

Is There A Critical Period For Second Language Acquisition?

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Abstract. The purpose of this paper is to study the evidence of the CPH for SLA. By reviewing the available literature and discussing unsolved issues posed, it can be concluded that a critical period for second language learning does indeed exist. This paper is expected to give some hints to SLA policy makers.

Keywords: CPH, SLA, the age factor

1. Introduction

Second language acquisition (SLA) has developed into an ever more significant subfield of linguistics over the past 20 years. Its present development in terms of methodology, theory, and findings has motivated dozens of introductions to the field and expert handbooks of impressive size and quality (Ritchie & Bhatia, 1996). Among the many individual topics that have been researched, the critical period hypothesis (CPH) has been one of the most hotly debated issues in psycholinguistics and, generally, in cognitive science (Moskowsky, 2001).

The critical period hypothesis in essence contends that the ability to learn a language is limited to the years before puberty after which, most probably as a result of maturational processes in the brain, this ability diminishes. (Moskowsky, 2001) The idea of a critical period was first introduced by Penfield and Roberts (1959), who argued that language acquisition is most efficient before age 9, when “ the human brain becomes... stiff and rigid” (p.236). Later Lenneberg (1967) claimed that around the age of puberty the brain functions of a maturing human begin to change. In short, the brain mutates from being an elastic, changeable substance to stratifying itself into two separate sides, left and right, which begin to be used in specialized functioning. Lenneberg hypothesizes that this process, also known as lateralization, closes off the brain from being able to fully comprehend and acquire language making post-pubescent language acquisition more difficult if not impossible.

The CPH should then be easily defined; however, numerous complications begin to arise while attempting to prove the hypothesis. Nowadays there seems to be a wide acceptance that there is a CP for first language (L1) acquisition, with compelling evidence that, unless they are exposed to language in the early years of life, humans lose the ability to learn a language, especially its grammatical system. Long (1990) points out, the homogeneity of the process in terms of onset, rate, sequences, age of completion, level of ultimate attainment, etc. across cultures and environments suggests that it is biologically scheduled.

It is generally accepted among psycholinguists that a critical period for L1 acquisition exists, but controversy arises when the critical period claim is extended to L2 learning. The existence of a critical period for second language acquisition (SLA) would have serious implications for foreign language teachers working with older students, not the least of which would be a need for a complete overhaul of expectations and methods of evaluation. If older students are biologically incapable of mastering another language to a very high level, then they should not be graded in comparison to native speakers. As expectations are lowered, so too should teaching methodologies be modified to promote limited proficiency, allow for a greater native fluency. Furthermore, if a critical period for L2 learning does exist, then schools should

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obviously introduce foreign languages earlier. Clearly, knowing the facts about the critical period for SLA is relevant to policy and to practice in education.

The purpose of this paper is to study the evidence of the CPH for SLA. Questions posed throughout this paper are: First, is there a critical period for learning a second language? Second, if there is a CP, is this a single CP for all aspects of SLA? And finally, what are the implications of these theories for second language teaching? Articles written by Biaystok (1997), Johnson and Newport (1989), Long (1990) and many other related researches, are reviewed and commented upon in this paper.

2. Review Of Literature

Psychologists and linguists alike have been attempting to prove or disprove the existence of a Critical Period (CP) for Second Language (SL) acquisition since the theory was posited in 1967 by Eric H. Lenneberg.

2.1 Support for CPH

There are a lot of researches that support the existence of a critical period for SLA. Among them, a study by Jaqueline Johnson and Elissa Newport still receives much attention until today. Johnson & Newport (1989) included 46 native Korean or Chinese speakers who arrived in the United States between the ages of 3 and 39 and who had lived in the country for between 3 and 26 years before testing. In their introduction they assert that any information gathered from testing the SLCPH would not be used to negate the theory in its entirety, but rather to refine the theory. This assertion led to the creation of two different ideas of the CPH. One term, "the exercise hypothesis," refers to a CHP in which the initial aptitude for languages in humans is maintained due to its use in learning a second language before it disappears. The second term spoke to the opposite; "the maturational state hypothesis" stated that no matter how frequent language aptitude was used it would become dormant and useless at the age of maturation (p. 64). Their test consisted of 276 sentences, half of which were grammatical and half of which were not. The subjects were expected to listen to the sentences on a tape and then record yes or no as to whether or not the sentence was grammatical. "The results show a clear and strong relationship between the age of arrival in the United States and performance. Subjects who began acquiring English in the United States at an earlier age obtained high scores on the test than those that began later" (p. 77). Thus, their study was one of many that supported Lenneberg's theory of language acquisition, and more directly supported the maturational state hypothesis.

In response to the study of Johnson & Newport and many other empirical studies, Long (1990) reviewed the second language research on age-related differences. In this paper he draws several conclusions that are relevant to this topic: 1. Both the initial rate of acquisition and the ultimate level of attainment depend in part on the age at which learning begins. 2. There are sensitive periods governing both first and second language development, during which both the acquisition of different linguistic domains is successful and after which it is incomplete. 3. The age-related loss of ability is cumulative, not a one-time event. 4. Deterioration in some individuals begins as early as six. In his review, Long spends much of his paper showing the flaws in the current research that purports that there is no age limitation on achieving native-like fluency. "Contrary to recent assertions in literature, there is growing evidence that maturational constraints are at work in second language learning, and that they are not confined to phonology" (p. 273). Long feels that the decline of linguistic ability while learning a second language is related not to cognitive abilities (as some propose) but to an age related device found to be before puberty. Long's review gives support to both Patkowsky (1980) and Newport and Johnson in terms of the focus on age: Starting after age six appears to make it impossible for many learners (and after age 12 for the remainder) to achieve native-like competence in phonology; starting later than the early teens, more precisely after age 15, seems to create the same problems in morphology and syntax. (p. 274)

2.2. Disconfirmation of CPH

Many researchers hold opposing beliefs about the Critical Period Hypothesis put forth by Lenneberg (1967). In contrast to the above research, Bialystok (1997) wrote a paper that looks to deny the evidence supporting the notion of a critical period for language learning.

It is undoubtedly the case that the descriptive statement regarding the general success of younger learners in acquiring a second language is true, but from which “nothing inevitable follows”. In other words, there is no evidence for an abrupt change in language ability after puberty, only for a very gradual decline which ‘projects well into adulthood’. Such findings can hardly be seen as evidence in favour of a biological constraint on language ability which ends around puberty or shortly afterwards.

Furthermore, Bialystok rather asserts that the “correspondence between language structures in the first and second language is the most important factor affecting acquisition” (p. 116). She believes that successful language learners as adults can achieve the same success as children if they make the time and the space to learn and if they possess the motivation from which children usually benefit.

Bialystok reviews research by Johnson and Newport (1989), yet questions their findings based on the following questions. Bialystok questions the subjects used, the structure of the research and the tasks they were given to complete. First, Bialystok cited a study (Bialystok & Hakuta, 1994) in response to the subjects used that reexamines the findings by Johnson and Newport. Bialystok and Hakuta reorganize the two segments of learners (those younger than 15 and those older than 15) into one group. Upon this re-examination, Bialystok asserts that the level where language noticeably declines is around the age of 20. This would mean that puberty, or a pre-puberty finding for a decline in language acquisition is incorrect. Bialystok and Hakuta claims that the younger learners perform similarly to each other, whereas the adult learners have a greater variety in performance. Second, Bialystok negates the structures that gave the learners difficulty. She finds that the ability to detect errors in some, but not all of the structures did not vary with age. This, Bialystok feels, disproves the findings as well. Third, the method gives pause to Bialystok. She believes that the method of testing produced different results in two studies. This varied outcome, Bialystok believes, accounts for evidence that the outcomes could not be attributed to age factors.

Birdsong reported that some late learners were as proficient as younger learners on grammaticality tasks. Bongaerts found that late learners could achieve pronunciation levels at the same level as native speakers. Juffs and Harrington provide counter evidence to that of researchers such as Johnson/Newport and Patkowsky, by showing that some adult learners can achieve similar levels of success as younger learners.

Generally speaking, Bialystok looks to the lack of adult success on outside factors other than age. Bialystok asserts that the relationship between languages is the reason for differences in attainment.

3. Discussion

Given the above reviews, we could say these results provide fairly strong evidence for a critical period for a second language acquisition, at least in the acquisition of syntax and phonology. After the age of fifteen, there exists a regressive, diminished capability in learners to acquire a language. In certain linguistic domains, such as phonology, this may happen as early as the age of six. These findings present educators with serious implications for second language teaching. The following discussion is an attempt to answer the questions posed at the beginning of this paper.

3.1. Is There A Critical Period For Learning A Second Language?

The related findings seem to overwhelmingly state that there is indeed a critical period by which learning should commence in order to afford the learner with the chance to achieve native-like capabilities. It has been documented repeatedly that learners achieve better results depending on the age at which they begin to learn a second language. Even though some researchers try to attribute this phenomenon to other factors, it cannot be neglected or denied that there is an innate age-related factor.

According to Bialystok, late learners of a second language have used their native language significantly longer than early learners, and therefore do show a high proficiency in that language. That is to say, that that interference between first and second language factors affects second language acquisition in adults. However, this does not necessarily imply that difficulty in acquiring a second language is due to interference rather than to a critical period. If interference between two languages is the cause, why then does it not provide an overwhelming obstacle for sequential bilingual children, who have been seen to reach native-like proficiency in both languages?

Also, Bialystok re-examine Newport and Johnson's (1989) study revealing that some adults had better success with some structures to mean that there is no critical period for second language learning. But couldn't the success of some adults over their younger counterparts be attributed to the possibility of advanced cognitive development, instead of the dismissal of an age-related device?

Furthermore, Bialystok concludes that because Birdsong, Bongaerts, and Juffs/Harrington, provide contradictory claims to Patkowski and Johnson and Newport, that some adult learners achieve native-like competence, there is no age-related device. Although this data is important, it is not definitive in refuting the existence of a sensitive period for language learning. These examples could merely be the exceptions, not the rule. Simply because a possibility in the general population is documented, it does not mean all other empirical studies showing overwhelming patterns should be disregarded.

3.2. Is This A Single CP For All Aspects Of SLA?

There is much disagreement in the literature about the precise onset of a decline in the ability to learn a language. Patkowski would argue that the age is 15 for morphology and syntax, while Newport/Johnson claim that for phonology it begins at age 6. Others, like Bialystok, hold that the delineation begins at the age of twenty. Because there is many controversial ideas among researchers on this point, it is difficult to assert an exact moment when a decline commences.

It seems more acceptable to suggest that there are different ages at which learning for different aspects of language (such as phonology versus syntax). In the language acquisition studies, a number of investigators have found different ages of decline in plasticity for syntax versus phonology or for other aspects of language (Flege, Yeni-knoshian & Liu, 1999). The results indeed suggested multiple critical periods for different aspects of language (Flege, Yeni-Knomshian & Liu, 1999; Scovel, 1998; Long, 1990). According to Newport, Bavelier & Neville (2001), we can find even more distinctive contrasts between the formal (phonological or grammatical) aspects of language versus those that deal with meaning (semantic or lexical), where the former show strong changes in acquisition over age, while the latter appear to show little or no effect of age of learning (Weber-Fox & Neville, 1996; Johnson & Newport, 1989)

At present, it is not clear whether differing critical period effects always suggest that distinct subsystems within a language system exists due to multiple critical periods, or that effects differ simply due to difficulty of one structure over another. The contrast in developmental plasticity between formal (phonological and grammatical) versus semantic aspects of language appears to be widespread and consistent with other types of evidence suggesting separately developing subsystems (Newport, 1981; Newport, Gleitman & Gleitman, 1984). But it is anything but clear whether different critical periods for phonology and syntax exists. Unlike syntax, does phonology suggest a possibility for an earlier loss of plasticity due to a different critical period? Or does it show these differences because the aspects of phonology we have tested are more difficult than those we have tested for syntax? Future research will need to consider how to distinguish a contrast across subsystems, displaying different developmental timetables and types of plasticity, from effects of stimulus strength and complexity (Newport, Bavelier & Neville, 2001)

3.3. What Are The Implications Of These Theories For Second Language Teaching?

According to the above reviews, research in the area of critical period effect is only in its infancy, especially in second language acquisition. It is clear that variability exists as to how early experience may affect brain organization. This variability may occur both within and between systems. In addition, within systems in which there are critical periods, these periods can differ for specific subsystems. With this variability in mind, some implications for researches in SLA are clear. For example, different windows open at different times for learners. Thus, language teachers need to know learners' developmental process so as to know when it is and is not appropriate to focus on teaching specific systems or subsystems of language. Although abundant research has been carried out regarding learners' developmental process, research still needs to clarify the timing of windows of opportunity for certain systems or subsystems, and should be made available to language teachers and learners.

4. Conclusions

By reviewing the available literature and discussing unsolved issues posed, it can be concluded that a critical period for second language learning does indeed exist. It should be noted that some of recent researches show that there are different critical periods for different aspects of acquisition of language, rather than a single one for all dimensions of SLA. The idea of multiple critical periods refine CPH in some specific respects instead of negating the theory in its entirety, because language is not a unitary phenomenon and does not support the notion of a single CP for all aspects of language. Maybe in the future we can redefine CPH with Critical Periods Hypothesis rather than Critical Period Hypothesis?

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