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An Examination of the Influence of Early Exposure to the Official Language on Student Learning and Academic Achievement in a Developing Country: A Study at Two Higher Education Institutions

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Abstract

This study examines how early exposure to French, the official language of instruction in the Democratic Republic of the Congo (DRC), affects student learning and achievement at two higher education institutions in Kinshasa. It also examines whether family use of French improves academic performance and how exposure to the national language affects French proficiency and academic outcomes. A questionnaire was administered to 160 (N = 160) university students to assess how speaking French at home and national languages affect their French proficiency and academic performance, using a Likert scale. The study revealed that both L1 and L2 learners considered reading and grammar instruction essential for achieving proficiency in French and preparing for university studies. However, early exposure to French within the family environment was not significantly associated with improved academic performance. These results underscore the intricate nature of language dynamics within multilingual educational environments and indicate the need for continued investigation, particularly from the perspective of higher education practitioners. The complexities of official-language proficiency in multilingual countries such as the Democratic Republic of the Congo underscore the need for well-designed language education policies and practices. Specific recommendations are provided.

Keywords

Language Acquisition, Curriculum, First and Second Language Learning, Multilingual

1. Introduction

1.1. Context

Developing countries require the training of qualified experts to ensure the effective management of their modern economy. It is therefore imperative that national education systems meet this demand in sufficient quantities. However, a significant decrease in students' academic performance has been observed in recent years in some countries. This development raises legitimate concerns for employers, investors, and policymakers involved in the country's development. This study was conducted in the city-province of Kinshasa, the capital of the Democratic Republic of the Congo (DRC).

1.2. Clarification of Concept

In this study, "L1 learners" refers to individuals who use French, the official language, as their first language (i.e., acquired it at birth), and "L2 learners" refers to those for whom French is a second language. L1 learners are those who used French at home and primarily communicated in it before beginning primary school. Second-language (L2) learners are individuals whose mother tongue is another national language, such as Lingala, Swahili, Kikongo, or Tshiluba, and who have been taught French in an institutional setting, such as a primary school, for at least five consecutive years. Thus, category L1 refers to learners whose mother tongue is French, while category L2 applies to those who have acquired French during primary or elementary education.

1.3. Problematic

This problem presents a complex, multifaceted set of factors, without a single cause or solution. Since all formal education is conducted in French, language education policies have a significant and direct influence on learners' ability to acquire knowledge at all levels of the education system. In a multilingual society such as the Democratic Republic of the Congo (DRC), it is crucial to recognize the substantial impact of multilingualism on the nation's socioeconomic development.

It is plausible to assert that most current students have developed and refined their French language proficiency primarily in academic environments, such as schools or universities, rather than through domestic exposure. According to a pedagogical consensus, it is considered more effective for children to learn to read and write in their mother tongue. Thus, elementary or primary education uses one of the national languages for literacy. This choice delays the introduction of French into the school curriculum (Levin et al., 2013).

Children typically commence their education at the age of six in a regional primary school, where instruction is provided in the student's native language or, if that is not feasible, in basic French. Over the next three years, they will learn foundational literacy and numeracy skills, as well as knowledge of family and commu-

nity values, discipline, personal health care, and respect for others. At the end of six years of primary education focused on mastering and strengthening the French language, students are expected to acquire the essential skills to be fulfilled and productive, to contribute to their community, and to use French to grasp fundamental concepts in the social, scientific, technological, and personal domains, while valuing learning beyond Grade 8.

Based on observations in schools, learning French at the beginning of schooling may create a gap in intellectual development among young learners. In this context, it is pertinent to examine the impact of late exposure to learning French on the academic performance of students in the city-province of Kinshasa. The observed lack of proficiency in French among university students appears to be correlated with a decline in their overall academic performance. It would be relevant to consider implementing concrete measures to strengthen their performance.

The results and conclusions presented by Gangat (2014) in an exploratory study indicate that the significant differences observed between reading comprehension and auditory vocabulary levels of L1 and L2 learners highlight complex underlying issues that require further analysis. This study aimed to analyze the relationship between L1 and L2 learners' performance, particularly with respect to a language question. Evidence suggests that explicit and intensive academic language instruction for L2 learners from primary and secondary school onward can help reduce the language gap relative to L1 learners (Gangat, 2014).

1.4. Research Questions

1) Could the practice of French from birth in the family be a determining factor in optimizing learning and academic performance in higher education?

2) Would the regular use of national languages hinder the mastery of French and impact the learning and academic performance of students?

1.5. Hypotheses

1) Early exposure to the official language may optimize learning and academic performance in higher education.

2) It is conceivable that the constant use of the national language hinders the mastery of the official language, thereby affecting students' academic performance.

1.6. Interest in the Subject

This research examines the impact of early French immersion, a common practice in the Democratic Republic of Congo, particularly in the city-province of Kinshasa. Over the past twenty years, most students in the city-province of Kinshasa and throughout the DRC have attended school under the general education policy, which is based on French as the primary language of instruction and academic communication.

1.7. Research Goals and Objectives

The objective of this study was to investigate the impact of early exposure to French on students' academic performance and to examine a possible correlation between late acquisition of French and academic outcomes. It is essential to note that correlation does not necessarily imply causality. An inverse relationship between late acquisition of French and academic performance is also observed.

1.8. Limitations

Given the characteristics of the study sample and potential reluctance among respondents to provide straightforward answers, the results may not generalize to populations other than the one studied. It can only be assumed that students understood the questions as intended.

We were unable to access students' academic performance data, so we relied on their self-perceptions instead of objective measures like GPA or exam scores.

1.9. Delimitations

To manage the data collected, a Likert scale was used as the instrument. Given the large number of potential participants, the study focused on students from selected universities in Kinshasa.

2. Literature Review

2.1. Introduction

While adults typically excel over children in most areas of learning, research suggests that younger individuals possess a distinct advantage in language acquisition. According to Hyltenstam and Abrahamsson (2003), the earlier children are exposed to new languages, the more naturally they assimilate linguistic input from their surroundings. All neurologically typical children achieve proficiency in their native language within their early years. When introduced to a second language at a young age, they often develop native-like social and community communication skills. In contrast, adults generally require explicit instruction and sustained, deliberate practice to acquire a new language and, even under optimal circumstances, seldom attain native-level proficiency in everyday or social contexts (Hyltenstam & Abrahamsson, 2003; Schouten, 2010).

In contrast to the acquisition of the child's mother tongue, the typical outcome of second language acquisition after adolescence should be more academic than social. This would allow learners at this level to communicate academically and become efficient in their training (Birdsong, 2006).

Given this, it is logical to question the causes of the inverse relationship between the age of initial learning and final competence. Korenar and Pliatsikas (2023), neuroscientists, explained children's effortless second language (L2) acquisition as a biological/neurological advantage. It has been asserted that, owing to neuroplasticity—the process by which neurons establish novel and diverse connections in response to stimuli, particularly during the initial nine years of development—

a child's brain possesses a distinct aptitude for acquiring languages. This capacity facilitates effective direct learning from the onset of formal education.

2.2. Neurobiological Mechanisms of Language Acquisition

Recent research has revealed significant changes in the brain when language acquisition outcomes begin to differ systematically. Hyltenstam and Abrahamsson (2003) suggest that a correlation exists between the two. They referred to Korenar and Pliatsikas (2023), who considered the connections between neurons (networking) as the neurobiological basis of all learning (including language acquisition) and highlighted myelination as an important factor that affects neurons' ability to form new connections. Myelination of cortical neurons is a physicochemical process in the brain in which glial cells wrap neuronal axons in myelin. Myelin is a substance produced by glial cells, composed of lipids and proteins (Hyltenstam & Abrahamsson, 2003).

The function of this wrapping of axons with myelin is to provide neurons with nutrition and increase their ability to conduct electrical signals faster. This facilitates the transfer of information over greater distances within the brain. At the same time, this makes it increasingly tricky for neighboring neurons to connect. The myelination process begins during the fetal stage and continues for several decades. However, evidence suggests that many neurons in the adult brain remain unmyelinated. Since the early twentieth century, it has been known that different cortical areas myelinate at different times (Korenar & Pliatsikas, 2023).

By 12 months of age, the major sensory and motor areas of the brain are myelinated. The higher-order association areas of the cortex are myelinated much later, and in these regions, some neurons remain unmyelinated in adults. The areas of language around the fissure of Sylvian myelinate after the primary sensory and motor areas, but before the higher-order areas of association: Around puberty, all cortical areas, except perhaps the higher-order association cortexes, have reached their full level of myelination. The maturation of the brain is often equated with myelination (Hyltenstam & Abrahamsson, 2003).

The potential for language acquisition depends on the type and speed of connections in the cortical network. There are two types of cortical connections between neurons: the long-distance type uses apical dendrites and axons to move away from the cell body and connect different cortical areas. In contrast, the short-distance type uses basal dendrites to make local connections.

Myelination accelerates the transmission of the long-distance signal through axons, but also isolates the axonal fiber, inhibiting its ability to connect with basal dendrites, which are close to the cell body, and the local branches of axons (axonal collaterals). It seems that language acquisition is based on "local" connections within a limited "linguistic area" around the Sylvian fissure; this explains why first language acquisition becomes almost impossible after puberty, and why second language acquisition becomes increasingly complex with the process of myelination in language areas, often referred to as "brain maturation" (Korenar & Pliatsikas,

2023).

Based on the above, the "critical period hypothesis" (CPH) posits that physiological brain maturation limits the ability to learn languages. Proponents of CPH argue that children have a particular advantage in language acquisition—whether first or second—before puberty, and that after this critical period ends, the "age advantage" disappears. They argue that language learning after puberty requires conscious effort and will inevitably exhibit non-native characteristics.

In opposition to this position, several studies (Singleton, 2000; Marinova-Todd et al., 2001; Tokudome, 2010) postulated that, although rare, mastery of a second language is possible for adult learners. David Singleton, in *The Critical Period Hypothesis: A coat of Many Colours*, admits that "research on age-related effects on the development of the second language often invokes the idea of a critical period—the postulation of which is usually referred to as the critical period hypothesis". He argues, however, that "to speak in terms of the critical period hypothesis is misleading" and concludes that "the very fact that there are such diverse and competing versions of the critical period hypothesis in itself compromises its plausibility" (Singleton, 2005). Marinova-Todd et al. (2001: p. 28), on the same side of the spectrum, attempt to "dispel persistent myths that children learn faster than adults and that adults are unable to achieve local or aboriginal proficiency in second language (L2). This viewpoint among educators of second-language learners is unsurprising, given that the ongoing debate surrounding the Critical Period Hypothesis (CPH) has significant implications for both language policy and the methodologies employed in second-language instruction.

However, the multifaceted complexity of the language acquisition process, which necessarily reflects the psycho-physical and socio-historical nature of human language, warrants an approach that combines the advantages of analysis and synthesis. A consensus is currently forming that second-language learning is influenced by the age of onset, whether it occurs during the "critical period," and by psychological, social, and physiological factors (Birdsong, 2013).

2.3. The Role of the Critical Period Hypothesis in Age-Related Research

The roles of age and a critical period (CP) are key elements in second language acquisition (SLA) research. The concept of a biologically determined critical period plays a central role not only in linguistic theory but also in the broader cognitive sciences (Hernandez et al., 2005: p. 220). Cognitive approaches and neurobiological explanations of second language acquisition have recently emphasized distinguishing between the processes that interact in the development of language skills, aligning with the widely accepted procedural and declarative distinctions in cognitive science (MacWhinney, 2005; Paradis, 2004; Ullman, 2001).

The critical hypothetical period applies to the acquisition of implied language competence. The decline in procedural memory for language forces late second-language learners to rely on explicit learning, leading them to use a cognitive sys-

tem that differs from that of the mother tongue (Paradis, 2004). The acquisition of implicit competence is affected by age in two ways: (1) biologically, the plasticity of procedural language memory gradually decreases after the age of about 5 years; (2) cognitively, dependence on conscious declarative memory increases for both general learning and language learning from the age of 7. Cerebral palsy can be "masked in some cases by compensatory mechanisms. To the extent that declarative memory, such as vocabulary, assists a competent learner of the second language, the latter is not affected by the critical period. Adult learners, or those learning after puberty, compensate by relying more on metalinguistic and pragmatic knowledge (Paradis, 2004).

MacWhinney (2005) explains the lack of a marked decline and age-related effects in his unified competition model: older learners become increasingly dependent on the connections between sound and spelling, and they vary in which constructs they can control and which are missing or poorly transferred. They are also affected by restricted social contact and declining cognitive abilities. In his opinion, none of these factors predicts a sharp decline in the ability to learn a second language at a specific age; instead, a gradual decline occurs throughout life.

As in previous studies, language learners who spoke the second language competently and without an accent shared an intrinsic motivation for the target language. They were proud of their success and sought to develop their language skills by actively engaging in communication with native speakers, including extensive reading and listening (Nikolov & Djigunovic, 2006).

The conclusion from these recent studies is that educational attainment is possible for many adults who began learning the target language after puberty; however, the strong version of the CPH can no longer be maintained (Nikolov & Djigunovic, 2006).

2.4. Language Learning for Social and Academic Effects

2.4.1. Basic Interpersonal Communication Skills

Basic Interpersonal Communication Skills (BICS) refer to the language a person needs for their daily social interactions. BICS, as opposed to Cognitive and Academic Language Proficiency (CALP), is the simple, conversational language necessary for everyday life, including conversations with friends and informal interactions with acquaintances. For children, the language used in the playground with their playmates is an example of BICS. Language used on the phone in a non-academic context is also an example of BICS. The language used in these social interactions is referred to as "Integrated Context." Context integration means that the conversation often takes place face-to-face, providing helpful feedback and offering the listener numerous cues, such as facial expressions, gestures, or concrete objects that can be referenced during the social exchange. BICS is not cognitively demanding because it is not specialized, is easy to understand, and has a simple structure. It takes learners from 6 months to 2 years to develop BICS (Montelli & Blakely, 2023).

For BICS to take place, students learning a second language must communicate constantly in that language. Otherwise, BICS would take longer than usual. Social communication is less demanding than academic communication (Seidlhofer et al., 2006).

2.4.2. Cognitive and Academic Language Competence

Cognitive and Academic Language Proficiency (CALP) refers to the formal language used in academic settings. In other words, language is essential for understanding and discussing course content. Academic language is often complex and decontextualized, i.e., it is far removed from current realities. This language usually involves uncommon words. One challenge of CALP is that it is perceived as "context-reduced," meaning there are fewer nonverbal cues for understanding learning, and the language is more abstract. Lessons written in academic language require learners to understand them. A student who is not a native English speaker may not understand the language during their first years of language acquisition; As a result, these lessons will be more difficult for them. Examples of abstract language include metaphors, similes, and colloquialisms. Examples of academic language include scientific terminology and words that would not be used in everyday conversation. Research has shown that English as a Second Language (ESL) learners may require up to 7 years to communicate fluently in academic language (Morales, 2023).

As shown, CALP indicates the language proficiency required for success in higher education. According to research, it takes about 7 years to come to fruition. Given these realities, if the teaching of a second language is not well organized and intensive, students will not be able to attain the CALP level of proficiency promptly (Seidlhofer et al., 2006).

2.5. Benefits of Early Second Language Acquisition and Cognitive Development

While some parents worry that starting their toddler in a second language will interfere with the development of first-language skills, the opposite is true. Children can distinguish between two languages within the first few weeks of life. "Learning another language actually improves a child's overall verbal development (Hirsh-Pasek & Golinkoff, 2012).

The research then revealed several additional cognitive benefits to learning a second language at a young age. Children who study foreign languages tend to have higher cognitive performance in basic skills across primary school. According to the results of university and higher-education entrance exams, they perform better. Children who learn a foreign language at a young age also exhibit improved problem-solving skills, better spatial reasoning, and greater creativity. Learning a second language from an early age encourages flexibility of thought and communication skills, which helps children approach problems from multiple angles (Hirsh-Pasek & Golinkoff, 2012).

Additionally, research indicates that multilingual individuals exhibit enhanced

memory, planning, and multitasking abilities. When learning multiple languages early, the brain is trained to focus on salient information and disregard irrelevant details —a skill that later fosters improved concentration, memory, planning, and multitasking. Research indicates that multilinguals utilize their brains more effectively than monolinguals and outperform them on creativity tests (Hirsh-Pasek & Golinkoff, 2012).

2.6. Academic Performance

The relationship between academic achievement and intelligence is uncertain, as measures of intelligence and intelligence tests were initially intended to identify children who were struggling in school (Frey & Detterman, 2004). Therefore, a correlation exists between academic performance and intelligence, although the exact nature of this relationship remains uncertain. Some researchers theorize that the correlation is very weak (Brunner, 2008), while others have determined that the relationship is well established and accepted in the literature (Deary et al., 2007; Dodonova & Dodonov, 2012; Spinath et al., 2006; Vock et al., 2011).

Academic performance is sometimes referred to as cognitive ability in the literature. The term "academic performance" will be used to distinguish between intelligence and cognitive abilities, which are sometimes used interchangeably in the literature.

Questions have been raised about the presence of this factor in school-specific subjects, and it has been found that in many cases the material lacks specific relevance (Brunner, 2008). Therefore, the assumption that higher intelligence automatically leads to higher academic performance should be avoided. Research in this area has demonstrated that intelligence is not always directly correlated with academic performance. However, common factors influence academic performance (Baumert et al., 2009).

One of the most demanding and important aspects of academic success is reading, which has proven to be a key factor in enabling learners to access the curriculum (Pretorius, 2002a). The reading-based curriculum, which aligns with international trends and curriculum benchmarks, positions reading as a fundamental skill for academic success (Pretorius & Mampuru, 2007).

2.7. The Importance of Reading Comprehension and Auditory Vocabulary

Learning to read and reading to learn are two distinct concepts that highlight a key difference in the complex process of reading comprehension, which appears to be central to the reading dilemma (Goldman, 2012; Pretorius, 2002b). The lack of meaningful engagement with academic materials makes parts of the curriculum inaccessible due to a limited understanding of reading-to-learn, a crucial component of reading (Goldman, 2012). This means that some learners may never reach their full potential due to gaps in their reading comprehension.

The link between language, academic results, and intelligence is disputed. Re-

search has shown that four significant language domains—listening, speaking, reading, and writing—are related to academic performance (Cummins, 1984). The domains of speaking and writing are challenging to measure because of the subjective nature of their wide range of possible interpretations. The importance of reading comprehension and auditory vocabulary (listening) is underscored by their greater precision (Cummins, 1984).

Reading is a cognitive-linguistic activity composed of various underlying skills that enable meaningful interaction with the world. Reading has two main components: decoding and comprehension. Decoding is the perceptual process of reading, in which symbolic text is translated into language. Understanding is the process of comprehending these symbols. Reading comprehension results from successful decoding and comprehension, facilitated by a series of complex information-processing steps that enable readers to understand, interpret, and make sense of the text (Baumert et al., 2009).

Theories of reading comprehension have been developed to explain this complex process, which identifies three key steps. The search for information is the first step, followed by understanding and interpreting the text, and finally by evaluating and reflecting on it. These three distinct processes involve numerous underlying factors necessary for initiating reading comprehension, including lexical (word) access speed, vocabulary (lexicon content and organization), working memory capacity, word recognition, prior knowledge, and reasoning ability (Baumert et al., 2009).

There are different types of reading, each with its own function and purpose. The three types of reading are textual reading (view), interactive reading, and critical sociocultural reading (Granville, 2001). This suggests that teaching methods should adopt more direct approaches to reading, which is not currently the case, as reading is often considered a task completed after formal schoolwork. It is imperative to teach learners to read critically and to utilize various reading methods for interaction and access to the curriculum, thereby deriving maximum benefits.

In most classrooms, learning a second language often coincides with learning to read (Howie et al., 2008), a challenging process that can result in reduced proficiency in the first language. Code-switching between French and the learners' first language is often used to explain concepts more effectively and to fill learning gaps. Second-language learners face two distinct barriers: interlinguistic learning problems arising from the use of the first language and intralinguistic problems arising from the different structure of the second language.

Reading comprehension for L2 learners requires complex cognitive processes, particularly because reading to learn involves coordinating multiple cognitive processes. Fluency in oral reading is a strong predictor of reading comprehension, indicating that both word recognition and fluency contribute to meaning and overall comprehension. Little research has examined the underlying processes of reading comprehension in L2 learners; however, evidence suggests that mastering L1 reading comprehension improves overall comprehension when French is used as an

L2 (Kim, 2012).

An important consequence of poor reading should be emphasized: learners who have a good start in reading will always be ahead of their peers (Pretorius & Currin, 2010).

The process of auditory vocabulary acquisition is similar to reading comprehension, as individual letters and sounds must be understood to make sense of a word in context. The non-verbal nature of auditory vocabulary emphasizes the importance of activating auditory pathways to give words real meaning in context. Vocabulary is the cornerstone of meaningful sentences. It is therefore valuable and important to understand each word in context. Auditory vocabulary has been shown to influence reading comprehension because understanding a word in isolation can affect a person's ability to comprehend it in context (Nagy et al., 2000). This is a crucial aspect of reading comprehension that cannot be overlooked.

Pretorius (2002b) unequivocally states that reading is a fundamental skill from 4th grade onward that will determine future academic success. This highlights the importance of all the above factors in enhancing overall reading. A variety of factors influence reading effectiveness, including the school environment, parental education, school and home resources, and general love and motivation for reading (Howie et al., 2012). There are definite benefits to creating positive reading environments for young children who enjoy reading for pleasure. This will create a lifelong ripple effect, enabling readers to use reading as a tool for interacting with their world.

The relationship between academic performance and language in South Africa is a crucial topic of inquiry, given the country's diverse linguistic landscape (Gangat, 2017). Reading is one of the most important foundational skills for accessing the curriculum, but there is very little research in this critical area (Pretorius & Mampuru, 2007). Reading is often used as a benchmark to assess the success of an education system (Pretorius & Mampuru, 2007). South Africa's poor performance in the most extensive national reading studies conducted in South Africa occurred in 2006 and 2011 (Howie et al., 2012), which was undertaken by the International Association for the Assessment of Educational Success (IAAES) in the International Study on Progress in Reading Comprehension (ISPRC). This study aimed to establish the national reading level of learners in South Africa in relation to international benchmarks. (Howie et al., 2012).

3. Methodology

3.1. Introduction

This research aimed to investigate the impact of using French as the principal language within the household—a common practice in the Democratic Republic of Congo, particularly in Kinshasa—on students' educational outcomes and academic performance. Two issues were analyzed:

- The primary objective was to assess whether the use of French in the home

environment, alongside its instruction at the primary and secondary levels, facilitates sufficient proficiency in the language required to meet the academic standards and expectations of higher education successfully.

- The second aimed to assess the extent to which the regular use of national languages hindered the acquisition of French and, consequently, impacted students' learning and academic performance.

3.2. Research Design

A quantitative approach was employed in this study to analyze data collected using a questionnaire specifically designed for this purpose (see Annex A). Surveys collect data using two primary methods: interviews and questionnaires. Each process can be administered either remotely or in person. The technique provides four distinct data collection modalities: the face-to-face interview, the telephone interview, the questionnaire sent by mail, and the questionnaire administered directly (Creswell & Guetterman, 2018).

The choice of an in-person questionnaire is based on its generally high response rate, which typically approaches 100%. Other advantages include a relatively low cost and the presence of the researcher, who can thus attend to or answer respondents' questions. This mode of survey is conducted with a group of participants gathered at a location selected explicitly for this purpose (Creswell & Guetterman, 2018).

In this study on the teaching and learning of French, as well as the influence of national languages and the associated costs, the direct approach generated the highest participation rate. Quantitative analysis is used to describe, predict, corroborate, confirm, and test hypotheses. It is based on defined variables, established guidelines, and a consistent format, and is generally objective and independent of the study context. This approach often employs large sample sizes and standardized data collection and inferential analytic methods. The results are processed objectively, using figures, statistics, and summary data (Leedy & Ormrod, 2001).

3.3. Sample

The target population included students from two higher education institutions in Kinshasa. The accessible population was determined in accordance with the research objectives, using a non-probability sampling method known as convenience sampling. The questionnaires were distributed to student volunteers by the school administration. The data analyzed were collected from 160 participants (N = 160) who agreed to participate in the study. One hundred and six students reported using French to communicate at home and in other contexts. In comparison, fifty-four students indicated that they do not use French at home and started learning the Language in elementary school.

The researcher employed the convenience sampling technique due to limited access to all students and to avoid potential bias from non-voluntary participants.

3.4. Instrumentation

Data for this study were collected using a questionnaire (see Appendix A), which had been previously validated in accordance with the recommendations of Gall and Borg (2014). This questionnaire has been developed to ensure that students understand it and to facilitate the provision of relevant answers. The questionnaire was designed to include elements related to the teaching and learning of French. It builds on previous studies that have reported improvements in student performance. The questionnaire is divided into two sections: the first focuses on the influence of speaking French at home on students' learning outcomes and academic performance. In contrast, the second examines the impact of the use of national languages on students' learning and academic performance in French.

To collect relevant data for evaluating the research questions, the questionnaire was designed using a Likert scale. The results obtained on this scale (ranging from 1 to 5) were used to determine the relative importance of each component for the different research questions.

3.5. Data Collection

The researcher contacted the Academic Secretaries General of the various institutions to deliver the survey questionnaires (**Appendix**). The study was conducted in a single day at each school. The sample, comprising 160 participants, was voluntarily recruited. The questionnaire was distributed to students, who were invited to complete it voluntarily and anonymously. The questionnaire was administered between 8:00 a.m. and 1:00 p.m., under the researcher's supervision, at a single university on a single day. The data collected enabled us to address all research questions.

3.6. Data Analysis

The objective of this study was to investigate the effect of using the French language at home on students' learning and academic achievement. To answer the research questions, a questionnaire was administered to participants (see Appendix A). Data were collected from all participants in the study. Descriptive statistics, including means and standard deviations, were calculated for the questionnaire items. This information was used to answer the research questions. For each item related to a research question, means and standard deviations were determined.

The researchers analyzed data from three groups: all 160 students surveyed, students who spoke French at home, and students who did not.

The data collected address the first research question: Could the practice of French in the family or other contexts, along with mastery of the language, be a determining factor in optimizing learning and academic performance in higher education?—was consolidated. The analysis was conducted using means and standard deviations. The results of each survey question were then ranked in descend-

ing order of average.

The data collected to answer the second question: Would the regular use of natural language contribute to or hinder the mastery of French and how could this impact students' learning and academic performance?—was also consolidated. The analysis was conducted using means and standard deviations. The results of each survey question were then ranked in descending order of average.

3.7. Limitations

This study relied on the limited research available on how home language use affects student learning and performance in higher education. One could only assume that the students surveyed understood all the questions very well. A Likert-level assessment provided valuable data, but responses in the middle of the range were challenging to interpret.

3.8. Delimitations

Given the large number of potential participants, the present study selected only students enrolled at the two target universities in Kinshasa as its population.

4. Presentation and Interpretations of Results

4.1. Presentation

4.1.1. Research Question # 1

Could the practice of French from birth in the family be a determining factor in optimizing learning and academic performance in higher education?

Surveyed students responded to Research Question One, which examined whether speaking French from birth is a determinant of learning and academic performance in higher education. The responses were collected using a 5-point Likert scale (1 = least accepted, 5 = most accepted).

The answers to items 1 through 10 addressed Research Question One. The means and standard deviations of each item were calculated. Rank-ordered means and standard deviations for items 1 to 10, as reported by the surveyed students, reflect their considerations.

The influence of speaking French at home as a determinant of students' learning outcomes and academic performance, as indicated by all students and presented in rank-ordered means.

Interpretations of the above findings.

According to Table 1, students rank question number 3 as their first choice, agreeing that Individual and/or directed reading has been crucial for mastering the French language in primary and secondary schools, with the highest mean (M = 4.50). They were consistent in their responses (SD = 0.75).

Question 4 (the French grammar and grammar analysis classes reinforced my learning of French in primary and secondary school) was ranked second, with a mean (M = 4.31). However, it was less consistent (SD = 1.02).

Table 1. Students speaking French from birth.

Ranks	Questions numbers	Means ranks	Standard deviations
1	(3) Individual and/or directed reading has been crucial for mastery of the French language in primary and secondary schools.	4.50	0.75
2	(4) The French grammar and grammar analysis classes reinforced my learning of the French language in primary and secondary school.	4.31	1.02
3	(6) My learning of French in primary and secondary school prepared me well to sustain university teaching.	4.17	0.86
4	(5) French writing and dictations have been intense and permanent in primary and secondary schools.	3.88	0.99
5	(2) I had enough reading lessons in elementary and secondary school.	3.84	1.15
6	(7) Our French teacher taught French grammar and grammatical analysis almost every day.	3.72	1.38
7	(8) Our French teacher taught French grammar and grammatical analysis almost every day.	3.72	1.38
8	(1) Communicating in French or not at home has no effect on my learning at university.	3.08	1.48
9	(10) My mastery of the French language (oral and written) was not solid or consistent at the end of my secondary studies.	2.98	1.37
10	(9) I made enormous efforts to survive university teaching during my first two years.	2.19	1.18

Question number 6, (My learning of French in primary and secondary school prepared me well to sustain university teaching) was ranked third with a mean (M = 4.17) with high consistency (SD = 0.86).

These three items indicate that using French at home does not affect learning and academic performance, as shown in question 1, ranked 8 (Communicating in French or not at home does not affect my learning at university), with a mean (M = 3.08). However, they were far from being consistent (SD = 1.48). This observation clearly indicates a negative correlation between French language proficiency at birth and academic performance.

Questions ranked 4 to 10, although indicative of excellent French teaching practices, did not receive approval from most students and elicited inconsistent responses.

Interpretations of the above findings.

According to Table 2, students rank question number 3 as their first choice, agreeing that Individual and/or directed reading has been crucial for mastering the French language in primary and secondary schools, with the highest mean (M = 4.28). They were consistent in their responses (SD = 0.93).

Question number 6 (My learning of French in primary and secondary school prepared me well to sustain university teaching) was ranked second with a mean (M = 4.16) and a very consistent standard deviation (SD = 0.98).

Question 4 (The French grammar and grammar analysis classes reinforced my learning of the French language in primary and secondary school) was ranked

third, with a mean (M = 4.00) and standard deviation (SD = 1.47), indicating inconsistent responses.

These three items suggest that not using French at home has no impact on learning or academic performance. This is indicated in question 1 (ranked 7: "Communicating in French or not at home does not affect my learning at university"), with a mean (M = 3.12). However, they were far from being consistent (SD = 1.56).

Table 2. Students not speaking French at birth.

Ranks	Questions numbers	Means ranks	Standard deviations
1	(3) Individual and/or directed reading has been crucial for mastery of the French language in primary and secondary schools.	4.28	0.93
2	(6) My learning of French in primary and secondary school prepared me well to sustain university teaching.	4.16	0.98
3	(4) The French grammar and grammar analysis classes reinforced my learning of the French language in primary and secondary school.	4.00	1.47
4	(5) French writing and dictations have been intense and permanent in primary and secondary schools.	3.72	1.27
5	(2) I had enough reading lessons in elementary and secondary school.	3.40	1.58
6	(7) Our French teacher taught French grammar and grammatical analysis almost every day.	3.32	1.43
7	(1) Communicating in French or not at home has no effect on my learning at university.	3.12	1.56
8	(9) I made enormous efforts to survive university teaching during my first two years.	3.00	1.41
9	(10) My mastery of the French language (oral and written) was not solid or consistent at the end of my secondary studies.	2.92	1.46
10	(8) Our French teacher taught French grammar and grammatical analysis almost every day.	2.84	1.34

Questions ranked 4 to 10, although indicative of excellent French teaching practices, did not receive approval from most students and elicited inconsistent responses.

4.1.2. Research Question # 2

Would the regular use of national languages hinder students' mastery of French and affect their learning and academic performance?

Surveyed students indicated their responses to Research Question Two related to the influence of regular use of the national language on the mastery of the French language using a Likert scale, 1 to 5 (1 being least frequently accepted to 5 most accepted).

The answers to items 1 through 10 addressed Research Question Two. The means and standard deviations of each item were calculated. Rank-ordered means and standard deviations for items 1 to 10, as reported by the surveyed students,

reflect their considerations.

Interpretations of the above findings.

According to Table 3, surveyed students ranked the first question, "The elimination of the vernacular in favor of French early in my schooling contributed to the mastery of the French language" (item 8), with a mean (M=3.26) and standard deviation (SD=1.32). These results indicate that eliminating the vernacular in favor of French early in schooling has no adverse effect on French mastery; however, the result is not consistent (SD = 1.32).

Table 3. Impact of the regular use of natural languages on the learning of French and its effects on students' learning and academic performance.

Ranks	Questions numbers	Means ranks	Standard deviations
1	(8) The elimination of the vernacular in favor of French early in my schooling contributed to the mastery of the French language.	3.26	1.32
2	(9) The reinforced teaching and learning of French in high school has seriously destroyed the use of my vernacular.	3.17	1.37
3	(2) My vernacular language facilitates my oral and written communication in French at school or in society.	3.13	1.36
4	(7) Learning French weakened my communication in the vernacular.	3.02	1.36
5	(4) The excessive use of the vernacular compromised the mastery of the French language.	2.90	1.40
6	(1) My vernacular language (Lingala, Swahili, Kikongo, or Tshiluba) has had a positive impact on my learning of the French language.	2.77	1.34
7	(6) My academic performance benefits from the continuous contribution of my vernacular.	2.70	1.34
8	(3) My academic performance is based on the positive influence of the vernacular.	2.68	1.30
9	(5) The excessive use of the vernacular favors my academic performance at the university.	2.66	1.17
10	(10) The vernacular language is a handicap for the mastery of the French language.	2.36	1.29

Assertion 9 (The reinforced teaching and learning of French in high school has seriously destroyed the use of my vernacular) ranks second. This indicated that students approved of this assertion with a mean (M = 3.17) and a standard deviation (SD = 1.37). The standard deviation has shown that students were inconsistent in their expressions.

Assertion number 2 (My vernacular language facilitates my oral and written communication in French at school or in society) is ranked third, with a mean (M = 3.13) and a standard deviation (SD = 1.36). These findings indicate that vernacular language facilitates French oral and written communication, but students were inconsistent in their use of it.

Assertion number 7 (Learning French weakened my communication in the vernacular) is ranked fourth, with a mean (M = 3.02) and a standard deviation (SD =

1.36). These findings suggest that learning French has a suppressive effect on students' communication in school and in society.

Assertions numbered 4, 1, 6, 3, 5, and 10 have all the means (M) less than three and standard deviations (SD) more than 1. These results indicate that most students did not agree with these assertions and were not consistent.

5. Discussions, Conclusions, and Recommendations

5.1. Discussions

Regarding research question # 1 (Could the practice of French from birth in the family be a determining factor in optimizing learning and academic performance in higher education?), the results of this study highlight several important observations that are somewhat surprising. Students speaking French at birth (Table 1) and those not speaking French at birth (Table 2) indicated that the assertion # 3 (Individual and/or directed reading has been crucial for mastery of the French language in primary and secondary schools), # 4 (The French grammar and grammar analysis classes reinforced my learning of the French language in primary and secondary school) and # 6 (My learning of French in primary and secondary school prepared me well to sustain university teaching) are the most agreed upon presented with high means and consistencies with only assertion # 4 where students expressed inconsistency in their responses with standard deviations above 1.

Our observation regarding assertion #4 (The French grammar and grammar analysis classes reinforced my learning of the French language in primary and secondary school) suggests that these classes are not consistently and effectively taught; otherwise, the standard deviations should be significantly lower than 1. Compared to assertions # 3 and # 6, we can assume that the teaching of grammar and grammar analysis was not considered as important as the two above. This observation can hinder most students' ability to analyze and deeply understand parts of the content.

Regarding assertion #6, all students reported that studying French in both primary and secondary school provided strong preparation for continued academic learning, as reflected in the mean scores and standard deviations reported above. This result is unexpected, given professors' practical observations of students' proficiency in French in academic contexts.

The apparent controversy suggests a need for further research, specifically focusing on the perspectives of higher education professionals regarding students' proficiency in academic French. It also raises the question of whether this disparity stems from the use of insufficiently rigorous methods for assessing French language acquisition and mastery in primary and secondary education.

Assertion #1 (Communicating in French at birth does not affect my learning at university) ranked 8th among students who speak French at birth and 7th among those who do not, despite inconsistencies. This observation is quite surprising.

The hypothesis formulated for this question (that early exposure to the official

language may optimize learning and academic performance in higher education) was not supported, as surveyed students reported that reading and grammar practice helped them master French and improve academic performance.

Regarding the research question # 2 (Would the regular use of national languages hinder the mastery of French and impact the learning and academic performance of students?), we noted that assertion # 2 (My vernacular language facilitates my oral and written communication in French at school or in society) and # 8 (The elimination of the vernacular in favor of French early in my schooling contributed to the mastery of the French language) students indicate that elimination of the vernacular early in the education contributed to the mastery of the French language. Whereas for assertion # 4 (The excessive use of the vernacular compromised the mastery of the French language), students confirm that excessive use of vernacular language hinders the mastery of the French language. However, the means below 3 with standard deviations above 1 are not particularly relevant to this research and can be informative.

Assertion # 1 (My vernacular language (Lingala, Swahili, Kikongo, or Tshiluba) has had a positive impact on my learning of the French language) and # 6 (My academic performance benefits from the continuous contribution of my vernacular), students indicate that there was no impact of vernacular language on their learning and academic performance despite lower means and higher standard deviations. However, assertions # 3 (My academic performance is based on the positive influence of the vernacular) and # 5 (The excessive use of the vernacular favors my academic performance at university) indicate the positive impact of the vernacular language on their learning and academic performance as stated in research led by Pretorius (2002b).

Assertion # 10 (The vernacular language is a handicap to the mastery of the French language), students indicate that the vernacular language was a handicap to the mastery of the French language. However, the mean ($M = 2.36$) is the lowest, and the standard deviation ($SD = 1.29$) indicates inconsistency.

Addressing the second research question, surveyed students indicated that the removal of vernacular does not hinder their acquisition of French. Furthermore, responses to these sets of questions reflected average means ($M < 3$) and substantial variability ($SD > 1$). These results offer limited value for reporting and do not constitute significant findings within the scope of this research.

The hypothesis formulated for this research question (i.e., that constant use of the national language hinders mastery of the official language, thereby affecting students' academic performance) was not supported; the opposite was observed.

5.2. Conclusion

Reading proficiency is widely used as a metric for assessing education systems. In the Democratic Republic of the Congo (DRC), current evaluations indicate opportunities for improvement across multiple dimensions of the education sector. These areas remain underdeveloped, resulting in an annual pattern of low regis-

tration outcomes and performance relative to international standards. Studies suggest that this affects students' ability to maximize their educational potential, with reading skills playing a significant role (Pretorius, 2002b). Similar trends may also be observed in other developing countries. It is important to note that academic performance in this study was assessed through students' self-perceptions rather than objective measures such as GPA or exam scores. Incorporating actual grade data could enhance the validity of the achievement comparisons between the two groups.

Ongoing research in education consistently uncovers new insights regarding effective teaching and learning practices. Mastery of academic communication is essential and should be approached with diligence and care. The significance and prospects of higher education graduates are closely tied to their ability to convey complex ideas and engage in sophisticated discourse.

Proficiency in official and academic languages is a significant challenge that emerging nations must address to ensure continued development.

5.3. Recommendations

In the multilingual context of the Democratic Republic of Congo, the majority of the population is proficient in several languages, including Lingala, Swahili, Kikongo, and/or Tshiluba, as well as French. The use of French, the official language of education, the private sector, and public administration, is particularly prevalent in urban centers, where it is often a crucial skill for accessing professional opportunities. In the context of promoting national languages, it is recommended that these languages be introduced in the first year of primary school and continued through the third year. Thereafter, the emphasis should be on strengthening and consolidating French language learning.

Suppose there is a critical period for learning a second language. In that case, schools should obviously introduce foreign languages earlier, and all states should implement policies to accelerate French exposure for all Congolese children. Clearly, understanding the facts about the critical period for language learning is relevant to educational policy and practice.

The researchers believe that, although bias may arise from students' difficulties understanding some or all of the study's questions, an interview format could facilitate the collection of comprehensive data relevant to the two research questions.

Conducting an additional large-scale study involving more students and professors could yield further insights. Additionally, examining students and professors within institutions that offer both open and examination-based admissions may yield informative results.

The study recommends implementing national languages during the initial three years of primary education to foster literacy development, followed by targeted efforts to strengthen proficiency in French. Early introduction of French is consistent with the critical period hypothesis and may facilitate improved lan-

guage acquisition. The researchers suggest that additional large-scale studies and qualitative methods, such as interviews, are necessary to gain a more comprehensive understanding of how language use influences academic achievement.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix

Research questionnaire

Instructions

For each question, circle the number that approximately indicates your approval. (From number 1, strongly disagree to number 5, totally agree).

1	2	3	4	5
Strongly disagree	Disagree	No reviews	All right	Totally agree

A. Communication, learning, and academic performance

1. Communicating in French or not at home has no effect on my learning at university.

1 2 3 4 5

2. I had enough reading lessons in elementary and secondary school.

1 2 3 4 5

3. Individual and/or directed reading has been crucial for mastery of the French language in primary and secondary schools.

1 2 3 4 5

4. The French grammar and grammar analysis classes reinforced my learning of the French language in primary and secondary school.

1 2 3 4 5

5. French writing and dictations have been intense and permanent in primary and secondary schools.

1 2 3 4 5

6. My learning of French in primary and secondary school prepared me well to hold university teaching.

1 2 3 4 5

7. Our French teacher read with us and helped us read almost every day in class to reinforce pronunciation and spelling.

1 2 3 4 5

8. Our French teacher taught French grammar and grammatical analysis almost every day.

1 2 3 4 5

9. My mastery of the French language (oral and written) was not solid or consistent at the end of my secondary studies.

1 2 3 4 5

10. I made enormous efforts to survive university teaching during my first two years.

1 2 3 4 5

B. Vernacular languages, academic learning, and performance.

1. My vernacular language (Lingala, Swahili, Kikongo, or Tshiluba) has had a positive impact on my learning of the French language.

1 2 3 4 5

2. My vernacular language facilitates my oral and written communication in French at school or in society.

1 2 3 4 5

3. My academic performance is based on the positive influence of the vernacular.

1 2 3 4 5

4. The excessive use of the vernacular compromised the mastery of the French language.

1 2 3 4 5

5. The excessive use of the vernacular favors my academic performance at university.

1 2 3 4 5

6. My academic performance benefits from the continuous contribution of my vernacular.

1 2 3 4 5

7. Learning French weakened my communication in the vernacular.

1 2 3 4 5

8. The elimination of the vernacular in favor of French early in my schooling contributed to the mastery of the French language.

1 2 3 4 5

9. The reinforced teaching and learning of French in high school has seriously destroyed the use of my vernacular.

1 2 3 4 5

10. The vernacular language is a handicap to the mastery of the French language.

1 2 3 4 5