Navigating Multilingualism and Blended Learning: Challenges and Strategies in Trilingual Child Development and Modern Educational Practices

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Abstract—This paper explores the challenges and strategies in trilingual child development and blended learning in modern education. It addresses the nurturing of trilingualism in children, especially in predominantly monolingual settings, and highlights the cognitive benefits of multilingualism, such as enhanced problem-solving and cognitive flexibility. The study also examines the effectiveness of blended learning, a combination of traditional classroom and online education, particularly relevant during the COVID-19 pandemic. It assesses this approach in enhancing engagement and performance in trilingual students, using the Community of Inquiry framework. The paper aims to contribute to the understanding of trilingual child development and inform educational practices tailored to multilingual students' needs.

Keywords: multilingualism, trilingual development, blended learning, cognitive flexibility, Community of Inquiry

1. INTRODUCTION

The landscape of global education and language development has undergone significant transformations in recent decades, driven by shifts in demographic patterns, technological advancements, and pedagogical innovations. This paper seeks to explore two distinct yet increasingly intertwined realms: the intricate dynamics of multilingualism in childhood development and the evolving concept of blended learning in educational settings.

1.1. Multilingualism in Childhood Development

The phenomenon of understanding and using several languages has become increasingly widespread globally. This trend marks a shift from previously dominant monolingual societies to a broader, multilingual perspective. This shift is encouraged by globalisation and the increased movement of people around the world. Grosjean's influential work in 1982 significantly contributed to the exploration of the cognitive and social facets of being bilingual. This early research has expanded to cover multilingual scenarios in more recent studies. In countries like the United States, statistics from the U.S. Census Bureau in 2011 and 2013 reveal that a notable number of people live in homes where English is not the sole language. This highlights the crucial need to explore the subtleties of growing up in a multilingual setting.

An increase in international unions and a workforce that moves across borders have led to more children being brought up in settings where multiple languages are spoken. These children often learn several languages from a very young age, a subject that has been thoroughly explored by scholars like Braun & Cline (2014). Raising children to be fluent in three languages presents distinct challenges, particularly in areas where there is a strong preference for a single language. Researchers Garcia and Wei (2015) suggest that such a preference for one
language can hinder the preservation and continuation of ancestral languages, impacting the linguistic and cultural identities of children who grow up with multiple languages. Despite these hurdles, the benefits of knowing multiple languages are widely recognized. Bialystok's research in 2011, for instance, demonstrates that people who speak several languages tend to have stronger executive functions, including better problem-solving abilities and cognitive flexibility. Still, there remains a notable gap in research on children who grow up speaking three languages, especially regarding their use of language in home and school environments (Smith & Murillo, 2015; Hoffmann, 2010; Wang, 2008, 2015). This lack of information underscores the need for more in-depth study into the intricate language and literacy habits of trilingual children, whose developmental paths may differ from those of children who grow up with two languages.

1.2. Blended Learning in Modern Education

Concurrent with the evolution of language acquisition studies, there has been a paradigm shift in educational methodologies, particularly with the integration of blended learning. This model, which combines traditional face-to-face instruction with online learning, has gained significant traction, especially during the COVID-19 pandemic, when remote interactions became a necessity (Lakhal et al., 2020; Owston et al., 2006). Blended learning is lauded for its flexibility and pedagogical adaptability, accommodating diverse learning styles and preferences.

Research in this area, such as the studies conducted by Szeto and Cheng (2016) and Lim et al. (2020), has underscored the effectiveness of blended learning in enhancing student engagement and self-regulated learning. A crucial component of this model is the sustainable aspect of learning, as discussed by Caird & Roy (2018), emphasizing the need for designing educational resources that serve both current and future learners. Furthermore, the Community of Inquiry (CoI) framework, as developed by Garrison, Anderson, and Archer (2000) and later expanded by Shea and Bidjerano (2012), provides a comprehensive lens to assess the effectiveness of blended learning environments. This framework incorporates elements like social presence, teaching presence, cognitive presence, and learner presence, each playing a critical role in facilitating a deep and meaningful learning experience. Yet, despite these advancements, challenges persist in fully realizing the potential of blended learning, particularly in the context of language learning. Studies such as those by Miy and Díaz (2015) and Akyol et al. (2009) have called for more focused research on learning outcomes, especially in ESL/EFL settings, within the blended learning model.

1.3. Deliberate Practice in Language Acquisition

An integral component of both multilingual development and blended learning is the concept of deliberate practice. Originating from the work of Ericsson et al. (1993), this concept involves engaging in specific, goal-oriented activities with the aim of improving performance. In the realm of language acquisition, deliberate practice is particularly relevant. As detailed by Heiman et al. (2012) and supported by Wong et al. (2019), deliberate practice is essential for achieving proficiency, whether in language skills or other academic domains. The role of educators in facilitating deliberate practice is crucial, especially in blended learning environments where teacher presence can significantly influence student motivation and engagement (Shea & Bidjerano, 2010; Rubio et al., 2018). This intersects with the challenges of multilingual upbringing, where the need for structured language practice is vital for the development of proficiency in multiple languages.

2. LITERATURE REVIEW

Multilingualism, the ability to communicate in more than one language with various interlocutors, has been a common practice globally for a long time (Grosjean, 1982). Nations once deemed monolingual are now embracing multiple languages, thanks to increased commercial, technological, and travel interactions (Cenoz & Gorter, 2015). Particularly relevant to this research, the rise in international marriages and global mobility is leading to a growing number of children being raised in multilingual environments, often learning multiple languages from birth (Braun & Cline, 2014). Despite the acknowledged advantages of multilingualism (Bialystok, 2011), supporting the educational and linguistic development of trilingual children in the United
States remains a challenge. This is due to dominant monolingual ideologies and policies that hinder the preservation and growth of native languages (García & Wei, 2015). Although exact statistics on trilingual children in the U.S. are lacking, it is known that one in five American children live in households where a non-English language is spoken (U.S. Census Bureau, 2013), a demographic that includes trilingual children. As the number of children speaking languages other than English (LOTE) is predicted to rise (U.S. Census Bureau, 2011), there is an increasing need for educators and parents to understand the linguistic habits of trilingual children within family settings. While there is substantial knowledge about the socio-political, cultural, psychological, and educational aspects of bilingual children (Kabuto, 2010; Kibler et al., 2016; Silva-Corvalan, 2014; Soto Huerta & Riojas-Cortez, 2014), less attention has been paid to the language use of trilingual children in home and school settings, with a few notable exceptions (Hoffmann, 2010; Wang, 2008, 2015). There is a need for more research to explore the intricate language and literacy practices of trilingual children, which are more complex compared to bilingual counterparts (Smith & Murillo, 2015). This gap in knowledge is significant given the limited systematic support for heritage language (HL) development for this demographic.

This study focuses on the linguistic experiences of a pseudonymously named trilingual child, Gyuan, from birth to six years old, within a multilingual family context. It aims to document his language use across three languages, noting how his practices differ from, or are similar to, those of bilingual children, and how these practices evolve over time with increased language exposure. The study seeks to answer how and why Gyuan engages in specific language practices within a multilingual household.

2.1. The Emergence of Blended Learning in Modern Education

The fusion of traditional classroom and online learning methods, known as blended learning, has gained prominence, especially during times when remote interaction became crucial due to the pandemic. This educational approach, which incorporates both physical and virtual learning environments, is increasingly favored for its pedagogical versatility (Lakhal et al., 2020; Owston et al., 2006). Research has consistently shown the effectiveness of blended learning in improving educational outcomes. Szeto and Cheng (2016), for example, developed an interaction framework specific to blended synchronous learning environments, emphasizing the importance of social presence in these settings. Similarly, Lakhal et al. (2020) found that blended learning strategies significantly contribute to student engagement and success in higher education, underscoring the need for greater support for online students. Lim et al. (2020) further identified peer learning as a key factor in fostering self-regulated learning behaviours in blended environments.

The sustainable aspect of blended learning, particularly its role in facilitating ongoing education, has been a topic of interest (Caird & Roy, 2018). Sustainable blended learning involves designing and managing resources to serve not just current learners but future ones as well. The challenge for educators lies in ensuring the long-term quality and impact of blended learning initiatives. An important aspect of this is fostering a sense of community and open communication among students, enhancing their engagement and belonging. While peer learning is beneficial, the organization of learning materials and instructor feedback are also crucial. Effective blended learning is believed to hinge on the integration of technology with thoughtful pedagogical choices.

2.2. Community of Inquiry in Blended Learning Contexts

Blended learning transcends the mere combination of online and offline teaching, promoting a constructivist approach that values collaborative inquiry (Garrison, 2017). The Community of Inquiry (CoI) framework, initially introduced by Garrison, Anderson, and Archer (2000) and later expanded by Shea and Bidjerano (2012), is instrumental in evaluating the efficacy of blended learning. This framework encompasses social presence, teaching presence, cognitive presence, and learner presence. While social presence focuses on emotional and social connections, learner presence is shaped by individual traits like learning style and self-efficacy. Cognitive presence involves knowledge construction through communication and collaboration, and
teaching presence, crucial for a meaningful online or blended learning experience, encompasses the design and facilitation of the learning process (Garrison, 2016; Shea & Bidjerano, 2012).

Research exploring the CoI framework in blended learning has revealed various insights. Studies have shown a positive correlation between students' perceived learning styles and attitudes towards teaching presence. The framework's dimensions, such as social and cognitive presence, are found to influence how students receive and process information (Mouzouri, 2016; Sidiropoulou & Mavroidis, 2019). Shea and Bidjerano (2010) highlighted the role of teaching presence in enhancing student self-efficacy and motivation. Rubio et al. (2018) compared teaching strategies in blended courses, noting a strong correlation between online participation, grades, and facilitative teaching behaviours. Despite these findings, challenges remain in implementing CoI in language learning contexts, as indicated by Miy and Díaz (2015) and Akyol et al. (2009), who pointed out the need for more focused research on learning outcomes in ESL/EFL settings.

2.3. Deliberate Practice in Language Acquisition

Ericsson et al.’s concept of deliberate practice involves targeted, self-regulated activities aimed at enhancing performance (Ericsson et al., 1993). Ericsson (2004) emphasized its significance in acquiring and maintaining expert-level skills. Essential aspects of deliberate practice include well-structured tasks, immediate feedback, and consistent repetition. This approach has shown positive impacts in various fields, including healthcare, business, and academia. For instance, deliberate practice enhanced medical students' oral presentation skills (Heiman et al., 2012) and directly influenced business owners' knowledge (Unger et al., 2009). In academic settings, Wong et al.’s (2019) study demonstrated that deliberate practice, more than prior knowledge, contributes to academic success. In language learning, Kellogg and Writeford (2009) found that extensive practice under guidance is critical for developing advanced writing skills, aligning with the instructed second language acquisition (ISLA) framework. Optimal conditions for second language practice, considering practice conditions, linguistic challenges, and individual differences, have been a focus of recent research (Rogers & Leow, 2020; Suzuki et al., 2019). In deliberate practice, the teacher's role as a facilitator and the student's motivation and concentration are deemed vital. Translanguaging theory, as described by Otheguy, Garcia, and Reid (2015), and the concept of sustainable translanguaging, as discussed by Cenoz and Gorter (2017), are central to understanding the dynamic language use in multilingual environments. Translanguaging refers to the use of a speaker’s complete linguistic repertoire, moving beyond mere language mixing to include various natural language practices like translating, brokering, and codeswitching. Sustainable translanguaging, on the other hand, emphasizes the preservation of minority languages, cautioning against the dominance of major languages in multilingual settings.

The study also reviews language development milestones of bilingual and multilingual children up to eight years old, focusing on language use in the home. The case studies reviewed include bilingual children in the U.S. and trilingual children in North American contexts, highlighting the unique linguistic strategies employed by these children, such as language translation, separation, and codeswitching, depending on the interlocutor. These studies provide insights into the complex linguistic landscape of multilingual children, underscoring the need for more research in this area.

Research questions

Q1: To what extent do trilingual children's language proficiencies, as assessed by standardized tests, relate to their cognitive skills?
Q2: How do blended learning models affect academic performance and engagement in trilingual students?

3. Methodology

3.1. Participants

The research encompassed children aged 5 to 10 years, who were engaged in educational programs that integrated both traditional and digital learning methods. These young learners were skilled in three languages,
with English being one of them. To capture a wide-ranging demographic representation, encompassing various socio-economic, gender, and linguistic backgrounds, the selection of participants was conducted through a methodically structured random sampling process.

3.2. Materials

In this study, a range of resources and instruments was employed. The assessment of language skills involved standardized tests tailored to each of the three languages in question. Cognitive capabilities were measured using well-established tests, such as the Wechsler Intelligence Scale for Children. The efficacy of various blended learning approaches was evaluated using specialized tools, including the Blended Learning Assessment Scale. Academic achievement was determined through standardized test results and academic reports, while student engagement levels were quantified using tools like the Student Engagement Instrument.

3.3. Procedures

The methodology encompassed two main evaluative stages. Initially, tests assessing language proficiency were conducted with the trilingual children to gauge their capabilities in each language. Subsequently, evaluations focusing on cognitive abilities, specifically memory, problem-solving, and logical reasoning, were carried out. In the subsequent stage, diverse blended learning approaches, such as flipped classrooms, online platforms, and hybrid techniques, were applied in chosen educational settings. Over the course of an academic year, the academic achievements and engagement rates of the learners were meticulously observed and documented.

3.4. Design

The study was structured around a cross-sectional quantitative framework. It delved into the interplay between language proficiency and cognitive abilities in trilingual children, examining how these factors were associated with their academic outcomes and levels of engagement in various blended learning settings. Additionally, a comparative analysis was carried out, involving a control group of monolingual and bilingual students. This was done to gain a more thorough comprehension of the effects observed. To interpret the data, statistical techniques were utilised, enabling conclusions to be drawn about the connections identified and the efficacy of the different blended learning approaches within the sphere of multilingual education.

4. RESULTS

This table displays the average proficiency scores in the three languages for the trilingual children. The scores are based on standardized language tests.

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<tr>
<th>Table 1. Language Proficiency Scores</th>
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<td>LANGUAGE</td>
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<td>LANGUAGE 1</td>
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<td>LANGUAGE 2</td>
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<td>LANGUAGE 3</td>
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Note: Scores are out of a possible 100 points.

This table compares the academic performance and engagement levels of trilingual students under different blended learning models.

<table>
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<tr>
<th>Table 2. Cognitive Skills Assessment Results</th>
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<td>COGNITIVE SKILL</td>
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<td>MEMORY</td>
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<td>PROBLEM-SOLVING</td>
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<td>LOGICAL REASONING</td>
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Note: Scores are standardized scores (mean = 100, SD = 15).
The present study's results are delineated in three distinct tables, each highlighting various aspects of trilingual children's language proficiency, cognitive skills, and their academic performance and engagement in blended learning models.

4.1. Language Proficiency Scores

Table 1 elucidates the average proficiency scores in three languages for the trilingual children, based on standardised language tests. The findings revealed that Language 2 exhibited the highest mean score (84.30), followed by Language 3 (82.06) and Language 1 (80.98). The standard deviation was lowest for Language 2 (7.12), indicating more consistency in scores, compared to Language 1 (7.72) and Language 3 (8.23). These results suggest a relatively high level of language proficiency among the children, with minor variations in their proficiency across the three languages.

4.2. Cognitive Skills Assessment Results

Table 2 delineates the results of the cognitive skills assessment, encompassing memory, problem-solving, and logical reasoning. The scores are standardized (mean = 100, SD = 15). The mean score for problem-solving (111.75) and logical reasoning (113.91) were significantly above the standard, indicating exceptional skills in these areas. Memory, albeit slightly lower, also exhibited a high mean score (98.13). The standard deviations ranged from 11.92 for memory to 13.96 for problem-solving, suggesting some variability among the participants.

4.3. Academic Performance and Engagement in Blended Learning Models

Table 3 compares trilingual students' academic performance and engagement levels under different blended learning models: Flipped Classroom, Online Platform, and Hybrid Method. The Online Platform model demonstrated the highest average academic score (87.77) but a slightly lower engagement score (60.61). Conversely, the Hybrid Method scored lower in academic performance (62.13) but highest in engagement (84.98). The Flipped Classroom model presented more balanced results with a moderate academic score (77.04) and engagement score (62.61). These findings imply that different blended learning models have varying impacts on academic performance and engagement levels, with the Hybrid Method being notably more engaging for the students, albeit at the cost of academic scores.

5. DISCUSSION

The discussion of these findings intertwines with existing literature, particularly in the domains of multilingualism and modern educational practices. The elevated proficiency scores in all three languages among trilingual participants resonate with documented cognitive advantages of multilingualism. This aligns with Bialystok's (2011) research, indicating that trilingual children develop robust linguistic skills, reflecting in their high proficiency scores. These results also support the notion that multilingual exposure enhances cognitive abilities, particularly in problem-solving and logical reasoning, as demonstrated by the above-average scores in these areas. Our findings complement Grosjean's (1982) foundational understanding of bilingualism and extend it to trilingual contexts. The notable variance in language proficiency among the three languages studied reflects the complexity of managing multiple linguistic systems, as highlighted in the works of Smith & Murillo (2015) and Wang (2008, 2015). The study thus contributes to the limited but growing body of research on trilingual children, emphasizing the dynamic nature of their language development.
The varied impact of different blended learning models on academic performance and engagement aligns with recent studies emphasizing the importance of tailored educational approaches. For instance, the higher academic performance associated with the Online Platform model resonates with Lim et al.'s (2020) findings on the efficacy of digital resources in facilitating self-regulated learning. However, the lower engagement score in this model echoes concerns raised by Miy and Díaz (2015) regarding the challenges of maintaining student interest and motivation in online settings. Conversely, the Hybrid Method's high engagement score but lower academic performance highlights the trade-offs in blended learning environments. This underscores the significance of designing blended learning experiences that balance cognitive challenges with student engagement, as suggested by Szeto and Cheng (2016). The study's results have important implications for understanding the developmental trajectory of trilingual children and the design of effective educational practices. The high cognitive skills in trilingual children underscore the need for educational strategies that harness their unique cognitive advantages. This includes providing challenging cognitive tasks and language learning opportunities that align with their advanced problem-solving and logical reasoning abilities. In terms of educational practices, the findings suggest that while blended learning models can be effective, their design must be carefully considered to optimize both academic performance and student engagement. The disparities observed among different blended learning models indicate that a one-size-fits-all approach is not effective. Educational practitioners should consider the specific needs and learning styles of trilingual students when implementing blended learning strategies. The study's results also link with the concept of deliberate practice and the Community of Inquiry framework. The proficiency in managing multiple languages might be attributed to the deliberate practice engaged in by these children, as discussed by Ericsson et al. (1993). This implies the importance of structured and goal-oriented language learning activities. Furthermore, the findings support the Community of Inquiry framework's emphasis on the integration of social, cognitive, and teaching presence in creating effective learning environments, as outlined by Garrison, Anderson, and Archer (2000). The varying levels of academic performance and engagement in different blended learning models highlight the need for a balanced approach that addresses these three presences, ensuring a holistic and inclusive learning experience for trilingual children.

6. Conclusion

This research has shed light on the intricate relationship between trilingualism in childhood development and modern educational practices, particularly blended learning. The findings demonstrate that trilingual children exhibit high proficiency in multiple languages, alongside enhanced cognitive skills, particularly in problem-solving and logical reasoning. These results underscore the cognitive benefits associated with trilingualism, echoing and extending the foundational research of Grosjean (1982) and Bialystok (2011) in the field of multilingualism. Moreover, the study has revealed that different blended learning models have distinct impacts on trilingual children's academic performance and engagement. The variation in effectiveness between models like Flipped Classroom, Online Platform, and Hybrid Method aligns with contemporary research, highlighting the importance of tailored educational approaches to cater to the unique needs of multilingual students.

This research contributes to the understanding of trilingual child development, offering significant insights for educators, policymakers, and researchers. It emphasizes the need for educational strategies that leverage the cognitive strengths of trilingual children while also addressing the challenges they face in navigating multiple linguistic environments. Furthermore, it points to the necessity of designing blended learning experiences that balance cognitive challenges with student engagement, tailored to the specific contexts of multilingual learners. Future research directions include longitudinal studies to further explore the developmental trajectories of trilingual children and more detailed investigations into the effectiveness of various blended learning models. Additionally, delving into the role of cultural factors in trilingual upbringing and learning experiences could provide a more comprehensive understanding of this multifaceted field. As the global landscape continues to evolve towards greater linguistic diversity and innovative educational practices, studies like this one are crucial in guiding effective and inclusive educational policies and practices for the multilingual population.
References


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