



The Research on Critical Period Hypothesis in Pronunciation Learning in Second Language Acquisition

Dan Pang

Renqiu City No.8 Middle School, Renqiu City, Hebei Province, 062550, China.

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Corresponding author: Dan Pang, Renqiu City No.8 Middle School, Renqiu City, Hebei Province, 062550, China.

Abstract

Nowadays English learning as an important course or popular behavior has been a normal phenomenon, especially in some first-tier cities. The pronunciation acquisition, however, is a crucial part in this learning procedure. It is well-known that there are many elements that can influence the pronunciation learning result and learning efficiency. Among these elements, age is a great controversy one which is reflected on whether it can affect learners' learning effect when they learn a second language. There are many theories about this element. And of all the theories, the Critical Period Hypothesis, which emphasized there is a special period when people can learn language even pronunciation fast and accurate, is the most controversial. In this regard, the article will elaborate some corresponding views about the Critical Period Hypothesis and explore whether age can influence the learning ability and the learning result of second language pronunciation learning through an experiment. In this process, both quantitative and qualitative studies will be undertaken. Quasi-experimental research is used to set the situation of comparison. Questionnaires and interviews are applied to get some useful information. And the conclusion whether age can react on pronunciation learning will be received at the end of the paper.

Keywords

The Critical Period Hypothesis, Pronunciation, Second language

1. Introduction

Language learning plays a crucial role for everyone to integrate into this global development period. Pronunciation learning is undoubtedly one of the most important parts of language acquisition. We can't even reach the basic goal to talk with others. And it makes no sense when you can't talk with a language. However, pronunciation learning is affected by many factors, for example, the age, gender, personality, environment and motivation. If we can find a better way or some positive elements which would promote the learning process, it can absolutely improve the second language pronunciation learning and teaching in China. The Critical Period Hypothesis Which emphasized the impact of age in second language pronunciation learning process believes that there is a special period before adolescence when the acquired pronunciation of a second language can resemble the accent of a native speaker. About this theory, some scholars believe that adults and children learn a second language at the same rate and achieve the same results. Adults may even perform better because they have better cognitive abilities than children. While other scholars think that

children may have more advantages in some aspects, for example in phonology learning. Even some believe that the younger the more advantage in the second language the learners have to achieve a higher level in the ultimate attainment, for example, they have no foreign accent sounds, etc. Under this background, an experiment would be conducted in this article to verify whether there is an age advantage in pronunciation learning.

2. Literature Review

2.1 Critical Period Hypothesis

This hypothesis suggests that language can be acquired naturally and easily during a specific period of childhood, after which the brain's processing of language input changes.

This concept of the Critical Period Hypothesis, is first developed in biology, refers to the Period in an individual's development when environmental influences play their greatest role. During the critical period, under the influence of appropriate environment, individual behavior is acquired particularly easily and develops particularly rapidly. There is a lot of research evidence that organisms do have critical periods in the formation of certain behaviors.

This view was later accepted by Lenneberg in the 1960s and used in the field of second language acquisition, leading to the influential critical period hypothesis. It is believed that language is the product of the brain, and the development of language ability is strictly restricted by the physiological basis of human. After the critical period, when the human brain is fully developed and the nervous system is no longer flexible, language learning becomes more difficult. This hypothesis leads many researches from the perspective of different disciplines, different aspects of using various methods and experiment on the critical period hypothesis in-depth study of this problem. The focus of the research is mainly around the second language learning and whether there is a crucial problem, namely the starting age of second language learning is directly related to learning the final result or good or bad.

2.2 Different views on second language acquisition

The critical period has always been the focus of language acquisition theory research. In the decades since the emergence of the critical period hypothesis, a large number of scholars and experts have hotly debated whether the critical period in language acquisition will affect people's second language acquisition. To prove their point, the researchers conducted extensive experiments. However, even today, there is still no consensus on the issue.

2.2.1 The support views of Critical Period Hypothesis

Based on Lenneberg's exploration of the critical period hypothesis from a neurological perspective, Scovel proposed that the period before adolescence is the critical period when the acquired pronunciation of a second language can resemble the accent of a native speaker (Scovel, T., 2004).

Neurolinguistics and neuroscience believe that before completion of brain lateralization, the two cerebral hemispheres is the balance of power. There exist two language areas, one each in left and right hemisphere, left hemisphere for the storage of mother tongue, and the right hemisphere for receiving a second language, but as the brain function of specialized organizations to complete, right brain function is relatively weak in the disappearance of the language area.

Mature theory believes that children, have an ability for learning language with great facility and minimal effort. This means that early age is an important element in native- proficient second language acquisition.

Johnson and Newport are regarded as the best evidence to support the critical period hypothesis at the second language acquisition field. In their crucial influence on second language acquisition study, Johnson and Newport, admitted that the critical period of second language acquisition does exist, they think that the ability of people after 6 years to learn a foreign language begins to decay (Johnson, J. & Newport, E., 1989). This conclusion is from the result of comparing 46 Chinese and Koreans of different ages who began to learn English as a second language. The subjects are American university students and staff. They have lived in the United States for several years. In the study, each participant should participate a test to examine English lexical and syntactic 12 grammar rule. According to the results, the study found that who began to learn English earlier in the United States get a better score than those who learn lately.

2.2.2 The opposed views of Critical Period Hypothesis

Since the critical period hypothesis was proposed, there have been many opposing views in the field of linguistics. Ellis made it clear that the view that "the younger the age of language acquisition, the easier language acquisition" was not completely correct, and was only partially correct at best (Ellis., 2008). In fact, the advantage of being young in language acquisition is only phonetic. He conducted a set of experiments, finding that the speed of learning a second language in 12-15 age group is better than 15 years of age or older. And the adult group are better than 6-10 age group.

Krashen strongly opposed the Critical Period Hypothesis. He thinks that comparing with age, motivation is a more important element to influence the degree that a learner's English learning. This motivation may consist of a strong self-confidence and low anxiety of the weak learners. He also thinks the complex of input and development of a person's ability of tendency affect the language acquisition, too (Krashen, S., 1981).

2.2.3 Critical Period Hypothesis on Pronunciation and Intonation

By reviewing the research on the influence of age on second language acquisition Matsuoka & Smith found that the evidence for and against was evenly divided. Language acquisition is a complex process with different components. Different parts, such as pronunciation, grammar and semantics, are acquired in different ways. In addition to different mother tongue backgrounds and different external language environments, it is unlikely that a unified critical period of second language acquisition exists, but this does not rule out the possibility of sensitive period (such as pronunciation) of some language components.

In terms of second language pronunciation acquisition, Asher & Garcia's research on the English pronunciation of Cuban immigrants in the United States proved that the earlier you learn the second language pronunciation, the better it is, until recent years, the research on whether there is a critical period in second language pronunciation acquisition has been continuous and the debate has also been continuous (Asher & Garcia, 1969).

In order to prove the existence of the critical period for second language phonological acquisition, researchers used a large amount of data and experiments to examine the relationship between the degree of second language accent and the age at which it reached the second language country.

Seliger et al. investigated more than 300 immigrants who had immigrated to the United States and Israel for many years, and found that 85% of the immigrants who arrived in the destination country before the age of 10 did not have an accent, and 92% of the immigrants who arrived after the age of 16 did.

Fathman surveyed 200 immigrant children living in Washington and found that children aged 6-10 had better pronunciation than children aged 11-13.

Oyama surveyed 60 Italians who had been in the U.S. for five to 18 years and arrived between the ages of 6 and 20. The results showed that the earlier immigrants arrived in the United States, the closer their accents were to those of Americans.

In these studies, there were some younger immigrants who still had accents, but their voices were still much better than those of immigrants who arrived in second-language countries after adolescence. The conclusion remains that the younger the age, the better the pronunciation.

Of course, there must be some opposing views. Bongaerts et al. compared the English phonetics of 10 native English speakers, 11 successful native Dutch English learners and 20 non-native Dutch English learners. All non-native English speakers started learning English at age 12 or later. The results showed that the native speakers of English had better pronunciation than the other two groups. However, the phonological scores of this group of successful learners were very close to those of native speakers, with five of them considered to have reached the level of native speakers. Bongaerts studied the phonological level of older advanced foreign language learners whose mother tongue was Dutch and found that three adult learners pronounced without any accent. But actually, these successful adult learners are most successful learners before.

3. Assumption

According to the literature review, the supporters believe that the critical period does exist in second language acquisition, especially in phonology. While the opponents think there is not a particular time when the learners can learn a second language easily. But most opponents propose the grammar learning as a counter-examples. This article pays attention to the pronunciation and intonation learning. The view is that there is a critical period in pronunciation learning of the second language acquisition.

4. Proposal

4.1 Research problem

- a. Do people of different ages have the same ability of learning the pronunciation of a second language?
- b. Do people of different ages can achieve the same level of pronunciation as native speakers?

4.2 Research design

The study will be undertaken within 40 people of four age groups. Group one are children of 4-7 years old, group two are students of 8-12 years old, group three are students are children of 13-19 years old and the adult group of 20-25 years old. The four groups are going to take an English lesson. In each lesson, every group is going to learn 5-6 key words and a book about these words. Several books conclude some words that are difficult for Chinese to pronounce, for example the words contain /r/, /rj/ and /dʒ/. And they will be taught several books used to check their intonation in reading. The class is taught by English native speakers. This experiment will last for a month.

4.3 Methods

A mixed-methods research approach combining both quantitative and qualitative studies will be undertaken. Quasi-experimental research in the form of pre and post tests will be conducted to the experimental and the control groups to evaluate the learning gain and the efficacy of the teaching experiment.

A student questionnaire will be designed to cover students' basic information, the age, gender, kindergarten, English learning history, the learning effect (including the accuracy of the pronunciation, the difficulty they feel to pronounce the complex key words correctly). The teacher will also have a questionnaire about the difficulty for him to teach the students to pronounce the key words correctly and their interaction.

Interviews will be conducted with the students and the teacher. The students will be asked if they can listen and pronounce the word easily; the teacher will be interviewed if the students can make the correct sound, too.

4.4 Participants

The subjects will consist of in total forty students of four groups. They are all Chinese and has never go abroad before. This is also their first foreign English class - a class taught by a native speaker. Each group is going to take a lesson in which the three groups learn some words and sentences lesson. These words may contain the same difficult sounds to ensure the fairness of the experiment.

The children in group one is all young learners at the age from four to seven who are kindergarden students and lower grade of primary students. The students in group two are young learners at the age from 8 to 12. They are primary school students. The third group are students of junior high school while the last group are adults. They have never had an English class taught by a foreign teacher. They can understand most of the teacher's order in the class and can answer very easy questions. They are at all normal level at their age.

A standardized English language test will be administered to each group at the beginning and the end of the teaching experiment to examine the learning gains of each group and the efficacy of the teaching experiment. Also, the result of the interviews of the students and teachers will be added to evaluate the experiment.

The English teacher who is a native speaker has rich experience of teaching English for different ages. He has been teaching English for more than 10 years and are keen on pronunciation teaching. The teacher is required to use the suitable words but with same difficult sounds in different groups to ensure the fairness of the research.

The assistant can record the teaching process and data, which is used to test the ability of learning the pronunciation of different groups.

The team leader is an experienced teacher, responsible for the teaching quality assurance of the program and supportive of any innovations in teaching and research.

4.5 Materials

The materials might include several prepared words, a clock, a blackboard, language test software to test the similarity of the participants' pronunciation with the one of the native speaker and online platform to administer the student questionnaire, recording devices to record the interviews, and statistical software such as SPSS to analyze the research data. The materials might also include the student questionnaire and the interview prompts design.

4.6 Assistance

The types of assistance might include the support from the test software developers,

for using the software to test the similarity and relevant training on the software operation, the support from professional for the online platform to deliver the online questionnaire, for recruiting the research participants and implementing the study, and for allowing me time off work for this project.

4.7 Data Analysis

The quantitative data of students' pre and post test performance, and the students' responses toward the objective questions in the questionnaire will be analyzed via SPSS statistical package, while the qualitative data such as the open-ended questions and the interviews of the students and the teacher will be examined through the content analysis method.

4.8 Research Progress

Each group has an English class every day. In the class, the teacher will teach the key words with many active methods. He is going to teach the pronunciation, spelling, meaning and writing of each word. After showing the pronunciation, spelling, meaning and writing of the key words, the teacher may ask students to repeat. They should repeat the pronunciation and the writing one by one. When teaching the difficult words, if the students have difficulties to read the word, the teacher may repeat again and the assistant may record that how long the teacher need to repeat until the learner can say it correctly.

After teaching the key words, the teacher is going to teach the sentences with key words. Because it is easy to pronounce a word correctly after repetition, but it is not easy to speak a word accurately in a coherent reading environment.

At the end of the experiment, the participants must have a test about the pronunciation. They are going to be required to read 10 words, most of which are difficult words (difficult to pronounce). Their pronunciation of each word is going to be tested in the test software. This software may compare the participants' pronunciation with the native speaker to give the score. There are four levels of the score:

- [A]. The accent is close to the mother tongue
- [B]. With a slight foreign accent
- [C]. A distinct foreign accent
- [D]. Have a strong foreign accent

The second step is the participants are asked to read ten sentences with difficult words. The pronunciation of the difficult words will be compared again in a situation. This method can provide a further double check which is more cautious. There is also a score rank as above:

- [A]. The accent is close to the mother tongue
- [B]. With a slight foreign accent
- [C]. A distinct foreign accent
- [D]. Have a strong foreign accent

The last reference standard is the time the learners cost when they pronounce the difficult words in total. The longer the participant cost, the more difficult it is to him or her.

Each group has the same standard to evaluate their pronunciation ability. The result is the average.

4.9 Results

Through the research, it is found that there was no significant difference in the final test level between participants at the aged 4-7 with the native speakers. Participants aged 8-12 generally scored lower than the first group. The performance of participants aged 13-19 and 20-25 declined more significantly with age. And the older you get, the less likely you are to reach your native language level or the level of participants in the 3-7 age group.

5. Conclusion

In summary, there is significant difference among people of various ages. Thus, it shows that there exists a critical period in pronunciation learning of a second language. The younger the learner is, the more accurate their pronunciation is. Younger children have less native accent than adults and they can learn more easily. Therefore, if someone wants to get a better pronunciation in second language learning, he should learn it earlier, especially within the critical period.

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