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THE CRITICAL PERIOD IN SECOND LANGUAGE ACQUISITION

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Abstract

The critical period is a stage in which the part of the brain in charge of the language function is going to change after puberty. If this area of the brain does not receive enough incentives like learning a language, it could be harder after that time to develop this learning later in life.

Resumen

El período crítico es una etapa en la que la parte del cerebro a cargo de la función del lenguaje cambiará después de la pubertad. Si esta área del cerebro no recibe suficientes incentivos como aprender un idioma, después de ese periodo de tiempo podría ser más difícil desarrollar este aprendizaje más adelante en la vida.

Key words: critical period, age, acquisition, bilingualism, first language, second language

Palabras clave: periodo crítico, edad, adquisición, bilingüismo, primera lengua, segunda lengua

1. Introduction

The aim of this essay is to offer a broad view on the so called Critical Period (CP). This concept has been analyzed for decades but it is still running through many linguists' fingers. In this essay I will analyze some information about the critical period based on the theory created by Lenneberg in 1967. I will also take a look to the areas surrounding the critical period such as the maturational stages, the age of exposure and also regarding the age of arrival.

The main objective of the essay is to try to investigate whether there is a critical period in second language learning or not. The CP is nowadays a topic that is still being commented and discussed by many linguists, neuro-linguists and psycholinguists.

2. Theoretical Frame

Along this section we will analyse different approaches to some aspects of the Critical Period such as how it affects the 1st Language and 2nd language acquisition. We can also see the Critical Period as an important characteristic in the evolution of humankind and animals. Also, how bilingualism affects our view of the Critical Period, and what is more important, whether there is a critical period in second language acquisition or not.

2.1 The Critical period, 2nd Language acquisition and bilingualism

The critical period has been discussed for many years since Eric Lenneberg released the critical period hypothesis in 1967. This critical period is defined according to David P. Birdsong (1999: 1) as "a bounded maturational span during which experiential factors interact with biological mechanisms to determine neurocognitive and behavioural outcomes. In humans, the construct of critical period (CP) is commonly applied to first-language (L1) and second-language (L2) development."

The critical period is sometimes explained to students in some degrees related to languages, such as philology, in a very broad way. As far as I am concerned, the critical period is associated to a sensible and abstract period occurring during the lateralization in the brain. After puberty, an acquisition of the first or the second language is going to

be more complicated and less successful. This means that from the moment of birth until puberty (close to thirteen years of age) every language acquisition is going to be quicker. This is because the plasticity of the brain is in favour of the acquisition and it is free of stress and hardness. So, this acquisition of the language will be more native-like and more fluent, because after a person is thirteen years old it is possible to acquire it, although less fluently and not so close to a native-like way. On the one hand, it is said that for an adult, even though he or she is concerned about the grammar and syntax of a language, it is going to be more difficult, because they have lost part of the brain's plasticity. On the other hand, children are like sponges (making reference to their brain skill to absorb the language, the knowledge around the language). This is interesting because they are not aware or concerned about all the characteristics of a language such as grammar or syntax, learning the language in an indirect way.

According to an article written by Abutalebi & Clahsen (2018), it is not fair to compare bilinguals with monolinguals because bilinguals have learnt two languages before puberty. This will favour the acquisition of the second language. Also the fact of being bilinguals early in life will benefit them in acquiring other languages, and why not, becoming polyglots. A communication specialist, Mia Nacamulli, in a Ted Talk (2015), develops an interesting idea in which the fact of being able to speak two or more languages makes your brain look different to that of, for instance, monolingual people. The way these bilingual or polyglot people's brain works is also different. In my opinion, people knowing two or more languages make their part of the brain (the language function area) work more and faster than those who only speak one. Obviously, they are not making such a big effort due to the fact they are speaking mainly in their mother tongue so their brain is not going to look or work differently to the bilinguals' or polyglots'. This is like working out in the gym, the body of those people training regularly and constantly and also involving many parts of the body will look and work differently to those training only one part of the body.

Regarding brain study technology, there are some new advances shown through neurolinguistics focusing on the fact that not general but specific aspects of language affect the bilingual brain. Language involves both hemispheres while lateralization develops gradually with age. As Nacamulli (2015) said, children learn languages more easily because the plasticity of their brains allows them to use the left and the right

hemisphere for acquiring a language, while most adults use only one hemisphere for language, the left one.

Learning when you are a child brings you closer to a more emotional and social context, while adults tend to use a more rational approach and a lesser emotional preference than children when trying to find solutions in the second language in comparison with the native language. Depending on when you learn the languages, this gives you visible advantages, for instance the gray matter's density increases. Nacamulli (2015) gave some examples of brain diseases by saying that "the heightened workout a bilingual brain receives throughout its life can also help delay the onset of diseases like Alzheimer and Dementia more or less with 5 years of delay".

Following Nacamulli's speech (2015), she stated that "bilingualism, before the 1960s, was considered a handicap that slowed child's development by forcing them to spend too much energy distinguishing between languages". Some studies offered some clarification on how changing between languages provokes our brain to work faster and makes the dorsolateral prefrontal cortex —the part of the executive function in charge of problem solving— more suitable to be strengthened. Being bilingual does not make you more intelligent, but it makes your brain be more actively engaged, more complex and in a way, healthier.

According to this theory, we will have a critical period for everything we do later in life after the critical period. For instance, we would have a critical period for learning how to play the piano, or how to practise a new sport and so on and so forth.

In the following pages a summary of the main findings by authors who are in favour of the existence of the Critical Period, like Mayberry and Kluender, will be offered.

In an article by Mayberry & Kluender (2018) about the Critical Period in the first language, it is suggested that there is a critical period in both first and second languages, but it is less severe in the L2, caused by learners/speakers having acquired another language previously in their life.

Second Language Acquisition is related to the motivation in second language learning seen as a complex phenomenon. At the very moment speakers feel the need to speak in different situations like a job or to make friends, they will see the language as a

powerful tool and therefore they will be more motivated to learn it and maybe achieve native-like proficiency. Also, when learners start to be involved in the target language community of native speakers they feel like they are acquiring the language and avoid mistakes so they can fit with them perfectly.

Until now, we have seen that there is a critical period in the first language acquisition, so it would be obvious to take this into account, that there is also a critical period for the second language acquisition. As Lenneberg (1967) said:

> "There is a time in human development when the brain is predisposed for success in language learning. According to this view, language learning which occurs after the end of the critical period may not be based on the innate structures believed to contribute to first language acquisition or second language acquisition in early childhood. Rather, older learners depend on more general learning abilities —the same ones they might use to learn other kinds of skills or information".

The way of learning a language for young and adult learners is very different. On the one hand, young learners practice the language everywhere but mostly in informal situations such as playing in the streets or parks with their friends, at school or even the excessive time they spend watching TV. They are not scared of making mistakes and little by little they are becoming experts in the language. On the other hand, adults lack spontaneity and they do care for their mistakes. The kind of situations they will be involved in is going to be mostly formal, such as at work, in the bank or speaking to other adults. The kind of grammar and vocabulary they are going to use is very different to the ones with the children.

Some studies dealing with second language development have shown a slight difference between the age of the learners, youngsters and adults. In Mayberry & Kluender's study they gathered information about what happens with language development when young and old learners learn in similar circumstances, and the result, as they stated, is that in the first stages of the development of the second language, the older learners are more efficient than the young ones, since the older ones have been exposed to the language for much longer.

There are also neutral points of views. It is not clear if there is a critical period or not due to the lack of evidence in the field of neurological experiments. In the experiments, the neurologists have come to the conclusion that in the brain of the

children there are already parts in charge of the language and some other studies focused on adults show that the alumni will predictably have a “foreign accent”, since the vocal cords and the articulation of the mouth obey the mother tongue.

2.2 The possible lack/absence of the Critical Period in the L2

As a starting point, it is known that the question is a bit provoking and hazardous to analyse but at the same time it is really interesting. In this section, I will address some hypotheses related to the acquisition of the first and the second language. These hypotheses affect the view people still have about how age affects when acquiring a language. A concept that is typically related with this is the *Age of arrival* (AoA). The age of arrival has to do with the specific date a group of people go to a foreign country and start a new life there. This entails they are starting to face the new language and there are some factors such as whether they have had previous contact with the language, because this will facilitate their learning to better adapt to the society and lastly fit in it.

In an article by Elisa L. Newport (2018) from the University of Georgetown she is in favour of the existence of a critical period. She explains that after early childhood, there is a so-called “decline”, but is this because of the critical or sensitive period or because of some other factors or variables? In this section, we will encounter some findings by Mayberry & Kluender (2018) to help us figure out the existence of a Critical Period.

First, age effects could change from time to time and in some ways in accordance with the maturation of the brain. During childhood there are some maturational changes in the brain, whereas adulthood is supposed to be a time of stability. Newport makes hypotheses and says that “age effects in L2 acquisition should also change during childhood but remain stable through the adult years” (2018: 1).

In my humble opinion, as Newport says, the effects of age imply changes during childhood, but this does not mean also that it has to be stable through the adult years because being an adult requires being responsible, having many things to do and too much stress at work, and all these things vary the effect the Critical Period has on age.

Secondly, there have been many advances in the study of the brain about its changes during adulthood. Before, it was not that accurate because they had not produced so many studies or they had done neurolinguistics experiments, or simply grammar ones, to detect whether or not there is a critical period in the second language. But nowadays that is not the case, nowadays it is easier to suppose that the competence in the acquisition of a second language will diminish at the moment in which it approaches the adult age, as Newport (2018) says:

> "The decline continues thereafter throughout the lifespan because the critical period for language acquisition in humans is not absolute or sudden. The lack of flattening of the age function at adulthood in many studies does not mean that learning is not constrained by biologically based maturational changes".

There are also many non-age variables that affect proficiency in L2, so that Mayberry & Kluender (2018) do not agree with what Newport suggests here and they use it against the possibility of an effect of a critical period for the second language acquisition (L2). However, they agree with Newport that there is non-age variable evidence concerning, for instance, the use of the language or the amount of experience.

I think these variables concerning the use of the language and amount of experience are almost impossible to control due to their unreliability. Maybe there are no studies because checking or measuring the amount of language we are exposed to is very difficult, it could not be measured easily. This is the case, for instance, of people who decide to watch a film in the original version or even people who play video games in another language so they can review and learn vocabulary in an unconscious way.

According to Mayberry & Kluender's hypothesis, there is a critical period for the first language acquisition but not for the second one (L2), because the effects of the second one are reduced or diminished; as said before, some learners have learnt other languages in their life. Having learned another language at an early age, the brain of the learners is prepared to acquire more than one language, for that, the critical period for the second language is not noticed or is very little noticed. As Newport (2018: 2) paraphrased what they said originally, "[the] striking differences in neural representation may also be the result of a reduced age effect. Greater language proficiency often shows stronger left hemisphere lateralization".

In the same line, Culbertson and Newport (2017) said that they had “conducted a number of miniature language studies with adult and child learners, who receive carefully controlled and exactly the same input and acquire these languages in the same learning circumstances” . Despite this, in these studies young learners acquire the different specific aspects of the language in a different way than adults do (Culbertson & Newport, 2017). It seems that adults learn a little more than children, however they also prove to show “substantial” differences with respect to children, because the way adults learn is quite more complicated and complex.

It is also important to distinguish two important factors according to Newport (2018) when acquiring a language, as she explains in an article that focuses on recent immigrants to the US. On the one hand, she said that “various L1 groups may have an easier or harder time acquiring English as a function of the similarities and differences between their L1 and English” (2018: 2). On the other hand, she also said that “some language groups may also have substantial exposure to English before their arrival in the US or lack of exposure to native English after their arrival in the US, complicating AoA as a measure of age of exposure” (2018: 2).

As far as I can understand, those groups with a language which is similar to the target language —English— are not going to find too many difficulties that make their evolution of learning harder. They will take advantage of words with a similar root and also of words with a similar sound and pronunciation. Also Newport (2018) mentions the age of arrival, which is obviously an advantage to those who will arrive later. The sooner they arrive, the sooner they start listening to the language and practising it. Their dedication and enthusiasm will play an important role in their language acquisition because even though they spend the whole day listening to English, this has nothing to do with the immediate learning. With an adequate motivation and dedication to the target language (in this case English), however, they are going to acquire it almost without realizing it.

It is also important to discuss that the fact of living in an English speaking country does not imply that the acquisition of the language is going to be successfully completed. To be successful in it, the speakers have to make a great effort to make their ears familiar with the new language and also to memorize little by little and in a natural way the thousands of words they do not know.

Mayberry & Kluender's article (2018) summarises what some psycholinguists already think about the existence of the critical period in L1, which also has notable effects in the second one, although somewhat less severe ones.

2.2.3 The Critical Period Hypothesis influencing the first language and the second language

For a sound analysis of the acquisition of an L1 and an L2 I will take into account the existence of a Critical Period for language acquisition. This hypothesis was proposed by Lenneberg in 1967 bearing in mind the biological processes happening during the acquisition. He sees the Critical Period as a biological and natural process, for this reason, it cannot be fully or easily controlled.

Many adults from 25 to 69 years old think twice before they start learning a second language because the difficult steps and situations they have to deal with such as memory, age and maturation are important factors, according to the hypothesis presented by Lenneberg.

First of all, there is a crucial concept suggested by Lenneberg called "Imprinting". He used this term to explain the Critical Period. According to Corso & Feltes (2018: 3), this means that "during the CP, and only then, an individual would be able to achieve language naturally and free". This is commonly observed in animals. Coming back to Lenneberg's theory (1967), imprinting happens during a very short period when animals are really young and it only happens when it is stimulated. In the same line, Gray (1958) explains imprinting as the recognition of the parent, it "is a social phenomenon which some birds develop as early as after hatching and right after it starts to decline" (1958). With this idea, many authors compare it and demonstrate that many Critical Period characteristics are similar between species. As Goswani (2004) said, "[the] Critical Period is related to the idea of losing the opportunity to learn a skill forever". Regarding again the imprinting, if a bird does not recognize its parents before a certain period, this can have fatal consequences for them, not being able to find them anymore. Some authors like Goswani do not see the Critical Period as such a severe, frustrating and determining concept, that is why he prefers to speak about a "sensitive period", because we can explore the possibility that simply some abilities/skills could be

easier to learn before the critical period. This sensitive period is nowadays a more popular term in the scientific jargon.

Lenneberg wanted to connect imprinting to his research. He found interesting evidence from people who have been operated of hemispherectomy[1] and aphasia[2]. He concluded that these people had a very good recovering even though they lost part of their language skills. This would prove there is a critical period in language learning.

Secondly, maturation is seen as an important language factor. This is important because a specific maturational state is required to learn every new ability, and language learning is not different in this. In the studies made by Lenneberg (1967), he stated that we should not disregard "the importance of the maturational process by recognizing the strict natural limits during the biological cognitive development". Another concept brought by Lenneberg as a result of this maturation is the so called "process of language readiness". As Corso & Feltes (2018: 4) also stated:

> "children are prompt to receive what [Lenneberg] calls *raw material* (the language that is spoken around them) so they transform the actual *latent* structure into *realized* structure. This process goes on until stability is set to a new maturational state. The author justifies that at the end of the maturational state, around puberty, cognitive functions are stable and strongly structured, which makes it impossible to build new connections, therefore, one would not be able to learn a language after this point" (2018).

Besides maturation, it is also important to mention brain lateralization. There is no need to go deeper into neurology to know that language is one of the functions associated to the left hemisphere. The important view here is the following: what would happen if the left hemisphere is damaged in some way? Lenneberg already answered this question by saying that "the right hemisphere is flexible enough to go back to its early functions" (1967). In the same line, Singleton (1989) accepts that if the left hemisphere is damaged, everything "stored" in the left hemisphere is transferred to the right one (quoted by Corso & Feltes, 2018: 5). Interestingly enough, Singleton also stated that "transference" would be easier for young learners in contrast with adults. He also presents a study in which she analyses when one of the hemispheres is damaged

[1]According to Encliclopedia.com, hemispherectomy "is a surgical treatment for epilepsy in which one of the two cerebral hemispheres, which together make up the majority of the brain, is removed."
[2] According to *Macmillan's Dictionary*, "aphasia is a medical condition in which you are unable to use or understand some words, caused by damage to brain".

both in children and adults, and explains that in adults, and "[against] Lenneberg's ideas, (…) lateralization is actually concluded by the age of 5 or even earlier".

I agree with the idea that if the left hemisphere is damaged everything a person has learned is not lost but transferred to the other hemisphere, as we have seen in the experiments mentioned above. Also, this kind of process is easier for children and not that easy for the adults, who already have all the concepts "settled" in their brain. This is going to happen inside their heads, so they cannot control what they will keep or improve if something bad happens to their brain.

To illustrate this point further, Corso & Feltes (2018) mention an experiment made by Basser (1962). In this experiment he focused in youngsters and adults with right hemisphere injured to check if it was the same for both ages. Interestingly enough, he demonstrated that children did not suffer loss but adults did. Then, he made experiments to people with other unilateral brain damage, because in his last experiment he had focused only on the right hemisphere (being the left one where the ability to learn a language resides), he was not completely satisfied with only the right hemisphere study so he experimented with this last one regarding unilateralization. Thanks to that, more ideas would be cleared. Being a unilateral study, the left hemisphere could also be studied. This time, results concluded that the damage was the same for youngsters and adults.

2.2.3.1 Critical Period evidence in first language acquisition

In this epigraph, some important topics related to the acquisition of a first language are going to be discussed. For instance, children deprived of communication at different levels during the learning processes. This is a starting point to make clear the relevance of age in language acquisition.

Hurford (1991) had a neutral view regarding the possible existence of the critical period in the L2 learning. He describes how some languages are going to be acquired after the Critical Period whereas some aspects are impossible to learn after it. To illustrate better Hurford's opinion, I will next mention Genie and Victor's problems with language deprivation: Genie and Victor were two kids that suffered from lack of language since they were born.

Genie was an American girl in the early 1900s. She was isolated in a room with no access to the outside, just her father, who fed her every day. She could not practise the language because her parents did not talk with her, she could not walk because she was chained to the bed's leg. Lenneberg did not believe in the experiments and studies made concerning "wolf-children", which were summarized by Koehler (1952) and by Brown (1957):

> "From our observations and testing, Genie appears to be a right-hemisphere thinker. Most importantly, she uses her right hemisphere for language. Genie´s language is abnormal in specific ways. Her language resembles that of other cases of right-hemisphere language as well as the language of those generally acquiring language outside of the "critical period". Her case, therefore, supports Lenneberg's "critical period" hypothesis and furthermore suggests specific constraints and limitations on the nature of language acquisition outside of this maturational period. The fact that Genie has right-hemisphere language may be a direct result of the fact that she did not acquire language during the "critical period". It suggests that after the critical period, the left hemisphere may no longer be able to function in language acquisition, leaving the right hemisphere to assume control". (Curtiss, 1977: 234)

But to judge from Genie's case, some quite central aspects of grammar are almost impossible or very hard to acquire after puberty, such as verb tenses, the -s of the third person, definite and indefinite pronouns and so on and so forth.

Victor was a French boy found in the woods, it is similar to the story of Mowgli. He was a boy who grew up savagely unprovided of a mother tongue, and what is more important, he was thin and malnourished. For many years, linguists and scientists tried to teach Victor the language, but he only managed to learn a few words. This may demonstrate the possible existence of a critical period. Also, some authors like Singleton (1989) agree with the existence of the critical period but there is also the possibility that after being isolated Victor could have mental illnesses such as schizophrenia[3].

Linguists have also dealt with the American Sign Language (ASL) in the United States and in Anglo-francophone countries such as Canada to prove there is also a Critical Period in the sign language. An example would be the case of Chelsea.

[3] According to *Macmillan's Dictionary*, schizophrenia "is a serious mental illness in which the way that you think and feel is not connected with what is really happening".

Chelsea was born deaf and started to learn a language in her thirties. Hers is a case of misdiagnose. Doctors thought she was retarded and it was only when she was thirty that they made the correct diagnosis; she was deaf. Pinker (1994) recognises she made a good progress as far as communication is concerned but sadly she had many problems with the syntax. Her case is similar to Genie's; they both could utter some random words even though the order was not grammatically correct. Pinker concluded that, in Corso & Feltes (2018) words, "she had not developed language normally and probably never would. Apart from these language problems, she was able to work in an office and her intellectual wise was about a 10-year-old girl".

On the other hand, there are some authors like Ploog, Johnson, Newport, Pinker, Friedman and Russeau who are against the evidence of the critical period: "There also seems to be a critical period: children who learn ASL after, say 7 years of age, will have a sort of foreign accent phenomenon, as Eric Lenneberg called it; they will not speak like native signers" (Ploog, 1984: 88)

Related to what is required for the acquisition of language, Corso & Feltes (2018: 7) quote Lenneberg, who called it, as mentioned before, "language readiness", in which the changes in the environment and behaviour toward the child are ready to receive and process it effectively, whereas other authors state that these children are going to develop just a few of the skills to have native-like performance and that syntax and phonology awareness exists since birth.

Pinker (1994), like Goswani, prefers to call the Critical Period a "sensitive period", because he considers it to be shorter than an actual critical period. According to what he says, "after the age of 6 the ability to acquire a language is already in decline until puberty, when a major change happens".

In the same line, Friedman and Rusou (2015) also think the sensitive period is shorter than what Lenneberg tried to demonstrate, as they said that "children are capable of acquiring a language, syntax and phonology since birth". Also, Newport, Bavelier and Neville (2001) stated that "some aspects can't be acquired after the end of the Critical Period and others are susceptible of adaptation". Corso & Feltes (2018: 8) say that this concept is also covered in the same way by other authors that say that the age of exposure does not affect all the aspects of language. It is also interesting that, for

instance, semantics and vocabulary are not affected at all by late learners acquiring the language.

Corso & Feltes (2018) think other authors are in favour of the existence of the critical period in the L2: "it seems [hardly possible] to support or refute the existence of a CP for first language acquisition. […] The discussions continue with methods and considerations on teaching and learning, regarding environment and how different ages learn".

To make the whole discussion clearer and more visual, I am including next a table developed in Corso & Feltes (2018: 11). This way, it is easier to check how authors refer to the Critical Period and when comes it to an end for them.

Author (Year)	**Term used**	**Period/Age**	**Ending**	**Single or Multiple**
Johnson & Newport (1989)	Critical Period	Not specified	Gradual	Not specified
Hurford (1991)	Critical or sensitive period	Not specified	Gradual	Multiple
Pinker (1994)	Critical Period	Until the age of 6	Gradual	Single
Grimshaw et al. (1998)	Critical Period	Ends at puberty	Gradual	Not specified
Newport, Bavalier and Neville (2001)	Critical or Sensitive Period	Since birth	Gradual	Single
Goswani (2004)	Sensitive Period	Between the age of 3 and 4 and puberty	Gradual	Multiple
Lima Jr (2013)	Critical Period	Author says it is not possible to determine	Gradual	Single

Meisel (2013)	Critical Period or Sensitive Phases	Starts at prenatal	Gradual	Single
Friedman and Rusou (2015)	Critical Period	Since birth	Abrupt	Multiple
Pallier (2017)	Critical Period	First years of life	Gradual	Single

Table 1. "Summary of the considerations about the critical period for first language acquisition through the years"

2.2.3.2 The implications of the critical period for second language learning

According to a thesis written by Corso & Feltes in 2018, aging can be noticed differently for the learning of a second language. As has been suggested in the previous sections, there are some essential differences in learning between young people and adults for the acquisition of a language. Some authors also mention the biological aspects, such as brain plasticity and memory. The hypothesis for second language learning is crystal clear: young children are going to learn and eventually acquire the language more easily than adults.

However, for some authors like Cruz (2017), there is no way or reason to distinguish between "young" and "adult": "there is no specific timing for learning a second language". This is why Zhao and Morgan have a neutral point of view regarding the critical period hypothesis.

Zhao and Morgan (2004) considered age to be a prevailing factor. They also suggest that natural learning, panic and motivation are important to take into account when considering whether there is a CP in the L2 learning added to time and a very good learning environment. They also said that "the ability of learning a language is equal from birth until, at least, the age of 10 and what determines the success of achieving a language is how early the individual is exposed to it, in accordance with many authors". On the other hand, there are authors like Pinker and Nouri who are against the evidence of the CP in the L2.

So far, it is understood that the Critical Period Hypothesis claims that puberty marks the end of getting the skill to acquire a language like a native speaker, following Lenneberg. On the one hand, some authors like Pinker (1994) contradict Lenneberg's hypothesis. Pinker (1994) says the following: "I believe that at the age of 6 it is possible to observe a decline"; as he said, this ending time to learn a language is not going to be shorter. This means that since long before reaching puberty our ability to acquire a language will be somewhat slower but not so radical as disappearing. To make this distinction clearer, Corso & Feltes (2018: 10) mention Viola, Jia and Shiyang's (2014) findings, who claimed that "adults have better developed cognitive skills, such as memorization, problem solving and attention span".

Redmond (1993) suggests that this achievement to acquire the L2 is not only because adults have experienced the language. In the same line, Nouri (2015) claims that, among all the aspects of the language, vocabulary could be easier for adults, because they have had more exposure and understanding of the wording.

Next I am going to deal with those authors who are in favour of the critical period in second language acquisition.

For instance, Corso & Feltes (2018: 10) quote Nouri (2015) to clarify that there is evidence enough demonstrating children are abler to process some linguistic input than adults. This proves how some researchers defend this idea to explain why children have more advantages and get it more easily than adults do.

In another study, carried out by Au et al. (2002), they experimented with two groups. The difference between the two groups was the time when they were exposed to the language. One group was exposed to the L2 since childhood and the other group started to be exposed at the age of 14. In the study, they focused in checking the level of pronunciation of the participants. They had to read sentences from a computer, trying not to imitate accents, just reading it naturally. The results concluded that participants exposed since childhood had a pronunciation more nativelike than adults. Supporting this, Bialystok & Hakuta (1999) said that "adults need more time in activities with memorization and vocabulary than young learners do".

As far as I can understand, adults will have some ease to remember the vocabulary better than the young ones. This is because the rank of words an adult has is much bigger than the young ones and adults can compare and contrast the vocabulary

with their mother tongue while for most young learners it would be the first time they see certain words, in either language.

Corso & Feltes (2018) realize one important aspect, already mentioned by Lenneberg in 1967, when they explain that the main problem to acquire a second language with proficiency after a certain age is brain plasticity. Lenneberg (1967) stated, in Corso & Feltes's words, that "after puberty, the brain loses its ability to adapt to new behaviours"; this is also true for Cruz (2017), who said that "a child might be able to learn a skill fully as long as the brain has not reached the end of the adaptable period". In this adaptable period our brain still accepts changes like learning new skills or abilities and is relaxed, stress-free.

Johnson and Newport (1989) found evidence that supports the biological timing mentioned by Lenneberg in 1967, in which the maturational process ends around puberty. They said the following: "considering that each individual has different timing for biological processes, there seems to be a decline of language-learning ability once maturity is reached". They also became aware that practicing the language we want to acquire (target language), it would be very difficult to reach native-like levels regarding, for instance, proficiency.

Similarly, Bialystok and Hakuta (1999) also called attention to "the idealization of the perfect second language speaker, whose objective learning a language is to sound exactly like a native and this hypothesis supports the success of early learners". This is why many authors suggest that if learners do sound like a native speaker, his or her level of proficiency is higher and better. Similarly, many authors like Redmond (1993) state that "it is only possible to attain a native level if the exposure to the language starts during the first years of life".

I consider that it is always beneficial to learn a language the sooner the better, but still, if one acquires the second language at an advanced age it is not impossible to reach a native-like performance. This just needs a great effort for learning the vocabulary and to reproduce the sounds exactly like native people do.

Corso & Feltes (2018) make clear the idea defended by many authors of what is the importance of where we are going to learn or practice the language, such as the environment. This could be a place where young learners could perfectly interact and use the language as normally as in real life. It has to be natural as long as learners want

to get some proficiency. This is helpful for both the L1 and an L2. They also said something similar that coincides with what Goswani (2004) said. They claimed for the importance of a rich setting because most of the language learning happens in schools. They also stated the relevance of a relationship between topics, in order to provide recycling of previous knowledge and a more effective growth of brain connections.

From a different point of view, Corso & Feltes (2004) pointed out that "learning in a classroom has time limitations and poor interaction, while in a natural setting, the communication is authentic and there is maximal exposure". Along the same line, the same authors quoted Viola, Jia and Shiyan (2014), who said that "[children] learn through sensorial experiences and there is a need to work with concrete subjects while adults can deal with more subjectivity".

To my knowledge, on the one hand, children learn faster and understand better the vocabulary using Realia instead of difficult explanations and the description of abstract things such as emotions or human characteristics. Children will be happier learning vocabulary they feel they can use at any moment in their daily life. On the other hand, adults' need of vocabulary is going to be more specific, like for their jobs or to understand novels, poetry and books in the original version.

Despite this, at the very moment of learning a second language after this "Critical Period" some linguistic aspects are involved because of the mother tongue of the person, giving place to the existence of a Critical Period in the second language learning. Also, it is very important to take the experience of the learner into account or his/her background, because it is related to the way they will see the language. For instance, as I recalled before, the use of texts could be as real as possible (authentic) to give us a real and natural view of the target language. As Corso & Feltes (2018: 12) explain, "the CPH main concern is how age affects learning and how difficulties in acquiring some language aspects increase during life, but sociocultural aspects are not taken into account by the Critical Period Hypothesis."

Also, according to Corso & Feltes (2018: 18), there are late learners who really understand the language and consequently, they are going to be better at referring, comparing and contrasting with other aspects of the language. Another obstacle is the memory becoming less effective regarding the Critical Period. They should not be

focused on accuracy, as Corso & Feltes, quoting Ipek (2009), suggest that "practice in the classroom can result in acquisition".

However, Corso & Feltes interpret Bialystok and Hakuta (1999) when thay say the following:

> "[Learning] a L2 after the CP would actually begin with linguistic aspects already processed in the maternal language by the learner, proving the existence of a CP for L2. Even though the learning development is slightly different between L1 and L2, it is not clear if they are part of a completely different process or not".

In sum, the CPH is still a very broad, but at the same time, specific concept, it is very difficult to understand what is missing in the students, their lack of knowledge, so that it does not result in frustration and anxiety in achieving a native-like performance as a result.

2.3.4 The evolution of the concept of Critical Period for language acquisition

Following Hurford's assertion (1991), it is said that the sensitive period ends around puberty. The critical period is seen as a model which is evolving and that is taken as a principle of a linguistic capacity that can be measured. Also, what a learner knows about an individual language gives him/her a discriminative/selective advantage. As Aitchison (1989) claimed: "There is no evidence of a sudden onset, or final endpoint of the supposed critical period. Instead, we are dealing with a phenomenon well known in animals, the fact that young brains are more flexible than older ones". This is similar to what happens with humans.

Regarding the difficulty of learning a language, Bever (1981) explained it is not clear how to figure out the level of attainment and how to measure it for children at different ages without knowing the learning context of the child. The more adult he/she is, the more difficult to become an expert in that language good enough so you go unnoticed to native speakers and they think you are a native too.

Unfortunately, it is not an easy task to reason the possibility of a critical period for second language acquisition. According to Johnson and Newport's assertions, it could be called "interference hypothesis". Corso & Feltes (2018: 13) quote Hurford

(1991), who stated that “the interference hypothesis explains what a second language learning is (to some extent) inhibited by prior attainment in a first language”.

The interference hypothesis is a theory concerning human memory. Our remembrances are encrypted in the long-term memory, they are going to be forgotten at some point, and we cannot get them back into short-term memory because these memories “interfere” and make each other slower.

Hurford had a very interesting opinion regarding the Critical Period in humans. Contrary to animals, in humans there are many limitations because the experimentation on humans is not viewed favourably, and this means that there are still results we are missing because of the lack of experimentation on humans. The experimentation is against our ethical “rights”, so we might refer to ethical limitations here. Ethical limits on science refer to the rights of human subjects. There are things we cannot do to nonconsenting human beings, like for instance with Genie or, in an example a little bit harder, the Nazi doctors inflicting painful and violent deaths on many people.

According to Singleton (1989), the CP is not strong and that there is evidence against it. In some excerpts he clarifies the inability of these experiments to be tested on humans. There is evidence of capacity for first language acquisition after puberty and also evidence against the critical period.

The general phenomenon of a critical period for learning is really interesting because it is already seen in some animals such as dogs (learning their geographical areas or even socialization). In an article by Hurford (1991), he claims that “under certain plausible conditions, organisms with just the kind of sensitive period for language acquisition that we find in humans would tend to be selected by the evolutionary process”.

It is really interesting to simulate and then demonstrate how language can be acquired depending on the different people’s characteristics or life period, such as puberty or adulthood. For this demonstration, a computer game programme was created for the simulation. A population was selected and people were designed to live as real human beings.

Hurford (1991: 165) said that “as the population turned over, simulated genetic characteristics of the individuals relating to the period of their lives when they are open

to language acquisition were propagated through the population, and the individuals actually acquired language according to these genetic characteristics".

The Critical period is a very abstract notion. This is why some authors try creative ways to understand if the existence of a critical period can be demonstrated. Hurford (1991: 166) also asserted that "at the relevant evolutionary stage in the past, an individual who controlled this knowledge and these skills had an advantage in life over one who did not". This was reflected in the individual reproducing or surviving.

Hurford (1991: 167) also quotes Chomsky's words (1982: 18-19), when he spoke of the language ability as "highly useful and very valuable for the perpetuation of the species and so on, a capacity that has obvious selectional value".

In the same line, Pinker and Bloom (1990) followed the assertion of the perpetuation of the species. Speaking a language has made it possible for Homo Sapiens to survive in the natural world.

As Hurford (1991) regarded about the fact that being able to speak a language gives you some advantage, we could say that if a person understands the sentence "that tree is about to fall", he/she is going to have more possibilities to survive and avoid dying all of a sudden. Interestingly enough, sexual intercourse would be preceded by verbal negotiations. These kind of accidents are going to be different from what we utter every day. Nowadays, we can spend whole days just speaking but it is not going to be necessarily about preventing someone to be killed or what precedes having sex. We basically speak to cover our daily necessities such as going to the supermarket, argue with a salesman, or going to the doctor. In sum, social relations (like telling a friend when to come to dinner and so on and so forth).

Some species communicate with objective messages about what surrounds them, such as monkeys and honeybees. e.g. there is nectar here or there, trying to indicate an "exact" distance, indicating also if there are predators nearby like lions, eagles or snakes. This is very important to them, because they can be aware of the environment and avoid being killed.

Following Hurford's research (1991: 180), one important difference between humans and animals is that we do not have to fight for the resources and our most powerful tool is the language. A language, once mastered, is not going to be consumed

for its use. For instance, even though I use many words for one purpose there are thousands still to use (contrary to physical effort, talking is effortless). So, Hurford (1990: 171) said that "where language as a resource is concerned, one would not expect pressures of reproduction and survival to compete with one another. That is, there is no reason to expect adaptation for reproductive function to tend to reduce adaptation for survival, or vice versa".

In one condition, we could say "the Critical Period evolved" so the individual nowadays is not going to know the language just for reproducing purposes but for fitting socially or, for instance, to get a job.

As far as I can understand, the acquisition of language helped our ancestors to communicate so they could become problem-solvers and achieve successfully the communication sometimes necessary to survive. Then, just with one language we allowed our brain to relax because there was not a critical situation where a language should be acquired for any purpose. Nowadays, being bilingual is very important so this pressure appears again and there is the necessity to be bilingual to be selected by companies, for instance.

In my humble opinion, human nature is in favour of communication so the acquisition of a language is needed. As long as it is our first language, we learn it even without realising it, but the problem comes when we deal with the acquisition of the second language, we could say we are not ready for the "battle". Our way to move the lips to pronounce, the way we think to build sentences with the syntax of our mother tongue etc. are an important factor determining our success in SLA.

3. Conclusion

There are some evidences that could prove the effects previously discussed in this essay for the critical period in the acquisition of a second language. We have seen, in several of the readings included in the revision offered, that, according to many authors, the person's age does not matter, because age is not important; there are other factors that

are going to influence the second language acquisition such as AoA, exposure, dedication and enthusiasm.

Could we say that the critical period for the SLA is already a sure thing? It still remains uncertain, in spite of all the efforts made by linguists and authors trying to make clear the reality for a Critical Period in SLA. There are many experiments made to discover any inspiring result but, for those I had the possibility to read, there is no conclusive result. The existence of the Critical Period in the Second Language is and will continue to be, unsolved. I would dare to say mysterious.

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