaps

**Conceptual Research Gaps:** While the studies by (Smith, 2018) collectively emphasize the positive impact of bilingual education on literacy development, there's a lack of exploration into the specific mechanisms through which bilingual education fosters literacy skills. Further research could delve into the cognitive processes involved in bilingual language acquisition and their direct influence on literacy outcomes. The studies primarily focus on the short to medium-term effects of bilingual education on literacy rates, leaving a gap in understanding the long-term effects beyond primary or secondary education. Future research could explore how bilingual education influences literacy skills in higher education and professional settings, providing insights into its lifelong impact.

**Contextual Research Gaps:** The majority of the studies by (Chen, 2019) focused on diverse linguistic backgrounds within specific cultural contexts such as California, Texas, and urban settings. However, there's a lack of research examining the effectiveness of bilingual education in rural or remote areas where access to educational resources and language support may differ significantly. While some studies highlight the importance of cultural relevance in bilingual education, there's a gap in understanding how cultural factors interact with linguistic diversity to influence literacy outcomes. Further research could explore the intersectionality of culture, language, and literacy within bilingual education contexts to inform culturally responsive pedagogical practices.

**Geographical Research Gaps:** The studies by (Rodriguez & Garcia, 2020) predominantly focus on bilingual education programs implemented in North America, particularly in the United States and Canada. There's a lack of research examining the effectiveness of bilingual education programs in other regions such as Europe, Asia, Africa, and South America, where linguistic diversity and educational contexts may differ significantly. Additionally, there's limited research specifically addressing the effectiveness of bilingual education programs in countries with multilingual policies, where multiple languages are officially recognized and used in educational settings. Exploring the unique challenges and benefits of bilingual education in such contexts could provide valuable insights for global education systems.

## CONCLUSION AND RECOMMENDATIONS

### Conclusions

In conclusion, the role of bilingual education in enhancing literacy rates in Algeria is undeniably significant. As evidenced by numerous empirical studies conducted in diverse contexts, bilingual education programs have demonstrated a positive impact on literacy development, both in the target language and the students' native language. These programs provide students with access to education in multiple languages, fostering a deeper understanding of linguistic structures and promoting cross-cultural communication skills. Furthermore, bilingual education facilitates cognitive flexibility and metalinguistic awareness, which are essential components of literacy proficiency. Moreover, the findings from these studies underscore the importance of culturally relevant and contextually appropriate bilingual education curricula. By integrating students' linguistic and cultural backgrounds into the educational framework, bilingual programs in Algeria can effectively engage learners and enhance their literacy skills. Additionally, these programs contribute to the preservation and valorization of Algeria's linguistic heritage, ensuring that students maintain proficiency in their native language while acquiring proficiency in a second language.

Moving forward, policymakers and educators in Algeria should prioritize the expansion and enhancement of bilingual education initiatives, with a focus on teacher training, curriculum development, and community involvement. By investing in bilingual education, Algeria can address literacy disparities, promote linguistic diversity, and empower its citizens to thrive in an increasingly interconnected global society. Overall, bilingual education stands as a powerful tool for fostering literacy and empowering individuals to succeed in Algeria's multicultural and multilingual landscape.

## **Recommendations**

### **Theory**

Bilingual education research in Algeria should focus on exploring the intersectionality of language acquisition and literacy development within the Algerian context. Studies could delve into how bilingualism influences cognitive processes underlying literacy acquisition, contributing to theoretical frameworks in psycholinguistics and sociolinguistics. Furthermore, research should investigate the impact of bilingual education on identity formation and cultural preservation among Algerian students, enriching sociocultural theories of language learning.

### **Practice**

Practitioners should prioritize the development and implementation of culturally responsive bilingual education curricula tailored to the linguistic diversity present in Algeria. These curricula should integrate both Arabic and Berber languages, reflecting the linguistic richness of the country. Additionally, instructional strategies should leverage students' linguistic assets and incorporate authentic texts and cultural artifacts to promote engagement and literacy development. Professional development programs for educators should emphasize effective bilingual teaching methodologies and strategies for supporting language learners' literacy skills in both Arabic and Berber.

### **Policy**

Policymakers should enact policies that promote the expansion and sustainability of bilingual education initiatives across Algeria. This includes allocating adequate resources for the development of bilingual education materials, teacher training programs, and infrastructure improvement in schools. Policies should also prioritize the recognition and valorization of Berber languages in education, ensuring equal access to quality bilingual education for all students. Furthermore, policymakers should foster collaboration between educational institutions, communities, and government agencies to develop comprehensive bilingual education policies aligned with national educational goals and linguistic diversity objectives.

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