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فرضية الفترة الحرجة: كشف الجدول الزمني لتعلم اللغة.

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عضو هيئة تدريب في الهيئة العامة للتعليم التطبيقي والتدريب- الكويت

الكلمات المفتاحيّة
فرضية الفترة الحرجة (CPH)، سن البلوغ، اكتساب، وحشي (غير متمدن)، ثنائي اللغة، المتحدث الأصلي للغة.

مستخلص البحث:

يسعى هذا البحث إلى استكشاف فرضية الفترة الحرجة لإريك لينبر، مفترضًا أن الأفراد الذين يكتسبون لغة بعد سن البلوغ سيواجهون صعوبة دائمة في تحقيق إتقان شبيه باللغة الأم في كلامهم. سيقوم هذا البحث بدمج أمثلة توضيحية وأمثلة مستمدة من المصادر الأدبية وتجاربي الشخصية. النتائج البحثية تشير إلى أن تحقيق الطلاقة اللغوية المشابهة للناطقين الأصليين في لغة ما يكون أمرًا شبه مستحيلاً عندما يتم اكتسابها في سن البلوغ. وبناءً على ذلك، يوصى بأن يبدأ اكتساب اللغة في مراحل تنموية مبكرة، مثل فترة قبل البلوغ، من أجل تحسين الطلاقة اللغوية والإتقان.

Critical Period Hypothesis: Unraveling the Language Learning Timeline

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ABSTRACT

This research paper seeks to examine Eric Lenneberg's Critical Period Hypothesis, positing that individuals who acquire a language post-puberty will perpetually struggle to attain native-like proficiency in their speech. This investigation will incorporate illustrative instances and instances derived from literary sources and my personal experiences. The research findings indicate that attaining native-like fluency in a language is highly improbable when acquired during adulthood. Consequently, the recommendation posits that language acquisition should ideally commence at an early developmental stage, ideally preceding puberty, to optimize linguistic proficiency.

Introduction

The critical period hypothesis is a theory in developmental psychology that suggests there is a specific window of time during which an individual is most receptive to acquiring language skills. This hypothesis, initially proposed by linguist Eric Lenneberg in 1967.

This research paper has the objective of examining specific cases that support the critical period hypothesis, wherein individuals who pass puberty are unable to speak a language as fluently as a native speaker. The theory will be expounded upon in greater detail, including its impact on language acquisition as a first language and as a second language. Additionally, examples from popular stories and personal experiences will be provided to further illustrate the hypothesis.

Research hypotheses:

1- Mastering a language like a native speaker becomes challenging, when acquired or learned after puberty.

2- Attempting to acquire a new language beyond the critical period will hinder your ability to speak it fluently as a native speaker. Whether it is you first or your second language.

Literature Review:

An extensive examination of the literature uncovers a diverse array of studies investigating the critical period hypothesis from various perspectives. Research has delved into the effects of age on language learning, the influence of environmental factors on linguistic growth, and the potential for neural adaptability beyond the traditionally defined critical period. While initial studies strongly supported the notion of a sensitive period for language acquisition, recent research has introduced complexities, revealing the intricate interplay between biological constraints and environmental stimuli.

Dr. Samiya Azeib's recent paper, published in 2021, serves as a significant reference point supporting the theory I am about to present. Although the paper focuses on cases of individuals attempting to learn a language as a second language, its implications are pertinent to our discussion. The central argument is that language acquisition is feasible at any age; nonetheless, the crux of the matter lies in attaining fluency comparable to that of a native speaker. Consider, for example, adults who embark on learning a new language later in life. While they may achieve a proficient level of comprehension and communication, nuances of pronunciation, intonation, and cultural subtleties often elude them, thereby differentiating them from native speakers. Dr. Azeib's research underscores the complexity of language acquisition and highlights the distinction between mere proficiency and native-like fluency. Furthermore, examining case studies of individuals who have successfully attained native-like fluency in a second language despite commencing their learning journey in adulthood can provide valuable insights. These exceptional cases shed light on factors such as immersion, motivation, and individual aptitude, which play pivotal roles in language acquisition outcomes. In essence, while Dr. Azeib's paper focuses on second language acquisition, its implications resonate with our broader discourse on the challenges of achieving native-like fluency regardless of age.

Another researcher Frisca Siahaan (2022), highlights that between the ages of 2 and puberty, the brain is like a sponge, eagerly absorbing a second language with ease, akin to a native speaker. However, as one progresses beyond puberty, the brain's receptiveness to language acquisition diminishes, making it more challenging to attain native-like fluency.

Lenneberg’s Hypothesis

Numerous individuals argue that children outperform adults in learning new languages. The critical period hypothesis, proposed by Eric Lenneberg in 1967, endeavors to elucidate the

connection between language acquisition or learning and the learner's age.

Between the ages of two and three years, language development occurs through a combination of maturation and self-programmed learning. From ages three to early teens, the potential for primary language acquisition remains high. During this period, individuals seem most receptive to stimuli and retain a certain innate flexibility in organizing brain functions required for seamless speech and language development. However, after puberty, the ability for self-organization and adaptation to the physiological demands of verbal communication diminishes rapidly. The brain appears to solidify its patterns, and fundamental skills not acquired during this critical period tend to remain deficient throughout life. This information is based on Lenneberg's work in 1967, as referenced in Aitchison's work in 1998.

This hypothesis asserts that after reaching puberty, it becomes impossible for anyone to acquire a language and speak it fluently like a native speaker. It also proposes a "Biological timetable" (Brown 2000, P. 53) that illustrates the relationship between language learning and age.

This paper will present evidence supporting the validity of the hypothesis. The evidence will focus on cases of feral children, who were raised without access to language away from their parents. Additionally, we will explore deaf children who gain hearing abilities after the Critical Period (CP) for language acquisition. These two groups will form the main section of this research paper.

The second section will focus on the Critical Period Hypothesis (CPH) in the context of second language learning. The main test for the hypothesis in this section will be centered around accents. Many individuals learn a second language after reaching puberty and excel in various language elements such as reading, writing, and listening, but they struggle with speaking, particularly in acquiring the native accent. The hypothesis contends that after puberty, it becomes difficult to fully grasp and reproduce the native accent of the language being learned.

1. First Language Acquisition:

In this section, we will explore the CPH as it applies to first language acquisition. We will examine the development of children who surpass the age of 13-14, or puberty, without any exposure to language, resulting in their complete lack of language skills. This section will be divided into two sub-sections: the first one will focus on feral children, and the second one will delve into deaf children's experiences.

1.1 Feral Children:

It is fortunate that there are not many cases of feral children because most of these instances involved inhumane circumstances or went unnoticed by authorities. The ability to communicate and express oneself is just as crucial as the right to eat and breathe, highlighting the fundamental importance of language and communication in human development and well-being.

1.1.1 Genie:

Our first case in this paper will focus on Genie, a feral child who had surpassed the age of 13 and was nearly 14 years old without having access to language. Genie's unfortunate circumstances made her a perfect subject to test the hypothesis. According to Aitchison (1998), when California authorities discovered Genie in 1970, she was living in an inhuman environment. Her father would physically punish her for making any sounds. Genie was found locked up in a room, unable to produce any sentences or utter any words due to the fear of her father's punishment (P. 87).

Genie's case was undoubtedly a tragic story. After being rescued, she was taken to the hospital and provided with care. The authorities began the process of teaching her how to speak and communicate with others. Susan Curtiss was the researcher who closely studied Genie's progress and reported on her language learning development. In the next paragraph, when mentioning normal children, it will refer to children who have not yet reached the age of 13.

According to Aitchison (1998), Genie's language acquisition was notably slower compared to normal children going through puberty. For instance, while typical children pass through stages of language development, like the two-word utterances stage, in a matter of weeks, Genie took over five months to reach that stage, highlighting a significant gap in her language learning timeline. However, despite the delay in acquiring grammar skills, she demonstrated an above-average ability to learn new vocabulary. Her grammar was notably weak, as she struggled to form complete sentences without grammatical errors. For instance, when attempting to construct negative sentences, she would simply place "NO" before the sentence she wanted to negate. This quote illustrates Genie's challenges in grammar during her language development. “Father hit arm. Big wood. Genie cry… Not spit. Father hit face. Father hit big stick. Father hit take piece wood hit, Father make me cry. Father is dead” (Newton, 2002 p. 223)

Genie's case serves as the initial example in my paper, aligning with the CPH since she struggled to acquire language and form grammatical sentences. In scientific research, having supportive cases doesn't prove a hypothesis conclusively; it requires consistent evidence. Conversely, a single case that contradicts the hypothesis can potentially refute it. The second case in the paper will also involve feral children, further exploring the implications of the CPH in language acquisition.

1.1.2 Amala and Kamala:

The next case in the paper will focus on Amala and Kamala, who were discovered in the jungle region of Bengal in 1920. When people first saw them, they were so fearful that they believed the girls to be spirits. An Indian Christian priest took it upon himself to capture them, enlisting the help of some native individuals. After tracking them down, the priest and his team found the two girls in a wolf's den, covered in dirt and mud, emitting a wolf-like smell.

Surprisingly, they were human beings, but they behaved like wolves. Amala was about 3 years old, while Kamala was around 5-6 years old. There were no reports of missing children in the priest's village, leading to the speculation that the girls might have been abandoned in the jungle. Feeling a responsibility to care for them, the priest, along with his wife, who ran an orphanage, decided to take Amala and Kamala in. However, when they attempted to wash the girls, they reacted violently by biting and scratching anyone who touched them.

Amala passed away in 1921 before she could stand up like a normal child. In contrast, Kamala was heard saying 11 different words in 1923, which also happened to be the first time she stood up. At that time, Kamala was likely around 9-10 years old. Kamala died in 1929, having learned about 30 words, but she could understand more than that, and there were reports stating that she could produce sentences. From this case, we can draw several conclusions. Firstly, there might be a critical period for learning various skills, including the ability to stand up. Amala's difficulties in standing up could be attributed to her upbringing in a wolf den until the age of 5-6, indicating the challenges she faced in language development as well. She managed to learn only about 30 words in a span of 9 years.

The two instances discussed involved feral children, but I also possess additional cases involving deaf children. I'll demonstrate how age influences their language learning capabilities.

1.2 Deaf Children

In this sub-section, I will present two cases. The first case focuses on Chelsea, who began her language learning journey in her thirties. The second case revolves around Isabelle, who commenced her language learning at the age of six and a half.

1.2.1 Chelsea

In the case of Chelsea (Newton, 2002), she began learning language at the age of 32. Living in a rural area in northern California, her family initially believed she was completely deaf, leading to no exposure to any form of language during her upbringing. It was only at the age of 32 that her hearing was tested, revealing she was partially deaf. With the use of hearing aids, she gained the ability to hear like normal individuals.

Chelsea's case was significant in testing the hypothesis, as she went through puberty without any language exposure. Unlike Genie, Chelsea received good treatment from her family. When she began learning language, she excelled in acquiring new vocabulary but struggled with grammar, supporting the notion that there is no Critical Period for learning new vocabulary. Her sentence structures were often jumbled, as evident in her utterances. For instance, she said "The woman is bus the going" to convey that the woman was going by bus, and "The girl is come the ice cream shopping buying the man" to express that the girl bought ice cream from the man in the market. Her challenges with grammar aligned with Lenneberg's Hypothesis. While specific examples of Chelsea's proficiency in vocabulary are

not available, reports indicated she performed well in this aspect (Newton, 2002, p.138).

1.2.2 Helen Keller

Helen Keller's case concludes this subsection. At 19 months old, she lost both her vision and hearing due to an illness, but she had a normal start in life. Unlike the previous cases, Helen had access to language. At the age of 7, Anne Sullivan Macy, a 21-year-old woman partially blind herself, came to teach Helen the language. Macy was recommended to Helen's parents by Alexander Graham Bell, who had not yet invented the telephone at that time. Bell's wife and mother were deaf that is why he became an educater like his father. He knew Macy's teaching abilities and was familiar with Helen's situation. He was confident that Macy was well-suited to teach deaf children, which led to his recommendation to work with Helen. (Newton, 2002).

Helen's case indeed presented unique challenges as she was both deaf and blind, leaving her in complete darkness (Newton, 2002). Her method of communication with Anne Sullivan Macy was extraordinary and involved touching Macy's lips and vocal chords to understand and interact with her. Macy's experience in communicating with deaf and blind individuals, gained through training at the Perkins' Institute in Boston, proved invaluable. Despite the difficulty of teaching in this manner, Helen successfully learned to comprehend others by touching various facial articulators such as the mouth, lips, vocal chords, and throats. She even managed to produce some words, though she couldn't receive feedback. However, her way of speaking had a high-pitched tone since she couldn't hear others' voices, leading her to be unaware of the typical tone of speech.

In summary, Helen lost her ability to speak at 19 months old and began her language learning journey at the age of 7. Despite the challenges she faced due to her deaf-blind condition, she was remarkably successful in learning language. This case aligns with the CPH since Helen's language acquisition occurred successfully within the presumed critical period for language learning.

2. Second Language Learning:

In this section, we will explore how age influences the process of learning a second language. Most linguists assert that after the Critical Period (CP), the most evident aspect affected in second language learning is the accent. If one learns a second language after reaching puberty, they might not be able to speak it like a native speaker. It's important to note that we refrain from using the phrase "second language acquisition" because some linguists argue that acquisition pertains only to the first language. When studying a second language, it is considered learning rather than acquiring it.

2.1 accent

I have a personal experience to share regarding second language learning. We had a maid from Bangladesh living with my family for over six years. Before that, she had spent four years in Bahrain, totaling ten years in a country where her native language was not spoken. When communicating with us, she used Arabic instead of Bengali. She had already passed puberty when she first arrived in Bahrain. Despite her excellent ability to interact with us and use grammatical

sentences, including the past tense and simple present perfectly, her accent remained quite poor. This observation is not limited to just one case; all the maids in my uncles' and grandfather's homes had similar experiences, emphasizing the challenge of acquiring a native-like accent when learning a second language after puberty due to the age-related aspects of language learning.

I discovered multiple cases across various articles, all supporting the Critical Period (CP) hypothesis and its association with age in language learning. According to Bavelier and Neville, Johnson & Newport's research in 1989 and 1991 highlighted the impact of age on Chinese or Korean immigrants who moved to the United States and were exposed to English. These studies emphasize the strong link between age and language learning, illustrating that they are inseparable factors. There are exceptional cases of individuals who learned a second language after puberty and still achieved near-native proficiency, it's important to recognize that most theories in the world have exceptions. However, the presence of these exceptions does not invalidate the overall theory or hypothesis.

In summary, the Critical Period Hypothesis (CPH) in second language learning primarily concerns the aspect of accent, which most linguists agree on. There seems to be no Critical Period for learning syntax, vocabulary, and semantics, but there is one for phonology, specifically accent acquisition. Therefore, individuals can learn any language at any age, but achieving a native-like accent might be more challenging for those who start after the Critical Period. Children are considered better language learners compared to adults as they have a higher likelihood of speaking a new language with a native-like fluency.

2.2 Perfect Bilingual:

This marks the final section of my paper, raising a significant question: "Does a perfect bilingual truly exist?" This inquiry holds importance as the CPH suggests that if a language is learned before puberty, native-like fluency should result. However, the inability of an individual to attain perfect fluency in a second language learned prior to puberty doesn't necessarily disprove the CPH. There could be variations based on individual differences. Furthermore, someone who struggled with fluency before puberty might continue to face challenges even after this period.

I came across a portion of an article by Robert Politzer where he states that there isn't such a thing as a perfect bilingual. According to him, a key indicator to determine someone's dominant language is their writing style, encompassing font and mannerisms. This assessment of writing style follows an evaluation of speaking patterns, since some individuals may excel in speaking two languages but exhibit differences when writing. Similarly, individuals might write proficiently in two languages but demonstrate a preference for one when speaking. I find this quote particularly intriguing and fitting: "At any point in time, one language is always more active than the other and that it is this language that governs language processing" (Grosjean, 1999). From this perspective, the absence of a perfect bilingual becomes clear. Even if someone is skilled in both languages, they cannot utilize them simultaneously. Hence, at any given moment, one language must hold dominance. It seems that Grosjean's

initial statement suggests that if a bilingual person is more adept at writing than speaking, the governing language during writing time aligns with their writing proficiency. However, during speaking moments, the language may shift to the one in which they excel.

Conclusion:

In this paper, I have delved into the concept of the Critical Period (CP) and explored its significance in the realm of language acquisition. The hypothesis that elucidates the connection between age and learning is the CPH, which was initially introduced by Lenneberg in 1965. Subsequently, we examined a multitude of cases to assess the validity of this hypothesis.

The paper commenced with its primary section on first language acquisition, comprising two distinct subsections. The initial subsection delved into cases involving feral children. Genie's case marked the beginning of this exploration, followed by an examination of Amala and Kamala's situations. The second subsection revolved around deaf children, starting with Chelsea's story and culminating in an analysis of Helen Keller's experience. Collectively, these preceding cases appeared to substantiate the CPH's validity. They reinforced the notion that acquiring a language before the onset of puberty facilitates the ability to speak it like a native, while language acquisition after the critical period may hinder attaining native-like fluency.

Then I proceeded to examine the application of the CPH within the context of second language learning. I expounded on the rationale behind our choice of using "learning" instead of "acquisition" in this context. The central focus of this segment was accent acquisition, where I provided a personal case study to illustrate the concept further. Concluding the discussion, the final section addressed the intertwining of bilingualism with the CPH, exploring the relationship between the two concepts.

The cases I examined throughout this paper have all aligned with the CPH. Despite my efforts to find cases contradicting the CPH, none were found. While these cases collectively suggest the validity of the CPH, it is essential to note that scientific inquiry does not involve proving a theory. Rather, science allows us to disprove or refute hypotheses. In this context, it is important to recognize that the CPH remains supported by the available evidence, yet it has not been definitively proven.

Bibliography:

Aitchison, J. (1998) *The Articulate Mammal* (5th Ed). London: Routledge.

Brown, H Douglas. (2000) *Principle of Language Learning and Teaching* (4th Ed). New York: Longman.

Elissa. L, Bavelier. D & Neville. H. (2001). *Critical Thinking about Critical Periods: Prespectives on a Critical Period for language Acquisition*. Cambridge.

Siahaan, F (2022). The Critical Period Hypothesis of Second Language Acquisition Theory of Eric Lenneberg's, Volume. 8 No. 2.

Grosjea, F. (1999). *The Bilingual's Language Modes*. Oxford: Blackwell.

Newton, M. (2002). *Savage Girls And Wild Boys*. London: Faber and Faber.

Azieb, A (2021) "The Critical Period Hypothesis in Second Language Acquisition: A Review of the Literature", International Journal of Research in Humanities and Social Studies, 8(4), 2021, pp. 20-26.