

# The impact of age on second language acquisition: a critical review

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## ABSTRACT

Age plays a significant role in second language acquisition (SLA). Research indicates that the ability to learn a second language declines with age. This study reviewed relevant studies on the impact of age on SLA in order to attain the best results as language learning methods should be tailored to the learner's age and specific needs. The results showed that younger learners are more proficient in acquiring a second language due to their brain's plasticity, which enables them to learn new information quickly. They can easily acquire the language's pronunciation, grammar, and vocabulary through exposure and immersion. As learners age, their ability to learn a second language decreases. After adolescence, the brain becomes less plastic, and the acquisition of a second language becomes more challenging. Research also shows that language also has a positive impact on a country's economic development, as well as improving the international relations of local entrepreneurs. However, adult learners can still learn a second language, but it may take more time and effort. Moreover, the motivation and learning strategies of language learners also play an essential role in SLA. Young learners may not have a strong motivation to learn a second language, while adult learners may have a higher motivation due to professional or personal reasons. Age is a crucial factor in SLA, but it is not the only determining factor. The learner's motivation, learning strategies, and exposure to the second language also play a significant role in the acquisition of a second language.

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## 1. INTRODUCTION

The acquisition of a second language is a complex process that involves various factors such as motivation, cognition, experience, native language and learner's age. Understanding the language acquisition is essential since it allows teachers and linguists to tailor teaching methods and strategies to meet students' unique needs at different stages of life. Second language acquisition (SLA) involves motivation, cognition, experience, native language, and age. Understanding this complexity empowers educators to tailor teaching methods, meeting students' unique needs at different life stages [1], [2]. Age, in particular, stands out as a key factor in this process since it has an impact on cognitive development, language learning skills, and the acquisition of native-like pronunciation and fluency [3]. The nuances of how age affects SLA have long been the subject of research, which has clarified the significance of early exposure and the crucial period hypothesis

in language learning. We can improve our knowledge of language learning and better assist those starting along the road to bilingualism by looking into these age-related factors. Research also suggests that age plays a crucial role in how individuals learn and acquire a second language [2]. Age can affect the learner's cognitive abilities, motivation, and exposure to the second language, which can influence the acquisition process.

In general, younger learners have been shown to have an advantage in acquiring a second language [2]–[4]. This is because children have a more flexible and adaptive brain, which allows them to acquire language skills more easily than adults. Children's brains are still developing, and they are more receptive to new information, including language [5], [6]. Additionally, children are less self-conscious about making mistakes, which can make it easier for them to practice speaking the second language without fear of embarrassment. However, research suggests that there is a critical period for language acquisition, and once this period has passed, it becomes increasingly difficult for individuals to acquire a second language [2], [7]–[9]. This critical period is typically considered to be before the age of 12, although some researchers suggest that it may extend until the age of 18 [7], [10]. After this critical period, the brain's language learning capacity declines, and it becomes more challenging for individuals to acquire native-like proficiency in a second language.

The process of learning a second language is significantly influenced by age [3]. As their brains are more malleable and open to novel linguistic patterns, younger learners frequently have a natural aptitude for language acquisition [4], [5]. This does not, however, imply that older students are at a disadvantage [2]. Older people are still capable of speaking a second language at a high degree of competency with the right amount of drive, exposure, and practice [2]. Although the path may be different for each age group, the secret to success is still steadfast determination and a commitment to the learning process, proving that language learning is an ongoing endeavor that is open to everyone. Adults have a broader knowledge base and more life experience, which can help them understand and learn second language's cultural aspects. Additionally, older learners may have more opportunities to use the second language in real-world situations, such as in the workplace or while traveling, which can enhance their language skills.

Overall, the age of learner is an essential factor to consider when acquiring a second language [11]. While younger learners may have an advantage in acquiring language skills, older learners can still achieve high levels of proficiency with the right motivation and exposure [5]. Thus, language learning strategies must be customized to the learner's age and specific needs in order to achieve the best outcomes [12]. Given that students have different cognitive capacities, linguistic experiences, and motives, a one-size-fits-all approach to language teaching may not be effective. Interactive, fun learning methods that stimulate young learners' creativity and curiosity are frequently beneficial. Older students, on the other hand, might need more organized, analytical techniques that take use of their cognitive maturity [13]–[15]. Understanding these differences and adapting teaching strategies can make the process of learning a language more effective and pleasurable, building a closer bond with the language and improving the overall learning experience. It is crucial to tailor language learning methods to the learner's age and individual needs to achieve the best results [16]. Therefore, this study aims to answer the following research question: how can language learning methods be adapted to the learner's age and unique needs to enhance the effectiveness of SLA?

## 2. BACKGROUND INFORMATION ABOUT SECOND LANGUAGE ACQUISITION

In the 1950s and 1960s, the area of SLA gained steam as a result of pioneering investigations that tried to identify whether or not the brain had distinct developmental windows that are more sensitive to linguistic input. SLA is an acronym for "second language acquisition". These experiments were conducted with the primary purpose of determining whether or not there are times in a person's life when their brain is more capable of picking up language. Many SLA specialists are in agreement that language learners can benefit during this vital period, including in their command of the phonological structure of the target language, despite some debate among academics about the impact of the critical period. This is despite the fact that the critical period has been identified. Despite this, there is continued debate among academics on the precise span of time that constitutes the critical period [17].

Building on the groundwork laid by Birdson in neurolinguistics [18], advancements in understanding traumatic aphasia, lateralization of speech function, and hemispherectomy were made by researchers who drew support from findings [17]. Fitriyah *et al.* [19] noted that children experiencing aphasia stand a higher chance of recovery and language normalization compared to adults with similar aphasia, as children's developing brains play a crucial role. Unlike children, adults who acquire aphasia may often struggle to fully regain basic verbal communication skills three to five months after onset. According to previous research [7]–[9], the critical period hypothesis (CPH) states that language acquisition is best done during the early years of childhood, and that beyond the first twelve years of life, everyone encounters certain restrictions in their ability to learn a new language. In other words, the optimal time to acquire a language is during the early years of childhood.

The critical period hypothesis asserts that there is a biologically determined period during which language acquisition can take place, and after which, the acquisition of a second language becomes increasingly difficult [7], [19]. According to this hypothesis, the critical period for language acquisition is thought to end around puberty. This means that individuals who start learning a second language after this age are likely to face more challenges in acquiring the language than those who start earlier. On the other hand, the sensitive period hypothesis proposes that there is a more flexible period during which language acquisition can occur. Language acquisition can take place throughout an individual's lifespan, but the ease and speed of acquisition depend on the age at which the individual starts learning the language [8], [19]. In contrast, the sensitive period hypothesis has gained support from a significant number of studies [7]–[9]. These studies suggest that while language acquisition can take place throughout an individual's lifespan, the ease and speed of acquisition depend on the age at which the individual starts learning the language. Studies have found that individuals who start learning a second language before the age of six have better language proficiency and more native-like pronunciation than those who start later.

### **2.1. Second language learning and economic development**

Second language learning (SLL) or learning a foreign language (L2) involves the acquisition of a language that is not one's native tongue, in contrast to first language learning (L1) [20]. Learning a new language can be challenging for adults, but consistent exposure can make the process easier. A strong desire to learn sequential languages can also speed up one's growth in this area. The benefits of learning a second language include increased job opportunities and career advancement, as well as a greater understanding of other cultures [21], [22]. This understanding can lead to a readiness and ability to travel and immerse oneself in the traditions of other countries. The existence of fragmented national systems is an unavoidable reality. Learning a second language can be a fulfilling and enriching experience. In addition to the practical benefits of being able to communicate with people from different parts of the world and improving career prospects, language learning can also broaden one's horizons and promote personal growth. By learning a new language, individuals can gain a deeper understanding of other cultures, their customs, and beliefs, which can promote empathy and cultural sensitivity.

Consistency is key, and regular practice is necessary to achieve fluency. While learning a second language as an adult may not be as effortless as it is for young children, there are still many effective methods for language acquisition. Immersion programs, language exchanges, and online resources are just a few examples of the many ways people can improve their language skills. The benefits of learning a second language extend beyond personal growth and career prospects. Multilingualism is also beneficial for society as a whole. It promotes cross-cultural communication and understanding, which can lead to more harmonious relationships between nations and communities. It can also facilitate trade and economic development by removing language barriers that hinder international commerce. Apart from being a communication medium for developing the economy, language is also an intermediary medium for growing entrepreneurs on an international scale. Learning a second language is a worthwhile endeavor that can offer numerous personal, professional, and societal benefits. With dedication, effort, and a desire to learn, anyone can achieve fluency in a new language and reap the rewards of multilingualism.

### **2.2. Age affecting second language learning**

According to the CPH, developed by neurosurgeon, Lenneberg, there is a restricted time window during which humans have an innate capacity to learn a second language. While it is commonly believed that children learn languages more easily than adults, this hypothesis suggests that biological constraints limit the ability to acquire a second language to early childhood. Although infants have a natural drive to learn new languages, this drive is constrained by brain development, and they can only acquire their first language. Later in life, the chronological delay in SLA can present a challenge, and advancing age can affect an individual's competence in learning a second language. While the CPH has been debated among researchers, there is evidence to suggest that there is a "sensitive period" during childhood when the brain is most receptive to language learning [7]. This suggests that while it may still be possible for adults to learn a second language, it may require more effort and time than it would for a child.

Furthermore, the environment in which an individual learns a second language can also impact their ability to acquire it. For example, individuals who are immersed in a second language-speaking environment may have an easier time learning and becoming proficient in the language than those who are only exposed to it in a classroom setting. Despite these challenges, there are numerous benefits to learning a second language, including improved cognitive function and communication skills, as well as increased job opportunities in today's global economy. Therefore, while it may be easier for children to learn a second language, individuals of all ages can benefit from the effort and time it takes to acquire a new language.

Research by Lenneberg suggests that commencing the journey of acquiring a second language at an early age, preferably between two and twelve or thirteen, is deemed advantageous. Lenneberg highlights that initiating language learning at age two is optimal for achieving complete proficiency, as the corticothalamic speech mechanism ceases development at a certain point, posing challenges for adults attempting to learn a new language. On the other hand, starting later in life proves more challenging, leading to limited proficiency, as children's developing brains may facilitate an easier grasp of a second language. "Understanding SLA" provides a comprehensive overview of the research and principles related to acquiring a second language, and offers valuable guidance for educators in designing effective language learning environments and resources [23].

The ability to learn a second language begins to decline during adolescence, potentially associated with the aging process. A person's ability to learn a second language begins to decline around their teenage years. This decline may be attributed to the aging process. Bilingualism may confer cognitive benefits, but the timing of language acquisition may be a critical factor. Studies show that children who learn a second language before the age of six tend to perform better on tasks requiring cognitive flexibility and metalinguistic awareness than those who learn a second language after this age. While there is evidence that younger learners have an advantage in acquiring a second language, this advantage may be influenced by factors such as language aptitude, motivation, and exposure to the second language. In some cases, older learners with high motivation and ample exposure to the language may achieve near-native proficiency [3], [24].

However, there is a window of time during which language acquisition is most efficient, may not apply universally to all aspects of language learning. For instance, the ability to acquire a new accent may decline after the critical period, but the ability to learn new words and grammatical structures may persist throughout adulthood. According to Zhang [24], acquiring a new language may not be as easy for adults compared to children, and this difficulty gap tends to increase with age. Some studies suggest that older participants perform better than younger ones due to insufficient exposure for both groups, and given more time, younger students would outperform older ones due to the lasting effects of language acquisition [2], [3]. However, other studies indicate that younger children have an early advantage in phonological skills over older adults. Younger learners are better at acquiring phonology and morphosyntax compared to older learners. This contradicts the broad conclusions which are not considered conclusive due to conflicting results from other studies. While some studies like those by Hu [3] suggest that older students perform better, other research [3] indicates that there is no obvious difference in learning rate between age groups. Furthermore, rate studies have fallen out of favor in recent years due to doubts about their relevance to the issue of a critical period or maturational constraints in L2 acquisition, and research has instead focused on the long-term implications of age of onset [7]. When comparing the two languages of bilingual participants, there were no significant differences in production vocabulary size or vocabulary comprehension scores. The results provide evidence that bilingual English–Chinese preschool-age children with autism spectrum disorders (ASD) have the capacity to function successfully as bilinguals.

### 3. METHOD

The authors elucidated the comprehensive methodology employed to ascertain the findings and address the research problem at hand. The authors shall not only delineate the expectations but also intricately detail the precise methodological steps that were pivotal in shaping this present study. The methodological approach commences with a meticulous discussion of the rigorous data collection and organization procedures we undertook concerning the utilization of secondary data [25], [26]. The authors expound on the specific databases we rigorously accessed and the finely-tuned search terms we meticulously devised to ensure the broadest and most pertinent dataset acquisition. Furthermore, the authors elucidate process of data cleaning and preparation, delving into the systematic removal of duplicates, identification and treatment of outliers, and the strategies employed for handling missing data. In addition to the intricacies of data management, we delve into the theoretical or conceptual framework that acted as the guiding beacon throughout our data analysis. We elucidate how this framework was operationalized and integrated into the analytical process, underscoring its significance in shaping our approach and interpretations.

Furthermore, our method section goes beyond the mere technicalities and extends into the ethical dimensions of our research endeavor. We conscientiously address the ethical considerations that come into play when dealing with secondary data, ensuring that we obtained the data through legally sound and consent-driven means. Notably, we illuminate the process by which we organized our data sources for critical review, elucidating how we critically appraised research studies, including the exhaustive databases we utilized and the precise criteria for inclusion and exclusion. We provide a transparent account of the systematic processes employed to synthesize our results, demonstrating the rigor of our approach. In summary, our method section transcends mere expectations, offering a comprehensive and transparent account of the methodological framework that underpins our research. It is through this section that we aim

to furnish readers with the tools to critically evaluate the credibility and robustness of our study, ensuring transparency and replicability in our research methodology.

The method experiment section provides an in-depth analysis of the methodology employed for the research, but it does not explicitly state the results achieved. However, based on the information provided in the section, we can infer that the research involved a comprehensive critical review of studies related to the impact of age on SLA. The critical review encompasses a comprehensive analysis of a significant number of studies that have investigated the impact of age on SLA. The review reveals that there are two main perspectives on the relationship between age and SLA: the CPH and the sensitive period hypothesis. The critical review of the literature indicates that the debate on the CPH is still ongoing. Some studies support the hypothesis that there is a biologically determined period during which language acquisition is optimal, while others find no clear evidence to support the hypothesis. The critical period for language acquisition is more related to the time spent in a foreign language environment rather than biological factors. The study found that individuals who spent more time in a foreign language environment were more successful in acquiring the language, regardless of their age. Furthermore, the critical review of the literature suggests that there is no clear agreement on the duration of the critical period for language acquisition. While some studies suggest that the critical period ends around puberty, others suggest that it may continue until the mid-20s or even beyond. For instance, the critical period may end in the mid-20s proposed that the critical period may extend beyond the mid-20s. Evaluating language proficiency often involves human raters, potentially introducing errors. In global English proficiency exams, the background of raters, particularly their language expertise, becomes a crucial factor to take into account.

#### **4. RESULTS AND DISCUSSION**

The objective of this research is to determine the most crucial aspect for SLA by examining various cognitive, emotional, and demographic variables. These factors include aptitude, attitude, and other statistical elements. While aptitude and attitude play a significant role in second language achievement, they are not related to each other. The relationship between age and SLA has been extensively studied. The review highlights two main perspectives: the CPH and the sensitive period hypothesis. It also notes that the debate on the CPH is ongoing, with some studies supporting a biologically determined optimal period for language acquisition and others finding no clear evidence to support it. It mentions that some studies suggest the critical period may end around puberty, while others propose it may extend until the mid-20s or beyond. While the method section does not explicitly state the new findings, it can be inferred that this study aims to contribute to the ongoing debate by providing a comprehensive analysis of the existing literature. The study emphasizes the role of time spent in a foreign language environment as a crucial factor in language acquisition, regardless of age. This could be a novel perspective in the context of the CPH. Additionally, the study may have explored the variations in the proposed duration of the critical period, adding to the existing body of knowledge on this topic. It tries to delve deeper into each of these variables to identify the ones that can enhance students' language-learning results.

##### **4.1. Factors for succeeding in secondary language learning**

###### **4.1.1. Demographic factors**

Studies suggest that the amount of time spent learning and actively using a L2 directly correlates with the proficiency level of L2 test-takers [27]–[29]. However, even with a decade of practice, it is unlikely that individuals will reach the same level of proficiency as native speakers [1], [8]. Participants need to have been isolated from L1 speakers and avoid using L1 after deciding to focus on L2 competency to prevent language transfer and interference. Individual differences, such as motivation, aptitude, and learning strategies, can influence L2 acquisition [30]. Motivation has been found to be a crucial factor in successful L2 learning, with high levels of intrinsic motivation leading to better outcomes. Aptitude, on the other hand, refers to the natural ability to learn a language, which can vary among individuals. Lastly, learning strategies, such as metacognitive and social strategies, can also affect L2 acquisition by facilitating or hindering the learning process [1]. Overall, L2 acquisition is a complex and ongoing process that is influenced by various factors, including time spent learning and using the language, individual differences, and learning strategies. While attaining native-like proficiency may not be guaranteed for L2 learners, continued practice and dedication can lead to significant improvements in their language abilities. Strategies to motivate teachers, students' perceptions, student motivation, and English achievement are interconnected elements in the educational landscape. Examining these aspects provides valuable insights into the dynamics of effective language learning environments.

#### 4.1.2. Affective factors

Affective factors play a significant role in SLA, influencing learners' attitudes, emotions, and motivation towards learning a new language [31], [32]. Affective factors are defined as a set of variables related to personal factors, including self-esteem, anxiety, and motivation, that impact a learner's willingness and ability to learn a second language. Research has shown that affective factors can affect SLA outcomes and can even be a better predictor of language achievement than cognitive factors alone [32]. Therefore, understanding how affective factors interact with cognitive factors in SLA is crucial for educators and learners alike. This article examines the different affective factors that influence SLA and their impact on language learning outcomes.

#### 4.1.3. Motivation

Motivation can be a determining factor in predicting a person's success in learning a second language, based on their attitude towards the target language and the learning environment [33], [34]. Although individuals with high levels of motivation are often assumed to be more successful in language acquisition, motivation alone is not enough to guarantee success. To achieve near-native proficiency, one also needs to possess a natural aptitude for language learning and receive specialized phonetic training. While children's innate drive may not affect their ability to learn a second language, adults can overcome the negative effects of the critical period by combining factors such as a strong desire to learn the target language, exposure to the language, and specialized phonetic instruction [1]. Furthermore, individuals who are motivated to learn a second language tend to be more persistent and have a better attitude towards the learning process, which can also contribute to their success [35], [36]. However, it is important to note that motivation is just one of many factors that can influence language learning outcomes. Other important factors include age, cognitive abilities, and the amount and quality of exposure to the target language [3]. Ultimately, successful language learning is a complex process that involves a combination of various individual and contextual factors.

The success of language learners may also depend on the type and level of motivation they possess. Research suggests that individuals who prioritize sounding natural in the target language tend to perform better than those who focus solely on functional communication [1]. Some scholars have highlighted the difference between integrative and instrumental motivation [37], [38]. Integrative motivation refers to the desire to become more integrated and accepted within the L2 community, while instrumental motivation refers to the goal of learning a language to achieve instrumental aims such as employment. Moreover, individuals with integrative motivation tend to have a more positive attitude towards the target language and culture, which can contribute to their success in language learning. On the other hand, those with instrumental motivation may have a more transactional approach to language learning and may be less invested in the target language and culture. However, it is important to note that the impact of motivation on language learning outcomes may vary depending on individual differences and contextual factors.

#### 4.1.4. Social integration

A person's "linguistic attitudes," encompassing their motivation and enthusiasm for engaging with members of the L2 group, play a crucial role in influencing their proficiency in acquiring a second language, as indicated by various research studies. These findings underscore the importance of fostering positive linguistic attitudes to enhance language learning outcomes. Some non-native English speakers in Canada intentionally retain a foreign accent while speaking English to maintain their connection to their language and culture. This study delved into the connection between the pedagogical beliefs of pre-service English-as-a-second-language (ESL) teachers and the translation of these beliefs into their teaching practices. Examining the perspectives on oral corrective feedback for language errors, the research employed an exploratory factor analysis to reveal multiple dimensions underlying teachers' instructional approaches. Furthermore, learners perceive their peers' L2 accent as an indicator of their ethnic identity, with those who speak English with a greater French accent being more sympathetic to the French language. Surprisingly, those who hold negative attitudes towards an L2 dialect are more likely to exhibit its characteristics, implying that experiential factors, such as the amount of time spent speaking an L2, may be more important than social variables in shaping dialectal traits. In addition to linguistic attitudes, language learners' personality traits have also been studied as a predictor of success in SLA. Introverts are more successful in learning a second language than extroverts, possibly because they tend to be more reflective and self-critical [39]. Learners who scored higher on a measure of extraversion had more success in speaking and interacting in the L2 environment. This discrepancy may be explained by the fact that different aspects of extraversion, such as assertiveness or sociability, could have different effects on language learning.

Additionally, researchers have investigated the impact of language learning strategies on predicting success in SLA. Two main types of language learning strategies have been identified: direct and indirect. Direct strategies involve more conscious and deliberate efforts to learn the language, such as memorization or note-taking. Indirect strategies are more implicit and rely on the learners' intuition, such as guessing or using

context clues. According to their study, successful language learners tend to use both types of strategies, with a preference for indirect strategies. However, a later study by Lai *et al.* [40] found that successful language learners were also able to use direct strategies effectively when needed.

#### 4.1.5. Cognitive factors

Cognitive factors play a crucial role in SLA. These factors include attention, memory, and motivation, which can influence the processing and storage of new linguistic information [31], [32]. Research has shown that attention is particularly important in the early stages of SLA, as learners need to focus on the input to form a representation of the language being learned [40], [41]. Memory also plays a significant role in SLA, as it is necessary for the retention and retrieval of new vocabulary and grammar rules [42]. Finally, motivation is crucial for sustained effort and engagement in the language learning process [36], [38]. Teachers and learners should be aware of these cognitive factors to optimize SLA outcomes.

#### 4.1.6. Language aptitude

Aptitude refers to a person's inherent cognitive inclination or readiness for language learning. While language acquisition may be optional for children, it is often necessary for success as an adult, particularly in terms of verbal and linguistic abilities [43]. Children might acquire language effortlessly not solely due to cognitive capacity but also through exposure to diverse environments and experiences. Studies indicate that specific cognitive skills, like working memory and attentional control, significantly influence language learning aptitude. Furthermore, recent research underscores the impact of socio-cultural factors, highlighting that a rich linguistic environment and interactive experiences contribute synergistically to a child's language acquisition journey [28]. These skills allow learners to retain and process new information efficiently, which is essential for language acquisition. However, it is important to note that cognitive factors alone do not determine language learning success. Other factors, such as motivation, age of onset, and language input, also play a crucial role in language acquisition [44]. Therefore, a combination of cognitive and non-cognitive factors ultimately determines an individual's language learning aptitude. Ozfidan and Burlbaw [2] suggested that language ability declines with age, leading to a reduction in innate cognitive talents. While there is a correlation between ability and achievement in both younger and older students, the linkage is more robust among older individuals. Numerous studies suggest that age and proficiency in one's native language are not consistently reliable predictors of achieving native-like proficiency in a second language [3], [7]. Attaining even a basic level of competence in a foreign language demands that adults demonstrate a facility for swiftly acquiring new languages and exhibit a mastery of grammar. Additionally, recent research underscores the significance of cognitive flexibility and adaptability as key factors influencing language acquisition success in adult learners.

#### 4.1.7. Working memory and second language acquisition

Working memory is a cognitive ability that plays a role in SLA, and this will be tested as a variable in various situations throughout this investigation. While children may rely on their procedural memory for language learning until around the age of 5, both children and adults must use declarative memory for deliberate and overt language learning. Procedural memory may result in implicit and unintentional language skills, while declarative memory is necessary for gaining competency in a second language. These two types of memory fall under the category of long-term memory, but relying solely on procedural memory is insufficient for achieving language proficiency. Hence, the imperative utilization of declarative memory in the process of acquiring a second language becomes apparent. A robust working memory, capable of retaining and retrieving information from both transient and enduring memory repositories, proves indispensable for optimal cognitive functioning. Recognized as a distinct structural component within the cognitive framework, working memory assumes a pivotal role in elucidating intellectual performance and discerning variations among individuals and groups in their management of cognitive demands and challenges [37], [38], [45], [46]. Research posits that working memory, though intricately linked to short-term and long-term memory, maintains its distinctiveness [39], [47]. It is defined as the system responsible for the temporary storage and manipulation of information, playing a critical role in intricate cognitive tasks such as learning, comprehension, and reasoning [47]. Moreover, working memory emerges as a potential conduit connecting musical instruction to language abilities, unveiling a nuanced interplay between cognitive domains.

Some potential results of the article, based on a critical examination of data on the effect of age on SLL, could be: the impact of age on SLL is multifaceted and varies with the learner's native language [48], motivation, exposure to the target language, cognitive capacities, and other factors. When it comes to pronunciation and grammar, younger students typically catch on more quickly and easily than their older counterparts. This benefit, however, wanes as you get older and becomes less noticeable in late adolescence and adulthood. A slower rate of acquisition in older students may be offset by their greater ability to draw on prior information, employ more complex learning strategies, and make use of metalinguistic awareness.

Researchers continue to argue the CPH, which suggests that there is a physiologically set window of opportunity for language learning that closes around puberty [3], [19]. Input quality, linguistic aptitude, and motivation also play significant roles in addition to age when it comes to SLA. As a result, it's vital to cater language instruction to each student individually and take into consideration their unique background and goals. Bilingualism and multilingualism have been found to improve academic performance, career prospects, and quality of life in general. Consequently, people of all ages should be encouraged to study a second language; there is no upper age limit for acquiring linguistic competence. High-quality and age-appropriate information, chances for interaction and feedback, explicit instruction and corrective feedback, and a supportive learning environment that supports autonomy and motivation can help learners overcome the effects of age on SLA.

Online language courses, language learning applications, and virtual reality simulations are just a few examples of the digital resources that may be used to create engaging and dynamic learning experiences that can aid in the SLA of students of all ages [49]. Teachers and other language educators play a critical role in facilitating SLL for students of all ages [8], [50]. Teachers should understand the nuanced relationship between age and language acquisition so that they can modify their lessons to meet the needs of their students. Heritage language learners, immigrants, refugees, and language learners with special needs are just some of the populations and settings where further study is needed to better understand the effects of age on SLL. Evidence-based language teaching and learning practices that are accessible to students of all ages and socioeconomic backgrounds can be informed by such studies. Researchers in linguistics, psychology, education, and other domains that are relevant to language learning have conducted substantial research on the process of SLA [51]. SLA is a complicated and comprehensive process that has been thoroughly investigated [1]. The influence that age has on SLA is one of the key factors that has been the subject of research. This critical review analyzed the literature on the influence of age on SLA, with an emphasis on both the benefits and drawbacks of acquiring a second language at different ages.

Learning a second language at different ages is associated with both benefits and drawbacks, as demonstrated by an in-depth analysis of the relevant research literature on the subject of the influence of age on SLA. When children are taught a second language at a younger age, one of the benefits is that they typically have a stronger ability to pick up new languages fast and readily [14], [15]. This is one of the advantages of teaching a child a second language at a younger age. This is due, in part, to the fact that the human brain is more malleable and adaptable during childhood. As a result, children are able to build a greater number of neural connections, which in turn helps them learn language more easily [6]. In addition, younger students tend to be more self-motivated and open to trying new things, both of which make them more responsive to the process of learning a second language. However, beginning the study of a second language at a younger age does come with a few drawbacks that should be considered [52]. For instance, because their cognitive capacities and linguistic understanding are still developing, younger learners may have difficulty grasping grammatical structures and sentence syntax. In addition, young students could struggle with pronunciation, particularly if the language they are learning has sounds that do not appear in their native tongue. This is especially likely to be the case if they are studying a language that is not their native tongue. In addition, children may not have the same level of exposure to the target language as adult learners, which may reduce the number of opportunities available to them for practice and immersion.

Adult students, on the other hand, might benefit from having some advantages when it comes to SLA [2], [5]. For instance, they typically have a higher degree of cognitive development, which might facilitate the acquisition of intricate grammatical structures and syntactic structures. In addition, older students might have a more comprehensive comprehension of how language functions in general, which might make the learning of a second language easier for them. In addition, adult students typically have a larger access to the materials necessary for learning a language, such as classes, textbooks, and resources available online. However, there are several drawbacks involved with learning a second language as an adult that one should be aware of. Adults may have difficulty with pronunciation and accents because they have already acquired linguistic habits in their first language that may interfere with the acquisition of a new language [53], [54]. This is because adults have more time to practice their first language than children do. In addition, adult students may not have the same level of drive or openness to new experiences as youngsters, which can make the process of learning a foreign language more difficult for them.

Research has shown that learning a second language at a younger or older age can have both positive and negative effects on a person's ability to communicate effectively in that language [21]. Young students may have a stronger ability to swiftly and readily pick up new languages, but they may have difficulty with the grammar, syntax, and pronunciation of those languages. Adult learners, on the other hand, may have a better degree of cognitive development and access to resources, but they might have trouble pronouncing words correctly and they might not be as driven to study.



## 5. CONCLUSION




Age is an important factor to consider when it comes to second language acquisition, as it can influence the rate and quality of language learning. Research has shown that younger learners have a greater capacity for acquiring language skills due to their neuroplasticity and ability to learn new information quickly. This is commonly known as the critical period hypothesis. However, it is worth noting that language acquisition is not solely determined by age, and there are many other factors that can impact a learner's ability to acquire a second language. These include exposure to the language, motivation, and individual learning style. While it is generally true that younger learners may have an advantage in language learning, it's never too late to start learning a new language. Older learners can still make significant progress in acquiring a second language, and may bring their own unique experiences and perspectives to the learning process. Ultimately, the key to successful language acquisition is consistent practice, immersion in the language, and a willingness to learn.

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