

LEARNING A SECOND LANGUAGE AT DIFFERENT AGES: A COMPARATIVE ANALYSIS OF ADOLESCENTS AND ADULTS USING AI-ASSISTED APPROACHES

Oybek Kulmamatov

Senior lecturer at the UzSWLU & the NIU

Iskandar Ochildiyev

Senior lecturer at the Military Institute of Information Communication Technologies and Communications

Abstract. Age plays an important role in how people learn a second language. It influences cognitive abilities, brain flexibility, motivation, and learning strategies. Younger learners are often more successful in developing natural pronunciation, while adults usually perform better in learning grammar and vocabulary through explicit instruction. This article compares second language learning in two age groups – 13-year-old adolescents and adults aged 30 and above. Drawing on the Sensitive Period Hypothesis (Long, 1990) and studies by Muñoz (2019) and Singleton & Pfenninger (2018), the paper examines differences in syntax and phonology acquisition. The analysis shows that although age affects how languages are learned, appropriate teaching methods can help learners of any age achieve high levels of proficiency.

Keywords: Second Language Acquisition (SLA), age differences, adolescents, adult learners, Sensitive Period Hypothesis, syntax, phonology, motivation, instructional strategies.

Introduction. In Second Language Acquisition (SLA), age is widely recognized as a key factor influencing both the rate of learning and the level of ultimate proficiency achieved by learners. Researchers have long debated the extent to which age constrains language learning success, particularly in core linguistic domains such as grammar (syntax) and pronunciation (phonology). One of the most influential explanations is the Sensitive Period Hypothesis (Long, 1990), which proposes that language learning abilities are strongest during childhood and early adolescence and gradually decline with age, especially in relation to phonological development.

This perspective builds on Lenneberg's Critical Period Hypothesis (1967) but allows for greater flexibility by emphasizing a gradual reduction in language-learning sensitivity rather than a rigid biological cutoff. Alongside biological considerations, sociocultural theories—most notably Vygotsky's Social Development Theory – stress the role of interaction, social context, and motivation in shaping language development. These factors are increasingly mediated by digital technologies in contemporary learning environments.

In recent years, Artificial Intelligence (AI) has emerged as a powerful tool in SLA, offering adaptive, personalized, and data-driven learning experiences that can respond to learners' age-related cognitive and affective differences. AI-powered language learning platforms, speech-recognition tools, and intelligent tutoring systems can provide immediate feedback on grammar and pronunciation, adjust task difficulty, and support individualized learning trajectories. As a result, AI has the potential to mitigate age-related challenges – such as adults' difficulty with pronunciation or adolescents' fluctuating motivation – by aligning instructional input with learners' developmental profiles.

Taken together, biological, sociocultural, and technological perspectives suggest that effective SLA instruction must consider not only age-related cognitive and neurological factors but also the affordances of AI-enhanced learning environments. By integrating age-sensitive pedagogy with AI-

supported instruction, language education can better accommodate diverse learners and promote successful second language acquisition across different stages of life.

Main Part. The Role of Age in SLA for 13-Year-Old Learners. According to Muñoz (2019), 13-year-old learners are at a transitional stage where both cognitive growth and social interaction strongly influence language learning. At this age, learners still benefit from relatively high neural plasticity, which helps them develop more natural pronunciation and spoken fluency. As proposed by the Sensitive Period Hypothesis (Long, 1990), early adolescence is a particularly favorable period for acquiring phonological features of a second language.

At the same time, adolescents are beginning to develop abstract thinking skills, which allows them to understand more complex grammatical structures. However, their metalinguistic awareness is still developing, meaning they may struggle with explicit grammatical explanations compared to adults. Social interaction plays a crucial role for this age group. Peer communication, group activities, and meaningful interaction can significantly enhance learning outcomes (Singleton & Pfenniger, 2018).

Motivation, however, can be unstable. Muñoz (2019) notes that adolescents may lose interest if they do not see the immediate relevance of learning tasks. Unlike adults, they often require structured guidance, external support, and engaging materials. Therefore, adolescents benefit most from lessons that combine structure with interactive and socially meaningful activities.

The Role of Age in SLA for Adult Learners (30+)

Adult learners bring different strengths and challenges to the language learning process. Studies by Muñoz (2019) and Singleton & Pfenniger (2018) show that adults generally have lower neuroplasticity than younger learners, which makes achieving native-like pronunciation more difficult. However, adults compensate for this limitation with advanced cognitive skills, strong self-discipline, and developed metacognitive awareness.

Adults are particularly effective at learning grammar and vocabulary through explicit instruction. They can analyze language forms, understand abstract rules, and apply learning strategies consciously. Their motivation is often clear and goal-oriented, driven by professional, academic, or personal needs, which makes them more consistent learners than adolescents.

Nevertheless, adults may face challenges related to phonology and fluency. Muñoz (2019) points out that adults often rely heavily on their first language, leading to interlanguage interference. Their established phonetic categories can hinder accurate pronunciation and spontaneous speech. Despite these difficulties, adults usually perform well in reading comprehension, grammatical accuracy, and vocabulary development.

Comparison of 13-Year-Old and Adult Learners in Syntax and Phonology

1. Syntax (Grammar) Acquisition

Adult learners generally approach grammar analytically. Their well-developed metalinguistic skills allow them to understand rules quickly, but excessive analysis can sometimes slow down fluency. Adolescents, in contrast, benefit more from contextualized and interactive grammar instruction. While they may initially struggle with abstract rules, they tend to internalize grammatical structures more naturally over time.

Connecting grammar to real-life contexts—such as social media, music, or films—can increase motivation for adolescents and improve understanding (Hawkins & Norton, 2009).

Summary:

Adults: Strong explicit understanding of grammar but may overanalyze

Adolescents: Learn grammar more gradually and implicitly through interaction

2. Phonetics and Phonology (Pronunciation)

Pronunciation is one of the areas most affected by age. Due to reduced neuroplasticity, adults often struggle to perceive and produce unfamiliar sounds, particularly those not present in their first language. The Sensitive Period Hypothesis (Long, 1990) explains why achieving native-like pronunciation becomes increasingly difficult with age. Fossilization and reliance on L1 phonetic patterns further limit phonological development (Muñoz, 2019).

Adolescents, on the other hand, have greater auditory flexibility. Their ability to imitate sounds and adjust pronunciation is stronger, especially with sufficient exposure. Singleton & Pfenninger (2018) emphasize that younger learners are more receptive to new phonetic input, which gives them an advantage in developing fluent and natural speech.

Ease and Difficulty:

Adults: Pronunciation is challenging but intelligibility is achievable with practice

Adolescents: Pronunciation acquisition is easier and more natural

Instructional Adaptations

For adult learners, instruction should include focused pronunciation training such as minimal pairs, phonetic drills, and auditory feedback. Self-recording activities are particularly effective, as they help learners notice discrepancies between their speech and native models (Lee, 2017).

Adolescents benefit from exposure-based activities such as songs, choral repetition, games, and interaction with native-speaker input. For learners whose first languages differ significantly from the target language (e.g., Russian or Uzbek), targeted exercises focusing on problematic sounds – such as *th*, vowel length, or final consonants – are especially important.

Conclusion. This comparative analysis demonstrates that while age significantly shapes the process of second language acquisition, it does not determine learners' ultimate success. Thirteen-year-old learners benefit from greater neural flexibility, strong social motivation, and implicit learning mechanisms, which support more natural pronunciation development and the gradual internalization of grammatical structures. Adult learners, although facing greater challenges in phonological acquisition, compensate through well-developed cognitive and metacognitive skills that enable efficient learning of grammar and vocabulary through explicit instruction. In syntax, adults tend to excel with rule-based learning, whereas adolescents benefit more from interactive and contextualized approaches. In phonology, adolescents generally hold an advantage, but adults can still achieve effective and intelligible communication through structured and sustained practice. Overall, the Sensitive Period Hypothesis (Long, 1990) accounts for age-related differences in learning patterns without imposing strict limitations on achievement. Factors such as motivation, exposure, and age-appropriate pedagogical strategies remain decisive in supporting successful second language acquisition across all age groups (Muñoz, 2019; Singleton & Pfenninger, 2018).

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