LANGUAGE IN INDIA

Strength for Today and Bright Hope for Tomorrow

Volume 14:1 January 2014
ISSN 1930-2940

Critical Period Hypothesis

Talal Musaed Alghizzi, Ph.D. Candidate

==========

Introduction

The general term *language*, used to refer to "a system of communication" (*Oxford Advanced Learner's Dictionary*, 2010, p. 834), is a common feature in all creatures: human beings, animals and plants species. However, in its more specific meaning - "the method of communication, either spoken or written, consisting of the use of words, their pronunciation, and the method of combining them used and understood by a human community" (*Merriam Webster's Collegiate Dictionary*, 2008, p. 654) - it is one of the capabilities that differentiate humans from nonhumans.

Linguistically speaking, human language is unique. First, because it is learned and learnable. Construction and usages abide by certain rules of morphology, syntax, semantics, and pragmatics, rather than being biologically inherited as is the case for animal and plant species in the general meaning of the word. In addition, some of its elements are of an infinitely-flexible nature, constantly changing. This second characteristic is evidenced by observing the evolution of words, for example. Words - "single units of language" (*Oxford Advanced Learner's*

Dictionary, p. 1712) - are flexible, in the sense that native speakers of any language have the ability to invent new lexicons or simply give an old word a new meaning. The English word "nice" now means "pleasing, agreeable, polite, and kind", whereas in the 14th century, it meant "wanton, and dissolute" (*Merriam-Webster Dictionary*, 2011).

Vital and Intriguing Investigation

For linguists, the investigation of human languages, which are estimated to be "over 6,909 known living" (*Ethnologue Languages of the World*, 2011), is vital and intriguing. This is not only because of the aforementioned characteristics but also because of the crucial role they play in everyday communication. Thanks in large measure to technology, the world is becoming an ever smaller village but one that uses different languages.

Linguists feel that one of their tasks, analyzing these languages, will facilitate their learnability for nonnative speakers and thereby make their use in communication more widespread, whether in politics or business, or even for just for the sake of personal enjoyment. Consequently, regarding the acquisition of a first language (L1), and a second language (L2), and the factors which affect its process, their analyses and investigations have led to different hypotheses/theories, one of which is the Critical Period Hypothesis (CPH).

Critical Period Hypothesis

CPH is considered to be one of the most significant hypotheses because it is believed to play an important role in the success, effectiveness, and probably completion of the acquisition of any language, whether nonhuman or human. For example, one species of birds, chaffinches, are reported to sing their first simple versions of their songs within hours of hatching but have to develop the complex versions of those songs in order to intermingle with the others. They do this by listening to adults, and within an average time limit of ten months (Fromkin, Rodman, and Hyams, 2007, p. 56) they reach proficiency. The few that do not are shunned and lead an isolated life. However, when it comes to human languages, researchers have different perspectives and positions towards CPH which will be elucidated in the rest of the essay.

In L1, there is a consensus among researchers that the CPH hypothesis is accurate. The reason for this is there are different types of evidence, such as neurological studies on patients, and other studies on feral and deaf children and on Down syndrome subjects, all of which provide similar results: i.e., the hypothesis has a tremendous effect on language acquisition. For example, in neurological cases, it has been reported and proven that there is substantial plasticity in the two hemispheres of the brain only during the early stage of language development.

This can be seen in children who had begun their language acquisition but subsequently underwent under a procedure such as "hemispherectomy". In cases where the left hemisphere was surgically removed, the right hemisphere took over its duties and functioned for language. Although those children experienced "an initial period of aphasia", they then reacquired the linguistic system and showed "many development patterns" that were as normal, accurate, and complete as other healthy children (Fromkin, et al., 2007, p. 45). On the other hand, adults, who had the same operation suffered from a severe language loss (Penfield and Roberts, 1959).

Two Versions of the Critical Period Hypothesis

Nevertheless, there are two versions of the hypothesis. The "weak version" maintains that in order to have a full attainment, language acquisition must start within the onset of the critical period, and that after its offset "language learning potential declines markedly (not) entirely". On the other hand, the "strong version" states that after the offset, there is no continuation of language acquisition/learning (Singleton, 1989, p. 38). As a result, these two versions caused researchers to propose different positions as when the CPH starts and when it ends/declines.

For Lenneberg (1967), considered as the first to link the CPH to language acquisition, his own observations of some deaf children, as well as reexamining Basser's (1962) survey on patients with hemispherectomy (pp. 152-154), led him to conclude that the critical period starts at two and ends at puberty. Yet, there are many other studies that dispute his conclusion.

With respect to the onset of CPH, research such as that of Streiter, 1976; and Crystal, 1986, shows that infants start recognizing their L1 - perhaps the onset of the critical period - at a very early stage. In Streiter's (1976) phonological experiment, the focus was on whether a group of Kenyan infants, whose average age was 63 days and who were "reared in a home where the only language being spoken was Kikuyu", was capable of differentiating between pre-voiced and voiced stops. The technique used for collecting the data was "a sucking habituation". The analysis of the results indicated that infants showed a "particular sensitivity to the pre-voicing-simultaneous voicing transition" (as quoted in Singleton and Ryan, 2004, p. 34).

In respect to the end of the critical period, many researchers have proposed three methodologies for refuting Lenneberg's claim. One such method is to duplicate the study used by Lenneberg (i.e., Basser, 1962) but conclude using another age, for the end, "five years" in the case of Krashen (1973, p. 67). Another method questions the validity and the reliability of using general neurological research as evidence of the whole critical period since many studies: (Dennis, 1980; Robinnson, 1981; Gilbert et al., 1985, as cited in Snow, 1987), prove that the languages of children with head injuries are as problematic and incurable as adults with same injury.

A third method is conducting studies that investigate language acquisition/learning after puberty; i.e., the progression of linguistics aspects: syntax, semantics, morphology, and pragmatics of individuals; adolescents and adults (Kamhi, 1987, as quoted in Nippold, 1998, p. 81). For example, Nelson and Rosenbaum (1968; 1972) asked around 2000 American adolescents to list the slang words they used for school, police, popularity, etc. The results showed that boys and girls invented more slang words if the topic interested them (i.e., boys: cars, money, etc.; girls: clothes, appearance, etc.), and on unpopular topics than on popular ones. They also found that general knowledge of slang increased with age.

Second Language: Two Different Positions towards CPH

In L2, there are two different positions towards CPH. The first is to support it by positing that children are better at learning L2 than adults are. Many of the studies with this hypothesis were conducted to test various language skills. Some of these took place in formal settings, as in

the case of Yamada et al., (1980) who investigated learning success of list of 40 mono- and disyllabic English words of 30 Japanese students -7, 9, and 11 years -, and found that "the older the age the lower the score" (p. 245). Others, however, were conducted in naturalistic settings, where immigrants were considered the best qualified kind of participants. Nonetheless, in those studies, researchers have less agreement on whether the participants' length of residence in the host country has an effect on their level of fluency. In the case of Garcia (1969,) who researched the level of accent of 71immigrated Cuban participants, ranging from 7 to 19 years old, living in California for about five years, it was found that the younger the child entering the country, the higher possibility of a native-like accent, whereas the length of stay was not a crucial variable.

In another example, Hyltenstam (1992) conducted a study on informants who immigrated to Sweden before puberty (one case was after) and who had resided there for more than five years (one case was three years). All of the participants were tested on their knowledge of the grammar and lexis of the Swedish language in speaking and writing and their results were compared to a control group of Swedish native speakers. The final comparison shows that the number of errors in grammar and lexis by participants who arrived in Sweden after the age of seven is in a higher range than the number of errors committed by the control group. Moreover, the number of errors by those who arrived in Sweden before age six overlapped with those of the other two groups. This is an indication that age plays an effective role in L2 Learning, and that the length of participants' residence was reported as a significant factor.

The second position towards CPH is rebuttal, done by positing that the older the L2 learners are, the more successful they will be. Researchers with this intention have two methodologies, depending on whether the studies they are conducting - in a very short period of time - test a particular language skill in formal or natural settings. The first methodology involves having two or more kinds of participants (i.e., of different ages) in order to draw comparisons between their results.

For example, Asher and Price (1967), conducted an experimental study of 96 pupils from the2nd, 4th, and 8th grades, and 37 undergraduate students. For three training units, participants listened to taped commands in the Russian language, which they had no prior experience of, and the researchers watched them interacting with an adult model. Half of the participants observed whereas the rest imitated the model's actions. After each session, each one of the participants had an individual memory test in which he/she was required to obey the Russian commands heard during training, and "novel" ones, which were recombination of elements in the learned commands. The results show that adults outperformed the children and adolescents in linguistic complexity (as quoted in Singleton and Ryan, 2004, p. 80).

The second methodology consists of conducting/quoting studies with only one type of subjects (i.e., one/two groups of similar ages) to prove how superior adults or how inferior children are in L2 learning. For example, Harris's (1984) survey of primary school learners of Irish, which is part of the curriculum from the 1st grade onwards in the Republic of Ireland, shows that the majority were learning it as a second language. The results indicate that only a third of these pupils had mastered the points tested which were based on syllabus objectives. Also, Ioup et al., (1994) conducted a study on two participants who learned Arabic as adults but

in an Arabic-speaking environment and it was found that the participants had attained levels of performance close to that of native Arabic speakers in a diverse range of areas.

Furthermore, as far as my knowledge is concerned, the best evidence that might support the above mentioned hypothesis is the outcome of "Barcelona Age Factor Project". The aim of this project is to determine the best age to introduce a foreign language to schoolchildren. The participants of the project were "Catalan-Spanish learners, to whom English was introduced as a third language between two and six years of age, at age eight, age 11, age 14 or beyond age 18". The results showed that under equal exposure to the language, older beginners outperformed younger beginners in "written tests,…oral story-telling, and oral interaction". This indicates that the later exposure to a target language is, the better the outcome will be (Munoz, 2003a, 2003b, as quoted in Singleton and Ryan, 2004, p. 77).

Conclusion

All in all, it is my belief that in order for the acquisition of any language, whether L1 or L2, to be as natural and spontaneous as the language of native speakers - i.e., achieving perfect control of it and fluency - it has to take place within a specific time limit. After a certain point, the ability will most likely deteriorate gradually, leading to either less proficient language ability or a distorted one. This means that I support the weak version of CPH instead of the strong one, which indicates that language acquisition/learning does not continue and is not possible after a certain age. My reasons for suspecting the latter's plausibility are not only that the above cited studies refute it, but also the fact that in any language "it is difficult to identify any point in the lifespan when the process of (its) development is truly complete" (Nippold, 1998, p. 1).

In the studies that are cited above, and others that focus on L1, almost all the researchers agree on the existence of CPH. Nevertheless, in their interpretations of the studies they conducted or their reexamination of others' studies, they reach different conclusions regarding when the critical process starts and when it ends.

Hence, I will propose my own hypothesis, namely that the critical process begins on the first day of a child's life and lasts until puberty. Research that was conducted with both feral children and normal children of deaf parents all support my hypothesis. For example, "Isabelle" who was born of an illiterate mute mother and who, because she was illegitimate, was kept isolated in an attic for years, was found in the 1930s when she was 6 years and a half. At that time, she was not capable of producing standard language; however, after two years of intensive language training by specialists, she acquired fluency as good as any other child her age (Sparknotes, 2011).

In addition, "Genie" was one of the feral children who grew up in the wilderness for several years until her discovery in 1970. Then, she was 13 and 9 months but had no language. After 7 years of rehabilitation and receiving intensive courses in language, she relearned her native language, but her syntax and morphology never fully developed (Fromkin, et al., 1974; Curtiss et al., 1975). These cases prove that the reason Isabelle reacquired the language perfectly is that she was within the time limit of language acquisition, a limit which Genie had exceeded.

As regards L2, the position of researchers who try to deny the existence of CPH in the field is very unsubstantial. For researchers who support the hypothesis, phonological studies are considered as one of their best arguments against their opponents. The strongest evidence is that children in general are superior in acquiring/learning accents of a target L2 language as fluently as its native speakers; this could well be because the organs involved in pronunciation are still flexible. Nonetheless, the instances of adults acquiring an L2 and sounding like native speakers are "few and far between" (Brown, 1994, p. 56). On the other hand, studies that have been conducted to test the level of syntax, which has always been used to prove either that adults can reach the level of native speakers or that they are superior to children, are problematic. The reason for this is that researchers will find it difficult to exclude the Fundamental Difference Hypothesis (Bley-Vroman, 1988). In other words, no adults can reach the level of a native speaker in syntax unless he/she relies on their "explicit, analytical, (and) problem-solving capacities" (Dekeyser, 2000, p. 518), elements children don't yet possess.

Finally, as mentioned before, one of the problems that makes some researchers - supportive of CPH - speculate upon the reliability of all of their counterparts' studies is the fact that these have been cross-sectional. If they had been longitudinal, the results would have been different. For example, Snow and Hoefnagel-Hohle (1978) investigated the L2 abilities of 81 native speakers of English living in the Netherlands. Those participants were divided into two groups, according the length of their living abroad before and within the study. Those who had just arrived were labeled as beginners, whereas the ones who had spent 18 months in the country were called advanced. The former were tested 3 times at 4 to 5 month intervals while the latter were tested once. The tests were in Dutch pronunciation, morphology, sentence translation, sentence repetition, sentence judgment, auditory discrimination, vocabulary, and story-telling and comprehension. Although older learners outperformed younger learners on the first test, the results of the second and the third tests indicate that not only did the younger learners begin to catch up with the advanced group, but, in some cases, they had overtaken the older learners.

Inasmuch as I wanted to refute the CPH in L2 - obviously because of my position of being a nonnative speaker of English, one who has been learning it over 18 years – the outcomes of the research papers which support it are very difficult to refute. Yet, these results have actually been a relief, in the sense that they have lifted a weight from my shoulders. Given my circumstances, I know now that I will never to able to achieve the full fluency of a native speaker. While this does not mean that I will cease all my efforts to try to improve, it has freed me from expecting any unrealistic outcomes, and it allows me to less harsh on myself regarding my own shortcomings. Whereas difficulties may be overcome, attempting to attain the impossible can result only in frustration.

==========

References

Asher, J. J. and Garcia, R. (1969) 'The optimal age to learn a foreign language' **Modern Language Journal** 53/5, pp. 334-341 [online] Available: http://0-www.jstor.org.library.ucc.ie/stable/pdfplus/323026.pdf [Accessed 7 Dec., 2011].

Bley-Vroman, R. (1988) **The Fundamental Character of Foreign Language Learning**, in W. Rutherford and M. Sharwood Smith (Eds.) *Grammar and Second Language Teaching: A book of reading* Rowley, MA: Newbury House.

Brown, H. D. (1994) **Principles of Language Learning and Teaching**, 3rd edition, New York: Prentice Hall.

Crystal, D. (1986) **Prosodic Development**, in P. Fletcher and M. Garman (eds.) *Language Acquisition: Studies in First Language Development* Cambridge: Cambridge University Press.

Curtiss, S., Fromkin, V., Rigler, D., Rigler, M. and Krashen, S. (1975) **An Update on The Linguistic Development of Genie**, in D. Dato (ed.) *Georgetown University Round Table on Languages and Linguistics* Washington, DC: Georgetown University Press.

Dekeyser, R. M. (2000) 'The Robustness of critical period effects in second language acquisition' **SSLA** 22, pp. 499-533 [online] Available: http://ruccs.rutgers.edu/~karin/550.READINGS/SYNTAX/CRITICAL.PERIOD/DeKeyser.pdf [Accessed 8 Dec., 2011].

Ethnologue Languages of the World (2011) [online] Available: http://www.ethnologue.com/ [Accessed 5 Dec., 2011].

Fromkin, V., Rodman, R. and Hyams, N. (2007) **An Introduction to Language**, 8th edition, United States of America: Michael Rosenburg.

Harris, J. (1984) **Spoken Irish in Primary Schools: An Analysis of Achievement** Dublin: Institiuid Teangeolaiochta Eireann.

Hyltenstam, K. (1992) **Non-Native Features of Near-Native Speakers: On the Ultimate Attainment of Childhood L2 Learners**, in R. Harris (ed.) *Cognitive Processing in Bilinguals*, Amsterdam: Elsevier.

Ioup, G., Boustagui, E., Tigi, M. and Moselle, M. (1994) 'Reexamining the critical period hypothesis: A case of successful adult SLA in a naturalistic environment' **Studies in Second Language Acquisition** 16, pp. 73-98.

Krashen, S. (1973) 'Lateralization, language learning and the critical period: Some new evidence' **Language Learning** 23, pp. 63-74 [online] Available: http://www.garfield.library.upenn.edu/classics1986/A1986A270200001.pdf [Accessed 7 Dec., 2011].

Lenneberg, E. (1967) **Biological Foundations of Language** New York: Wiley.
Merriam Webster's Collegiate Dictionary (2008) 11th edition, Massachusetts: Merriam-Webster, incorporated, Springfield.

Merriam-Webster Dictionary (2011) [online] Available: http://www.merriam-webster.com/dictionary/nice [Accessed 5 Dec., 2011].

Nelson, E. and Rosenbaum, E. (1968) 'Sociolinguistic dimensions of youth culture', paper presented at the meeting of the American Educational Research Association, Chicago.

Nelson, E. and Rosenbaum, E. (1972) 'Language patterns within the youth subculture: Development of slang vocabularies' **Merrill-Palmer Quarterly** 18, pp. 273-285.

Nippold, M. A. (1998) **Later Language Development: The School-Age and Adolescent Years**, 2nd edition, Austin: Pro-Ed.

Oxford Advanced Learner's Dictionary (2010) International student's edition, 8th edition, Oxford: Oxford University Press.

Penfield, W. and Roberts, L. (1959) **Speech and Brain Mechanisms** Princeton, NJ: Princeton University Press.

Singleton, D. (1989) **Language Acquisition: The Age Factor** Clevedon: Multilingual Matters.

Singleton, D. and Ryan, L. (2004) **Language Acquisition: The Age Factor** Clevedon: Multilingual Matters Ltd.

Snow, C. (1987) **Relevance of the Notion of a Critical Period to Language Acquisition**, in M. Bornstein (ed.) *Sensitive Periods in Development* Hillsdale, NJ: Laurence Erlbaum Associates.

Snow, C. and Hoefnagel-Hohle, M. (1978) 'The Critical period for language acquisition: Evidence from second language learning' **Child Development** 49/4, pp.1114-1128 [online] Available: http://0-www.jstor.org.library.ucc.ie/stable/pdfplus/1128751.pdf?acceptTC=true [Accessed 7 Dec., 2011].

Sparknotes, (2011) **Socialization** [online] Available: http://www.sparknotes.com/sociology/socialization/section1.rhtml [Accessed 8 Dec., 2011].

Yamada, J., Takatsuka, S., Kotake, N. and Kurusu, J. (1980) 'On the optimum age for teaching foreign vocabulary to children' **International Review of Applied Linguistics in Language Teaching** 18, pp. 245-247.

==========

Talal Musaed Alghizzi
(Ph.D. Candidate at University College Cork, Ireland)
Al Imam Mohammad Ibn Saud Islamic University (IMSIU)
College of Languages and Translation
Riyadh
Saudi Arabia
t-alghizzi-ie@hotmail.com