

The Critical Period Hypothesis in Second Language Acquisition: A Review of the Literature

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ABSTRACT

The present paper aims at highlighting the Critical Period Hypothesis (CPH) in Second Language Acquisition (SLA) which suggests that the individuals' attempts to learn a second language after the age of puberty and to attain native-like competence in it are of no avail. To this end, old and recent studies that range from total acceptance to complete rejection of the CPH in the acquisition of L2 grammatical features and phonological systems were reviewed respectively. Their examination has revealed that there is no absolute Critical Period in SLA. That is, although achieving a very high level of proficiency in the target language is often difficult for post-pubertal learners, such an achievement cannot be ruled out. These gained insights into the CPH in SLA suggest that the ways in which the educational systems are introducing second language education need to be reconsidered. They also open the door to further research attempts and suggestions in the realm of language acquisition as a whole.

Key words: Critical Period Hypothesis, Second Language Acquisition, Second Language Education, Post pubertal Learners, Puberty.

INTRODUCTION

Humans' ability to acquire language is taken to be a preeminent reflection of the phenomenal capacities that their brains are endowed with. Accordingly, it is an axiomatic fact that language is species-specific and mirrors the "human essence" as the following line of thought purports: "when we study human language, we are approaching what some might call "the human essence", the distinctive qualities of mind that are, so far as we know, unique to man" (Chomsky, as cited in Fromkin. et al, 2003, p. 3). At this juncture, it is worth noting that language acquisition is a coin with two distinct sides viz: First Language Acquisition (FLA) and Second Language Acquisition (SLA) and whose study has been an attention-grabbing destination for researchers from time immemorial.

FLA is basically exclusive to the child's endeavour in learning his mother tongue or his first language (FL). Hence, its study is concerned basically with describing the process whereby children attain native proficiency or a full command of their native languages. The received opinion among language acquisition researchers is that the two main hallmarks of such a process are the ease and the speed with

which it takes place, or what Chomsky referred to as "the ease and speed of child acquisition argument". That is, a young child is capable of attaining a faultless and effortless mastery of a language in a short lapse of time (Steinberg, 1993, p.140). In this regard, Chomsky holds the opinion that children's consummate linguistic agility is underpinned by what he names the Language Acquisition Device (LAD) (Wen, 2013, p.151).

On the other hand, SLA is the process of acquiring/learning a language other than the mother tongue. That is, the acquisition of a non-primary language. Undeniably, acquiring a second language is a challenging task as Brown (2000, p.1) postulates:

Learning a second language is a long and complex undertaking. Your whole person is affected as you struggle to reach beyond the confines of your first language and into a new language, a new culture, a new way of thinking, feeling and acting.

What complicate the learner's journey are the many factors that enter into play when learning an L2. Age, inter alia, has appeared to figure prominently in the literature with the thrust that younger means better. The entire matter seems to be in conformity with Singleton's assertion

(1995, p.1) which runs as follows: “The issue of whether the age at which individuals begin to be exposed to languages other than their native languages plays a role in the manner in which, and/or the success with which, they come to grips with the new languages in question”.

The foregoing quotation necessitates giving heed to what is known in the latent stockpile of literature on FLA as “the Critical Period Hypothesis” (CPH). Evidently, a multitude of definitions have been provided for such an intriguing notion. For instance, Penfield and Roberts (as cited in Nelson, 2012, P. 15) posit that the existence of such a CP in FLA is taken to mean that “a child’s brain has a specialized capacity for learning language – a capacity that decreases with the passage of years”.

Moreover, in the words of Brauth, Hall and Dooling (1991), “the critical period refers to a temporal span, early in life, of heightened sensitivity to environmental stimuli. The phenomenon is physiological in nature and involves changes in the central nervous system during the course of development” (as cited in Montrul, 2008, p.10). Another important standpoint on the issue is that “the critical age hypothesis is part of the biological basis of language and states that the ability to learn a native language develops within a fixed period, from birth to puberty” (Fromkin, Rodman & Hyams, 2003 p.51). All in all, a critical age is “an age beyond which language learning will be difficult or impossible” (Steinberg, 1993, p. 184). At this juncture, it has become crystal clear that Language Acquisition becomes cumbersome, difficult and even impossible after the so-called the Critical Age.

The Origins of the Critical Period Hypothesis

The onset of the CPH thrust is traced back to 1959 when Penfield and Roberts wrote a chapter entitled “The Learning of Languages” in which they were staunch supporters of the belief that the younger the child, the effortless, and faultless his performance would be. This was articulated in the following line of reasoning: “Remember that for the purposes of learning languages, the human brain becomes progressively stiff and rigid after the age of nine” (Penfield & Roberts, 1959, as cited in Nelson, 2012, p. 14). However, it has been stated that suggesting a biological foundation for language and linking it to a critical age made its debut in 1953 with Penfield and his ideas (Montrul, 2008, p. 10).

Interestingly, the CPH was popularized in Lenneberg’s groundbreaking book (1967) “Biological Foundations of Language” (Nelson, 2012, p. 11). He drew his supporting evidence from some sources like recovery from traumatic aphasia. For instance, “before puberty, a child struck by aphasia has a reasonable chance of recovering and developing normal language...People whose language ability is destroyed after puberty seem to have diminished resources for rebuilding it” (Hurford, 1991, p. 160).

Lenneberg (1967) tried to determine the age at which it becomes too late for an individual to acquire his first language. In doing so, he used different types of evidence including:

- Data from recovered aphasics;
- The development of language in the mentally disabled;
- The effects of sudden deafness on people of different ages.

Therefore, Lenneberg surmised that due to structural reorganizations that occur within the brain during puberty, any language skills which were not learned before this restructuring occurs would remain permanently underdeveloped (Schouten, 2009, p.2). In other words, after the age of “puberty”, it becomes impossible to fully acquire a first language.

1.2. The Critical Period Hypothesis and Cases of Linguistic Deprivation

The question of whether there is an age beyond which a person would be unable to learn his language started operating first within the framework of first language acquisition. In this regard, researchers have provided us with the stories of some children whose attempts to learn their native languages were in vein because they were exposed to them after the critical age.

Undoubtedly, Genie is a case in point. This girl was raised in solitary confinement by her abusive father since she was 20 months of age. When found at around the age of 13 or 14, Genie was without language. Following this, efforts to teach her language were made. Therefore, Genie learned to speak in a rudimentary fashion, very much like a normal two year-old child. However, she progressed more slowly and even stopped developing after several years of training. Her trainers found out that her mental age increased by one year for every year after she was found while she was studied, whereas her language abilities did not

show a similar increase, stagnating at the level of a normal two-year old, and thus, confirming the existence of a critical age for FLA (Steinberg, 1993; Montrul, 2008).

Another frequently cited example of linguistic deprivation is that of “the wild child of Aveyron”. Captured in the forest near the village of Saint Sernin in the Aveyron district of France, the boy seemed to be at the age of 12 or 13, yet, with no spoken language. The wild boy was given the name Victor by his trainer Itard. The latter’s attempts to teach Victor to speak were in vein, indicating that this boy is only one of the many instances that support the main claim of the CPH in FLA (Steinberg, 1993; Montrul, 2008).

At this juncture, it is highly important to state that the aforementioned instances and others, and the general failure experienced by adults when attempting to learn a second language have puzzled the bulk of researchers in the field of SLA for decades. Therefore, a frequently asked question among them is: to what extent is the CPH applicable to L2 acquisition? Following this line of thought, the present paper raises the following question:

- Is there a Critical Period for SLA according to the analysis of the existing body of research on it?

METHODOLOGY

The present research paper examines some old and recent studies that tried to test the applicability of the CPH in acquiring the grammar and pronunciation of a SLA. These are studies that either support it or try to falsify it, hoping to get insights on what research on such an intriguing issue is up to and to see the extent to which SLA is subject to the influence of a critical age.

RESULTS AND DISCUSSION

The studies that are selected in the present research work are divided into two groups depending on whether they deal with “The Acquisition of Grammatical Features” or “The Acquisition of Pronunciation”. These studies are in turn divided into “the Critical Period Position” and “the No Critical Period Position”.

The Acquisition of Grammatical Features

The Critical Period Position

Proponents of the CPH as a justification for second language learners’ failure in reaching native-like proficiency in the L2 are numerous

(Johnson & Newport, 1989; Flege et.al, 2006; Benabdelloua, 2019; Sharabidinovna et.al, 2020). Their stance emanates directly from the results of the studies that they conducted on different participants to test their achievements in some language aspects, most prominently grammar.

It is worth noting here that one of the salient features of the studies which were used to measure native-like attainment in the L2 grammar is the use of grammaticality judgment tests. Accordingly, Oyama (1978) and Patkowski (1980), among others, inquired into the degree of mastery of a given number of grammatical structures by immigrants who arrived in the United States at a variety of ages. Accordingly, both researchers found out that the age of subjects’ arrival was the only determining factor of their ultimate attainment in English, hence upholding the notion that learning a SL after the close of the CP leads to its incomplete mastery (as cited in Schouten, 2009 p.3).

In a similar vein, Johnson and Newport (1989) compared the proficiency attained in the English grammar by 46 native Korean and Chinese speakers who arrived in the USA between the ages of 3 and 39 and who had lived in it between 3 and 26 years by the time of testing. To this end, a grammaticality judgment task was used. Consequently, the researchers came to the conclusion that there must be a strong age-related decline in proficiency for languages learned prior to puberty and random variation in L2 achievement among later learners. That is, a CP for Language Acquisition extends its effects to SLA. The results of this study are in conformity with those of Oyama (1978) and Patkowski (1980).

Additionally, Hyltenstam (1992) conducted a study on participants who immigrated to Sweden before adolescence, and lived there for more than five years. The results were compared with a Swedish native speaker control group. The final comparison shows that respondents who came to Sweden after the age of seven had a higher number of errors in grammar than Swedish native participants. In addition, the number of mistakes made by students who arrived in Sweden before the age of six was fewer than that of the other groups. Hyltenstam (1992) said that age plays an effective role in SLA, and the length of time that participants immerse themselves in the target language is also considered as an important factor.

Sharabidinovna et.al (2020) reviewed the case of second language acquisition period of two students in the context of Uzbekistan, leaning on the ideas and facts provided in the prior researches. In order to conduct the case study, two learners of different ages were chosen. The first female participant a twelve-year old M who started learning English from the age of seven (before the puberty) and the second male participant, a nineteen-year old S. who started acquiring the language at the age of 15 (after puberty). In order to test subjects' speaking skills and gain general knowledge about their grammar, a short interview was conducted. While conducting the interview, students' pronunciation and grammar accuracy were checked. This was coupled with a test in order to judge their grammar. The results showed that the best period to acquire the phonology and grammar of L2 effectively is before the age of puberty.

Sharabidinovna et.al's (2020) results and those of Oyama (1978), Patkowski (1980), Johnson and Newport (1989), and Hyltenstam (1992) have one common denominator: they all second the idea that 'the best period to acquire the grammar of L2 effectively is before the age of puberty'. However, Sharabidinovna et.al stressed other factors that come into play when SLA is brought to the fore. They concluded that 'other factors like learning styles should not be forgotten as even in the fields of linguistics miracles may happen'. Moreover, Hyltenstam (1992) added another factor: the length of time that participants immerse themselves in the target language.

The No Critical Period Position

The standpoint held by researchers in the first group and which advocates an absolute CP for SLA came in for an onslaught of criticism on the part of researchers who proved that there are cases which show another side of the coin.

Birdsong (1992) reported interesting results from his research, which made him reconsider about the CPH. 15 out of the 20 native English speakers who began learning French when they were adults fell within the native speaker range in a grammaticality judgment test. The findings can be seen as a good challenge against the CPH.

Further, White and Genesee (1996) adopted a strict screening procedure among a group of 99 advanced second language learners of English (L1 French) and identified 45 of the learners as

near-native and the remaining 44 as nonnative. Both groups were then assessed with two measures, a grammaticality judgement test and a question formation test. (Zhu, 2011). The results of this study, like those of Birdsong's study (1992) challenge the CPH in attaining native-like proficiency in an L2.

Other researchers, Epstein, Flynn and Martohardjono (1996) dispensed completely with the CPH in SLA. Identification of older learners who achieve native-like competence in a second language challenges the Critical Period Hypothesis.

The Acquisition of Pronunciation

Pronunciation is another common aspect that is assessed in looking at native-like attainment in an L2. Studies on this issue abound (Bongaerts, Mennen & Slik, 2000; Hakuta, Bialystok & Wiley, 2003; Dollmann, Kogan, & Weißmann, 2020). Some of these studies belong to the category of the critical period position while some others belong to the No critical period position.

The Critical Period Position

To begin with, in their study of a "Critical Evidence: A test of the critical-period hypothesis", Hakuta, Bialystok and Wiley (2003) set light on the extent to which the age of exposure to English affects SL proficiency by extracting data from the 1990 U. S. Census using responses from 2.3 million immigrants with Spanish or Chinese language backgrounds. At this point, the researchers concluded that the decline in second- language proficiency with increasing age of initial exposure is a real function that describes performance in a large population base. Therefore, this study supports the CPH.

Other studies which provide influential evidence supporting the notion that a CP influences SLA with a specific focus on pronunciation include a study by Flege et.al (2006) who assessed the degree of foreign accent in 62 native Korean speakers learning English as a second language. All in all, it was found that "native Korean children... were judged to produce English sentences with milder foreign accents than the native-Korean adults" (p. 168). That is younger means better.

Similarly, Abrahamsson and Hyltenstam (2009) reported on a large-scale study of Spanish/Swedish bilinguals ($n = 195$) with differing ages of onset of acquisition (<1–47 years). The

researchers conducted interviews with the participants over the phone. Importantly, the speech samples that were judged were taken from a part of the interview in which the participants were asked to talk freely for a minute about a famous Swedish children's author, Astrid Lindgren. The researchers concluded that native-like ultimate attainment of a SL is, in principle, never attained by adult learners.

In a more recent study, Benabdelloua (2019) tested the effect of the age factor on second language pronunciation learning. To meet this objective, and on the basis of the Critical Period Hypothesis, an experiment was conducted on three groups of learners from different ages ($n=42$) at Fly High private school of languages. The first group consists of eleven (11) year old learners (before puberty), the second group is composed of thirteen (13) year old learners (age of puberty) and the third group includes fifteen (15) year old (after puberty). The participants were given a pre-test to determine their prior level, and then they had six sessions on pronunciation learning before they were given a post-test which provided an overall view on the level of improvement for each group. The findings of the experiment show that there is a huge gap in terms of improvement from the pre-test between the three groups. The researcher concluded, that the younger the learners are, the better and the quicker they attain the pronunciation of the target language.

Dollmann, Kogan, and Weißmann (2020) focused on the phonological aspect of language acquisition—the strength of the foreign accent in L2. Drawing on data from a large-scale representative data set on immigrant adolescents in Germany—CILS4EU-DE—the researchers demonstrated that there is a CP up to the age of around 10, after which obtaining oral language skills without a foreign accent becomes less likely. Additionally, they provided evidence that native-like language skills can be achieved after the CP if certain preconditions related to learning efficiency and language exposure are met. Their analyses indicated that higher cognitive abilities and exposure to a language environment with intensive and manifold contacts with native speakers can compensate for disadvantages caused by a late start in L2 acquisition.

In a nutshell, all of the above studies have one thread in common: attaining native-like proficiency in the L2 pronunciation after the

age of puberty is far-fetched. However, in a recent study, Dollmann, Kogan, and Weißmann (2020) found out that higher cognitive abilities and exposure to a language environment with intensive and manifold contacts with native speakers can compensate for disadvantages caused by a late start in L2 acquisition.

The No Critical Period Position

On the other hand, there are researchers who are against the CPH for native-like attainment in L2 pronunciation. Bongaerts et.al (1997) reported on two studies that dealt with the issue of ultimate attainment by late SL learners so as to determine whether or not some could be identified with a native like pronunciation in the SL being learned. Their results suggested that it is not impossible to achieve an authentic, native like pronunciation of a SL after a specified biological period of time.

Bongaerts, Mennen and Slik (2000) tested whether a native like accent is unattainable for those who start to acquire an L2 after the close of the critical period. Sentences read out by late learners, who acquired Dutch in an immersion programme, were rated for accent by native speakers of Dutch. The results revealed that late learners can achieve a native like accent in a SL, and that a combination of input, motivational, and instructional factors may compensate for the neurological disadvantages of a late start.

Stefanik (2001) conducted a study to “verify the validity of the CPH in the Slovak language”. Hence, 10 second language learners of Slovak were used as participants, as well as ten native speakers of Slovak. All of the second language learners had an age of arrival after 16 years old. These subjects were asked to read a short text and write a short essay. This study did not just assess the perceived nativelikeness of second language accent, but also assessed the perceived nativelikeness in a written text. The results of the study provide evidence against the strong version of the CPH.

By way of summary, it is worth noting that taking into account the above review of the studies; one is inclined to think that their analysis results in a number of integral interpretations and conclusions. Intriguingly, there is evidence against the stronger version of the CPH in SLA which suggests that SLA will not happen outside of this critical period (Birdsong,1992; White and Genesee,1996; Bongaerts, Mennen and Slik, 2000). Evidence of native-like attainment (in grammar and

pronunciation) in second language learners who began SLA after puberty refutes the CPH, and that is what was found in this review. In other words, there are exceptions to the generalization in the sense that there are adult learners who could still achieve native-like proficiency in a second language.

The Researcher's Viewpoint

Having explored the stockpile of research on the extent to which native-like attainment in learning a SL is affected by the age at which the learning process begins, it is my contention that nobody can deny the effects of age on SLA in the sense that the earlier the age of onset of L2, the more native-like an individual is prone to be. Yet, I believe that the age factor should not be separated from other co-occurring factors that do play a pivotal role in the success or failure of L2 acquisition. Moreover, individual differences lead to the emergence of fluent speakers of a given L2 despite late exposure to it, that is why they should not be overlooked when the CPH in L2 acquisition is brought to the fore.

CONCLUSION AND RECOMMENDATIONS

Carrying out a thorough analysis of some studies on the applicability of the CPH on SLA has offered valuable insights into the issue and has revealed that a unanimous agreement on the topic is far-fetched. This is due to the complexity of the process of SLA. At this juncture, it is worth noting that the need for answers to all of the questions that are germane to the issue of the CPH in SLA are still relentless.

As a matter of fact, the CPH remains the subject of a long-standing debate in linguistics and language acquisition over the extent to which the ability to acquire language is biologically linked to age. The staunch supporters of such a hypothesis claim that there is an ideal time to acquire language in a linguistically rich environment. After that time, language acquisition becomes much more difficult and sometimes impossible. Researchers, as it has been previously mentioned, have provided us with the stories of some children whose attempts to learn their native languages were in vein because they were exposed to them after the so-called the critical age. However, whether the CPH could be extended to the domain of SLA is still debatable.

Therefore, immersion in the present research work for a considerable amount of time has

disclosed that follow up studies on the CPH, be it in first or second language acquisition are recommended so as to furnish the field of psycholinguistics with the ability to unravel the intricacies of the human mind and to do justice to the distinguishable ability that humans are endowed with: LANGAUGE. After all, nothing is taken as gospel; nothing is thrown out of court without being put to the test. This "test" may always change its mechanics, but the fact remains that the changing winds and shifting sands of time and research are turning the field of language acquisition with all of its concerns into a longed-for oasis.

REFERENCES

- [1] Abrahamsson, N. & Hyltenstam, K. (2009). Age of onset and nativelikeness in a second language: listening perception versus linguistic scrutiny. *Language Learning* 59 (2), 249-306.
- [2] Benabdelloua, M. (2019). The Effect of the Age Factor on Second Language Pronunciation Learning. Unpublished Master's Dissertation, Mohammed Seddik Ben Yahia University.
- [3] Birdsong, D. (1992). Ultimate attainment in second language acquisition. *Language*, 68, 706-755.
- [4] Bongaerts, T, Summeren, C, Planken, B and Schils, E (1997). Age and ultimate attainment in the pronunciation of a foreign language, *SSLA*, 19, 447-465
- [5] Bongaerts, T. et. al (2000). Authenticity of pronunciation in naturalistic second language acquisition: the case of very advanced late learners of Dutch as a second language. *Studia Linguistics* 54(2), 298-308.
- [6] Brown, H.D. (2000). *Principles of language learning and teaching*. White Plains, New York: Pearson Education.
- [7] Dollmann,J., Kogan,I., & Weißmann, M.(2020). Speaking Accent-Free in L2 Beyond the Critical Period: The Compensatory Role of Individual Abilities and Opportunity Structures. *Applied Linguistics*, 41/5: 787–809.
- [8] Epstein, S., Flynn, S., & Martohardjono, G. (1996). Second language acquisition: Theoretical and experimental issues in contemporary research. *Behavioral and Brain Sciences*, 19, 677–758.
- [9] Flege, J.et.al. (2006). Degree of foreign accent in English sentences produced by Korean children and adults. *Journal of Phonetics* 34, 153-175.
- [10] Fromkin, V; Rodman, R; & Hyams, N. (2003). *An introduction to language*. United States: Wadsworth.

- [11] Hakuta, K., Bialystok E. & Wiley, E. (2003). Critical Evidence: A test of the critical-period hypothesis.
- [12] Hurford, J. (1991). The evolution of the critical period for language acquisition, *Cognition*, 40, 159-201.
- [13] Hyltenstam, K. (1992) Non-native features of near-native speakers: on the ultimate attainment of childhood L2 learners. *Cognitive Processing in Bilinguals*, 83(1992), 351-368. [https://doi.org/10.1016/S0166-4115\(08\)61505-8](https://doi.org/10.1016/S0166-4115(08)61505-8)
- [14] Johnson, J. S., & Newport, E.L. (1989). Critical period effects in second language learning: The influence of maturational state on the acquisition of English as a second language. *Cognitive Psychology*, 21, 60–99.
- [15] Montrul, S. (2008). *Incomplete acquisition in bilingualism: Re-examining the age factor*. Amsterdam: John Benjamins Publishing Company.
- [16] Nelson, K. L. (2012). Is it really all downhill after puberty? : The Critical Period Hypothesis in Second Language Acquisition- A review of the literature. A Master's Dissertation. The University of Tennessee, Knoxville.
- [17] Schouten, A. (2009). The critical period hypothesis: Support, challenge, and Reconceptualization, Teachers College, Columbia University, Working Papers in TESOL & Applied Linguistics, 2009, Vol. 9, No. 1.
- [18] Sharabidinovna, Z. et.al (2020). Critical Period Hypothesis in Acquiring the Second Language: The Case of Two Uzbek Students. *Journal of Critical Reviews*, Vol 7, Issue 7.
- [19] Singleton, D. (1995). *The Age factor in second language acquisition: A critical look at the critical period hypothesis*. Clevedon: Multi Lingual Matters Ltd.
- [20] Steinberg, D. (1993). *An introduction to psycholinguistics*. New York: Longman Publishing.
- [21] Stefanik, J. (2001). The critical period hypothesis and the Slovak language. *Applied Language Learning* 12 (2), 161-176.
- [22] Wen, Huachuan (2013), Chomsky's Language Development Theories: Rescuing Parents out of Dilemma. *International Journal of Learning and Development*, 3 (3), 148-153.
- [23] Zhu, W. (2011). The critical period of L2 acquisition studies: Implications for researchers in Chinese EFL context, *Journal of Language Teaching and Research*, Vol. 2, No. 6, pp. 1217-1226

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