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## The Effect of the Critical Period Hypothesis on the First Language and Second Language Acquisition

### Abstract

This research attempts to investigate and identify the effect of the critical period hypothesis in the first and second language acquisition. Age factor in the learning process of a language is hotly discussible issue today. Most of the scientists tried to identify certain ages in order to acquire the second language fully. The critical period hypothesis is based on the development of human nervous system which helps to understand and learn environmental stimuli. If, for some reason, the organism does not receive the appropriate stimulus during this "critical period" to learn a given skill or trait, it may be difficult, ultimately less successful, or even impossible, to develop certain associated functions later in life. In this paper the critical period will be investigated in the first language and second language acquisition and answers will be sought for the main research questions: How does the critical period hypothesis affect the learning process of first and second languages?

**Keywords:** *second language, language acquisition, critical period, first language, language learning skills*

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## Kritik Dövr Fərziyyəsinin birinci dilə təsiri və ikinci dilin alınması

### Xülasə

Bu tədqiqat birinci və ikinci dillərin mənimsənilməsində Kritik Dövr Fərziyyəsi arasındakı fərqləri araşdırmaq və müəyyənləşdirməyə yönəlmişdir. Dil öyrənmə prosesində yaş faktoru bu gün də aktual müzakirə mövzudur. Alimlərin əksəriyyəti ikinci dilə tam yiyələnmək üçün müəyyən yaş dövrünü müəyyənləşdirməyə çalışıblar. Kritik Dövr Fərziyyəsi, ətraf mühitin stimullarını anlamağa və öyrənməyə kömək edən insanın sinir sisteminin inkişafına əsaslanır. Əgər hər hansı səbəbdən orqanizm bu kritik dövrdə müəyyən bir bacarıq və ya xüsusiyyəti öyrənmək üçün müvafiq stimula almazsa, sonrakı həyatda əlaqəli funksiyaları inkişaf etdirmək çətin, nəticədə isə daha az müvəffəqiyyətli və ya hətta qeyri-mümkün ola bilər. Bu yazıda birinci və ikinci dillərin mənimsənilməsində kritik dövr araşdırılacaq və əsas tədqiqat sualına cavab axtarılacaq: Kritik Dövr Fərziyyəsi birinci və ikinci dillərin öyrənilməsi prosesinə necə təsir edir?

**Açar sözlər:** *ikinci dil, dilin mənimsənilməsi, Kritik Dövr, birinci dil, dil öyrənmə bacarıqları*

### Introduction

The notion of Critical Period (CP) takes its origin from biological sciences. The Critical Period Hypothesis (CPH) firstly appeared in the field of biology, then gained popularity in the science of linguistics. According to scientists there are some factors which influence learning process of any language and one of them is age factor. There is a popular belief that in the process of acquiring a new language children are 'superior' to adults, that is, young learners have better outcomes as L2 learners than adults. Especially, all people acquire their first language during their early age and

there are some evidences that learning first language after puberty is impossible. But situation is different in the second language acquisition. Some scientists claim that a second language cannot be acquired as a native language after a certain period of age. This claim means that, indeed, there is a special period for language acquisition, ending at puberty; however some scientists claim that people can acquire any language without matter of age. It is believed that only a limited number of adult-second-language learners achieve native competence in the SL. However, there are lots of people who gain full competence in their second language like native speakers in their adulthood. This can be discussed as the opposite argument to the notion of biological limits on language learning (Bialystok, 1997).

### **Research**

All above them, it is known that after reaching a certain period of age human fails to acquire full competence in first language, but there are a lot of examples that people can learn the second language in their adulthood and they can get good results. The primary concern here is that we are unsure of the duration of the critical period, whether the capacity for learning a language diminishes gradually or suddenly after it ends, and whether this ability continues to decline during adulthood or levels off at a certain point.

In this article we will research influence and effects of age factor and the critical period hypothesis on the first language and second language acquisition and differences between them. There are two main questions that we will search for answer in this research (Brown, 1980):

1. What is the role of CPH in the first and second language acquisition?
2. How does age factor affect language learning process?

### **Discussion**

*The critical period in first language acquisition.* Critical period is the disputable issue in second language acquisition that whether there is any critical period in learning second language or not. However, according to most of the scientists there is the critical period in the first language acquisition. There is also many evidences which show that the critical period exists in the first language acquisition and one of the evidences is about Victor Aveyron. He was found around the age of twelve and he had lived between c. 1788 – 1828. When he found he could not speak, he could just pronounce some sounds. In order to teach him a language, Dr. Jean Marc. Gaspard Itard worked with him during the period of five years and named him Victor (Singleton, 2007).

Although Itard made an effort to teach him language, Victor showed significant progress in basic language level, such as understanding speech and reading simple words, but could not progress beyond a basic level. He wondered why Victor would choose to remain silent. Some doctors thought though born normal, developed a serious mental or psychological disturbance before his abandonment (Brown, 1994).

The second example concerns Genie, an American feral child who suffered from abuse, neglect, and social isolation. Linguists and child psychologists specializing in abnormal development were working together to examine this child. Her lack of social interaction prevented her from being exposed to meaningful speech, which hindered her language acquisition during childhood. Despite this, overall mental and emotional growth were recorded in her language learning process. Within a few months, she improved significantly in nonverbal communication and gradually learned some basic social behaviors. However, by the conclusion of the case study, she still displayed many behaviors typical of someone who had not been socialized. Although she continued to learn and apply new language skills during testing, she ultimately was unable to fully acquire a first language (Gursoy, 2011).

All this studies show that learning the first language afterwards in human life can not be acquired completely. Genie and Victor are good examples for that. Nevertheless, doctors, scientists were endeavoring to teach them language, they failed. They could only learn some words or sounds, however, they failed speaking grammatically correct. According to some scientists if a human does not learn any language, their brain and neurological system in their brain will be getting worse. In order to activate the brain all human need to learn their first language (Deng, & Zhu, 2016).

*The critical period in the second language acquisition.* There are different approaches to the critical period hypothesis in the second language acquisition. According to Lenneberg age period between 2 and 12 is the period for language acquisition which is determined by critical biological features. Beforehand the critical period hypothesis had been applied to the first language acquisition, however it was applied to the second language acquisition later. Many linguists started to introduce the idea that there is a limited period in the initial years of childhood individuals can learn language. If they cannot learn a language during this period, they will not be able to acquire nativelike features (İpek, 2009).

In order to understand the role of CPH on the first and second language learning a questionnaire will be compiled and it will test if CPH is true how much it affects the learning process?

### **Methodology**

In this research, in order to find the answer of research questions, a quantitative research method will be used. In order to collect the data and find the influence of the age factor on language learners, a questionnaire has been compiled. The questionnaire is compiled in Azerbaijani to determine the level of language proficiency of young native Azerbaijani learners who are aged 10-11. On average how much does a child learn his native language in 10 or 11 years (Moskovsky, 2001).

The questionnaire consists of eight open ended questions based on a text and it has been done orally. Students were given 20 minutes to read and understand both questions and the text. Later, the questions were addressed to all 30 participants one by one who are aged between 10-11 and notes were taken about how they answered exactly. The text contains advanced Azerbaijani words and sentence structure. Although some of the words cannot be translated exactly with the same meaning to English, the English translation of the questions will be shared here (Lenneberg, 1967):

1. "O bu məsələ barəsində təxirəsalınmaz tədbirlərin həyata keçirilməsinin vacibliyini təlqin etdi" Cümləsini necə başa düşürsünüz? (How do you understand the sentence "He suggested the importance of immediate action on this issue"?)

2. Məzəmmət etmək nə deməkdir? (What does it mean to reprimand).

3. "Deyilənlər təkzib edildi" cümləsini necə başa düşürsünüz? (How do you understand the sentence "What was said was refuted").

4. "Bu sahənin yaxın zamanda tərəqqi etməsi qaçınılmazdır" cümləsini necə başa düşürsünüz? (How do you understand the sentence "It is inevitable that this field will progress in the near future"?)

5. Verilmiş cümləni necə başa düşürsünüz? Mədəniyyət fenomeninin müxtəlif aspektlərdən tədqiqi müasir kulturologiyada özünəməxsus yer tutan sahələrdən birinə çevrilmişdir. Bu tədqiqatları birləşdirən vahid amil onun tarixi proses kimi qəbul edilməsidir. (How do you understand the given sentence? The study of the phenomenon of culture from various aspects has become one of the fields that occupies a special place in modern cultural studies. A common factor that unites these studies is its recognition as a historical process.

6. Cümləni necə başa düşürsünüz? Mədəniyyətə antropoloji mövqedən yanaşma bu fenomenin insan təbiətinin təzahürü kimi şərhini nəzərdə tutur. (How do you understand the sentence? The approach to culture from an anthropological point of view implies the interpretation of this phenomenon as a manifestation of human nature.)

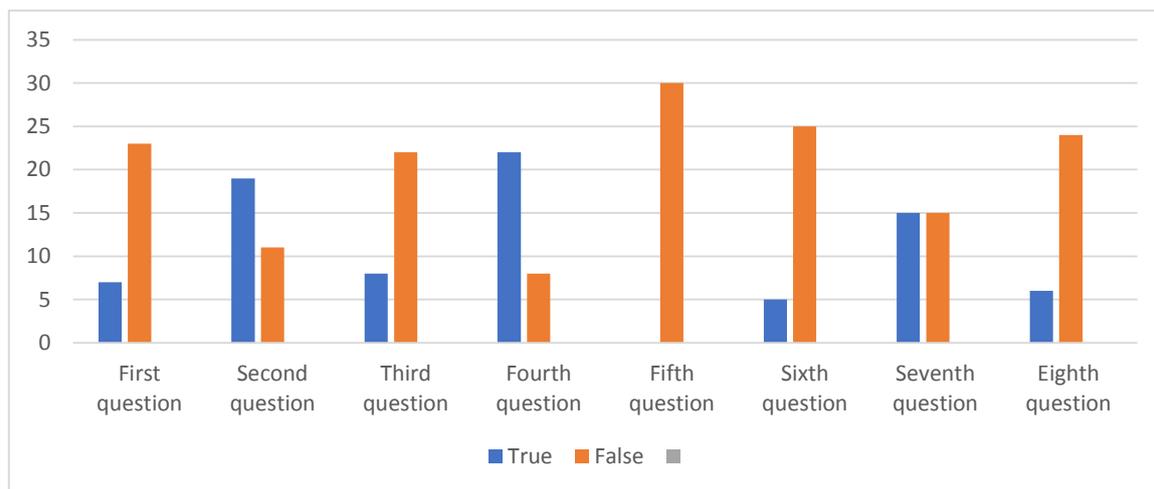
7. "Daha müfəzzəl dəyişikliklərə ehtiyacımız var" dedikdə nə başa düşülür? (What do we mean by "we need more radical changes"?)

8. Mətdə ümumi mənada nədən danışılır? Mətnin əsas mənasını bir neçə cümlə şəklində öz fikirlərinizlə əsaslandırın. What is the general meaning of the text? Justify the main meaning of the text with your own ideas in the form of a few sentences.

**Procedure.** The result of the questionnaire is given in the chart below. According to the chart, it is clear to see that the first, third, fifth and sixth questions were tough for participants to answer. Mostly, participants attempted to explain their ideas in response to these questions. However, they failed to provide the exact answer. It was observed in the process of questionnaire that the second, fourth and seventh questions were easy for participants to answer and about half of them answered

correctly. We can obviously see that there is no one who correctly answered the question number five. A few participants attempted to explain the given sentence; however they were unable to understand the grammatical complexity of the sentence. The seventh question were understandable to half of students and 15 of them were able to provide the right answer. In the case of eighth question the main purpose was to determine how much did the participants understood the general meaning of the text. Only 6 students correctly comprehended the meaning of the text and 24 students failed to understand the general meaning (Mohammad Mosiur Rahman, Pandian, Abdul Karim, & Shahed, 2017).

Figure 1.



**Discussion and Results.** If we consider the result of the research, it can be stated that young learners up to 10-12 years old cannot acquire their native language up to an advanced or proficiency level, although they master pronunciation skills. They have yet problems in grasping higher-level words and grammatical structures. However, adults have matured understanding, well developed critical thinking, which support the learning process of second language in a very short period. In the learning process adults have matured competence than young learners and if they fail gaining full accent like native speakers, but they have full competence to understand grammar, syntax well (Molfese, 1977).

As the answer of the first research question “What is the role of critical period hypothesis in the first and second language acquisition” it can be stated that the critical period hypothesis may exist in the first language acquisition. When a person lost the chance for learning their mother tongue in the early years of life, they may never learn later. However, CPH can only be applied to second language acquisitions in terms of pronunciation. *Psychomotor consideration explains that acquiring native like pronunciation depends on the speech muscles. Until age of five speech muscles gradually develop and until puberty they maintain their flexibility. Therefore children can acquire any language like native speakers, however, after puberty human cannot acquire the second language pronunciation like natives (Xu, 2017).*

About the second research question “How does age factor affect the language learning process” it can be stated that age and the capacity of language acquisition are directly proportional. In comparison to young learners, adult learners are able to acquire any language in short time. Although CPH determines the age between 2-12 as critical period for language acquisition, over these 10 years, a person can master language skills up to a limited level. However, adults have the mature skills to learn a second language in one or two years, reaching the highest language levels (Concept of culture and historical approach to it).

According to the affective consideration, motivation, anxiety, inhibition, social and psychological factors have a great role over the acquiring the second language. Inhibition refers to the problems of acquiring the second language of adults, not children. As the child grows older, they

develop a sense of self-identity, and by the time they reach puberty, they begin to feel the need to safeguard this sense of self. During puberty, they also develop increased inhibitions, which become more pronounced, such as a language ego. It is clear that a child's ego in the initial period of life is more flexible compared to the period when they reach adolescence. Therefore, acquiring a new language becomes a barrier for adults since they have developed defenses to safeguard their language ego. For example, making mistake can be good example for this issue. Adults always feel fear about making mistakes, while children feel free (Linguistic development of Genie, n.d.).

### Conclusion

In this paper, age factors and the critical period hypothesis in the first and second language and their effect on language acquiring were studied.

As a result, it should be mentioned that, CPH on the first language acquisition is very vital since a person lost the chance for learning his first language in the critical period, he would never be able to acquire it completely. However, according to the study of this research, this period does not imply acquiring the first language up to the advanced level. It can mainly be applied to pronunciation, accent, and intonation patterns. We as a person learn our first language during this critical period, approximately during 10-11 years up to a limited level. However, the main part of language acquiring process starts after the critical period.

When it comes to the second language people can acquire at any age, but the main question is that whether they will acquire like native speakers or not. Studies shows that, people can learn a new language in their adulthood, even they will acquire good grammar (probably not like the first language), they will acquire lots of words but they will fail pronunciation. After puberty acquiring native like pronunciation is almost impossible. There are different considerations about that and they were explained in this paper.

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