

An Empirical Study on Age Variable

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Abstract

Age is a very important variable in second language acquisition. For years, the effect of age in SLA (second language acquisition) is a disputable topic in the field of linguistics. However, the dispute focuses more on theoretical basis rather than the research of substantial evidence. Therefore, we have made a quantitative survey on the students' scores (11 times) from junior 1 to senior 2 (5 years) in the middle school by analyses between those (over 30 students) who have learned English for 3 years in the primary school and those (about 400 students) who have not. Finally we come to the conclusion that the idea of "the younger, the better" in FLL (foreign language learning) should be doubted.

Key words: Age variable; CPH; Optimal age

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INTRODUCTION

Concerning the problem of starting age in learning a foreign language or when to start a second language course in primary school, there is been no agreement in the past 50 years in the world, and there is no satisfactory conclusion drawn from the three stages of heated discussion in 1980s, 1990s and at the beginning of the

21st century in China, either.

As to this problem, a quantitative survey has been made on the students' scores (11 times) from junior grade 1 to senior grade 2 (5 school years) in a middle school by analyses between those (over 30 students) who had learned English for 3 years in a primary school and those (about 400 students) who had not in China. The paired sample T-test of SPSS has been made to check all the descriptive statistics of the two groups of data to make sure if there are any significant differences between them, by doing so we can arrive at the empirical conclusion that whether or not there are any correlations between age and scores of foreign language learners. There followed by some directly aimed explanations and summaries in details below each table and figure, it aims at drawing some conclusions from the analyses of the scores so as to test the research results on the problem we have gained both at home and abroad.

The function of age in the process of second language acquisition (SLA) has been a disputable topic for many years. Some works on this topic have already been published while there are only a few papers about it appeared in different academic journals in China. Therefore, in order to develop and improve the construction of the discipline of SLA in China, something must be done to strengthen the research in this field.

1. LITERATURE REVIEW

Critical period refers to the period (i.e. up to a certain age) during which learners can acquire an L2 easily and achieve native-speaker competence, but that after this period L2 acquisition becomes more difficult and is rarely entirely successful. Researchers differ over when this critical period comes to an end (Ellis, p. 699). Neuro-physiologists W. Penfield and L. Robert first put forward this viewpoint in 1959, emphasizing that the starting age of foreign language learners should be from 4 to 10 years

old in ordinary schools according to the demands of brain psychology. And in the 1960s Lenneberg developed it and put forward the famous “critical period hypothesis” (CPH) in 1967 that natural language learning only took place between the ages of 2 and 13 or so (before puberty). Although the theory of CPH refers to mother tongue and tested by many other psychologists and linguists yet they expanded it to the learning of foreign languages, therefore, coming to the two kinds of prediction: the first is that a foreign language, especially oral speech, must be learned before the completion of the brain lateralization for language function. The second is that the speed of language learning will be slower and the rate of success reduced much when passing this period.

1.1 Abroad

1) Burstall made a ten-year experiment (1964-1974) in Britain. The results were: the FLES (foreign language in elementary school) is OK there. The students who has not taken part in the experiment but began to learn French at the age of 11 had better results than those who had done it at the age of 8, when graduating from middle schools. For the first two years the students who had started learning French earlier were better than those who had not. However, the advantage was slowly disappearing while those started later had almost the same examination scores in reading and writing as those who started earlier, some even had better scores.

In 1975, A. Fathman made a survey on the mastering of English of the immigrants’ children (about 200) in Washington D.C. These children had been in the USA for not more than 3 years and they did not speak English at home. The result of the survey indicated that older children (11-15y) did better than younger ones (6-10y) on words and sentences, but the latter did better on pronunciation.

Collier did almost the same survey in 1987. She investigated 1548 students both from American minorities and immigrants. To some extent, the research supported the CPH. Chomsky supposes that the reason why children can master a very complicated language in such a few years is that they have a LAD (language acquisition device) or UG (universal grammar), in their brains. Physically speaking, Chomsky’s viewpoint is consistent with CPH in language acquisition.

After lots of research work, H. H. Stern (1999) comes to the conclusion that a language can be taught from any age upwards.

2) In 1978, C. Snow and her colleagues did a thorough research on the critical period hypothesis. In her article *Age Differences in Second Language Acquisition*, C. Snow gave her all-round commentary about the research. The researchers took the Dutch language learners of different ages whose mother tongue is English as the experimental subjects, and did longitudinal research on their language acquisition activities in the natural environment. Finally,

they found that the research subjects between the ages of 12 and 15 and those of adults grasped the Dutch language quickest at the beginning months of the acquisition. But after one-year-study, the research subjects between the ages of 8 and 10, 12 and 15 mastered the Dutch language best while the children between the ages of 3 and 5 did worst in all the tests. This result of their research denied the critical period hypothesis. At the same time, she put forward the non-critical period hypothesis (Hatch, 1983). The research of neuro-psychology gave us a further indication that brain lateralization has already been completed before puberty, some even before 3 years old.

1.2 At Home

1) The State Education Commission organized a nationwide survey on English teaching, 15 provinces and cities involved, including 57,080 senior and junior grade 3 students from 139 middle schools in 1985. The results showed that among the students who had learned English in primary schools, some results are very good, such as the cities of Shanghai and Guangdong, ranking the first and the third respectively. But some results are not ideal, such as the cities of Beijing and Tianjin, which are significantly lower than those of the students who began to learn English from junior grade 1 in middle school from Jilin, Anhui and Hubei provinces.

In 2003, a conclusion drawn from the paper by DONG Yanping *On the problem of “a foreign language must be learned from younger age” in the light of present primary English education in Guangdong province*, which is as follows: The training of teachers is in great need as long as we want to offer English course in all primary schools in Guangdong province. If we offer the course in a hurry blindly regardless of the lack of teachers, not only did we cause great loss in educational expense, but also dampen the enthusiasm of the children for their future English learning.

In 2003, the research on age and FLL was done in SU Dingfang’s research project of *English Language Teaching Theory and Practice* sponsored by the Chinese Ministry of Education. It is a survey on the successful experience of the renowned foreign language scholars and the learning results of the students studying German. The results showed that the starting age in FLL is not “the younger, the better”. People, from 20 to 30 years old, can achieve the same good results as those who start FLL from an earlier age.

In 2010, SU Dingfang pointed out that, “Offering a foreign language course for the lower grades pupils in primary school actually departs the basic routine. The age of acquiring a language automatically is about 5 years old for children. After the age of 5, the function of such language acquisition device is gradually disappearing. The most important condition of acquiring another language together with their mother tongue without much effort is that we must have the real and effective language

environment. And the language they learn must be one part of their living environment. If they have such a proper language environment, the children of about 5 years old can acquire a language without teaching them purposely. However, if we let the children learn a language in the classroom without teachers of native speakers, they can only learn to speak a few common words and simple dialogues, therefore, it will be getting half the result with twice the effort.”

Taking the autobiography as samples of 42 well-known foreign language educationists in China, ZHAO Fei and ZOU Weicheng made a research on the relations between starting age and foreign language learning in 2008. The result shows that: “Neither the earlier learners (from the age of 5 to 13 years old) nor the later learners (from the age of 14 to 22 years old) owe their successful learning of a foreign language to the biological critical period. They have not found any critical period in these successful learners when learning a foreign language. However, it seems that there is a window of opportunity (WOP) (Birdsong, 2006). To learn a foreign language at an earlier age is like to have a double-blade sword in hand, having both the advantages and disadvantages at the same time. If we begin to learn a foreign language at an older age, and we have excellent learning motivation inside the ‘WOP’ together with excellent teachers, better language learning ability and proper foreign language environment, we can probably be successful as well.”

In the paper *Say “No” to the Fashion of Starting to Teach English in the Kindergarten* by GUI Shichun in 2012, he pointed out that, “We must acknowledge that the research on the notion of ‘the earlier the better’ has no final conclusion both on theory and practice. More and more people realize that although age is one of the important factors in personal differences, yet we cannot tie it up with CPH. As to the issue of age factor, we should have a scientific attitude to it rationally. The growth of linguistic competence (whether it is a mother tongue or an L2) is the mature mark for human beings. It is not like to make a rush purchase when lining up for shopping by ‘running in advance’. If we do it in this way, it is actually like ‘trying to help the shoots grow by pulling them upwards’ or something like it. Everyone is learning English but nobody is learning it well. The so-called saying of ‘losing at the starting line’ is really a kind of starting to run secretly in advance. What’s worse, it departs the routines of children’s normal growth.” Singleton mentioned some recent research and found that in the first 5 years of children’s growth their brain dimension and volume will become too small forever, their language learning ability and normal social behaviour will be damaged because of lack of care and concern from their parents. However, the school years have been made for five years for pre-school

children in kindergartens by some countries and districts, which are given the good name “caring children class”. As a matter of fact, parents’ care and concern for children have been deprived from them, and the children’s normal development of mother tongue is affected greatly. To start learning a foreign language is nothing but an issue of learning speed and quality (or effect), which is up to the following factors: A) the issue of learning environment; B) the issue of necessity; C) the issue of personal differences; D) the issue of how to teach it to pupils. Meanwhile, Mr GUI also have done some research on the issues on “language needs in society, language plan and language policy”, “the social disorder of starting to teach English in kindergarten in China”. In fact, the fact of starting learning English in kindergarten has not been proved by scientific experiment, let alone in lower grades in primary school. However, the result of the social disorder in doing so can only lead to a waste of teaching resources as well as the repetition of teaching at a low level and the disconnection of teaching system, therefore, causing the bad result of “a half-finished job that is difficult to bring to proper completion because it has not been done right at the outset”. On one hand, we say that the teaching of English wasted so much time without an ideal result, on the other hand, starting English course so early and making the English learning years so long, which is quite contradictory both in theory and practice. If we go on doing it in this way, the result will be from bad to worse, which cannot be controlled easily when we realize its negative effect if we want to stop it one day.

2) In 2009, ZHOU Jiaxian pointed out in one of her papers that: for a long time the research of sensitive period in language learning is paid highly attention by the researchers of brain and cognitive science. In recent years, with the help of advanced technology skills, plenty of research has been done in the field of brain and cognitive mechanism of sensitive period in language learning. The research shows that the phenomenon of sensitive period exists in pronunciation and grammar learning, while in the learning of semantics it lasts life long. She also gives some explanations to us from the point of the neuro mechanism of sensitive period. On this basis, some suggestions have been put forward that the time of offering foreign language courses should be earlier if we want to consider the effect of students’ foreign language learning when making educational policy.

2. ANALYSES OF THE STUDENTS’ ENGLISH SCORES

2.1 Descriptive Statistics of the Scores

Table 1
Descriptive Statistics of the Scores of Junior 1-3 and Senior 1-2
(The Total Score Is 150)

	N	Minimum	Maximum	Mean	Std. deviation	Variance
Jr. Av. 380Ss.	7	96.86	130.49	114.2200	13.61068	185.251
Jr. Av. 46Ss.	7	93.60	139.70	117.4286	16.96582	287.839
Sr. Av. 448Ss.	4	70.87	86.95	78.9275	6.71750	45.125
Sr. Av. 33Ss.	4	66.44	83.18	76.9550	7.78990	60.683
Valid N (listwise)	4					

Table 1 gives us a description of the general distribution of the scores of junior 1-3 & senior 1-2. The four kinds are of the two groups of students: those who have learned English in primary school for 3 years (Jr. Av. 46Ss. & Sr. Av. 33Ss.) and those not (Jr. Av. 380Ss. & Sr. Av. 448Ss.). Among them there are 11 kinds of statistical data described. It is obvious that the mean of the 46 students in junior and 33 in senior middle school falls from the highest (mean = 117.4286) to the lowest (mean = 76.9550) in the four groups, while the mean of those 380 students in junior and 448 in senior middle school rises from a lower one (114.2200) compared with 117.4286 to a higher one (mean = 78.9275) compared with 76.9550. It is a sharp contrast between those who have learned

English earlier and those not. This provides us with the findings that the notion “the younger, the better” is doubted in foreign language learning. The values of Standard Deviation show that the smallest differences (Std. V. = 6.71750) can be found in the group of Sr. Av. 448Ss, while the biggest differences (Std. V. = 16.96582) can be identified in the group of Jr. Av. 46Ss.

2.2 Paired Samples Test on the Scores of Junior 1-3 and Senior 1-2

In Table 2, it is clear that all the figures are identical with those in Table 1. Therefore, we know the statistics are proved to be true.

Table 2
Paired Samples Statistics on the Scores of Junior 1-3 & Senior 1-2
(The Total Score Is 150)
Paired Samples Statistics

		Mean	N	Std. deviation	Std. error mean
Pair 1	Jr. Av. 380Ss.	114.2200	7	13.61068	5.14436
	Jr. Av. 46Ss.	117.4286	7	16.96582	6.41248
Pair 2	Sr. Av. 448Ss.	78.9275	4	6.71750	3.35875
	Sr. Av. 33Ss.	76.9550	4	7.78990	3.89495

Table 3
Paired Samples Correlations on the Scores of Junior 1-3 & Senior 1-2
(The Total Score Is 150)
Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Jr. Av. 380Ss. & Jr. Av. 46Ss.	7	.977**	.000
Pair 2	Sr. Av. 448Ss. & Sr. Av. 33Ss.	4	.935	.065

** Correlation is significant at the 0.01 level (2-tailed).

From Table 3, we can see the correlation coefficients ($r = 0.977$; $r = 0.935$) and the figures of significant degree ($p = 0$; $p = 0.065$) tally with those in Table 1 and Table 2

completely. So they are of high validity and correctness proved by the figures in the chart of the paired samples correlations.

Table 4
Paired Samples Test on the Scores of Junior 1-3 & Senior 1-2
(The Total Score Is 150)
Paired Samples Test

		Paired differences					t	df	Sig. (2-tailed)
		Mean	Std. deviation	Std. error mean	95% Confidence interval of the difference				
					Lower	Upper			
Pair 1	Jr. Av. 380Ss. & Jr. Av. 46Ss	-3.2086	4.67466	1.76686	-7.5319	1.1148	-1.816	6	.119
Pair 2	Sr. Av. 448Ss. & Sr. Av. 33Ss.	1.9725	2.82850	1.41425	-2.5283	6.4733	1.395	3	.257

From Pair 1 in Table 4, we see the figures: $t = -1.816$, $df = 6$, so we check T value in the distribution table and find $t = 3.707$ at the level of $\alpha = 0.01$ (in 2-tailed). It is obvious that -1.816 is smaller than 3.707 ($-1.816 < 3.707$), so we should accept the hypothesis of the correlation coefficient as 0 and consider that there is no correlation between the two variables. We can put it in another way that there are no significant differences between the scores of the 46 students and those of the 380. Moreover, $p = 0.119$, and $0.119 > 0.01$ (in 2-tailed), so it can be considered that there are also no significant differences between the two variables.

In Pair 2, it is clear that $t = 1.395$, $df = 3$, so we check T value in the distribution table and find $t = 5.841$ at the level of $\alpha = 0.01$ (in 2-tailed). It is clear that $1.395 < 5.841$, so we should accept the hypothesis of the correlation coefficient as 0 and consider that there is no correlation between the two variables. In other words, there are no significant differences between the scores of the 33 students and those of the 448. Furthermore, $p = 0.257$, and $0.257 > 0.01$ (in 2-tailed), so, it can be regarded that there are no significant differences between the two variables, too.

It is now obvious that there are no significant differences between the students' English scores of those who have learned English for 3 years in primary school and those not both in junior and senior middle schools from the above findings and their explanations. In this way we can say that there is no significant correlation between age and the English scores. In other words, it is clear to show from this T-Test that the idea "the younger, the better" in FLL for children should be doubted.

CONCLUSION

The average scores of those who have learned English for 3 years in primary school are higher than that of those not when they are in junior middle school, however, their score superiority is disappearing year after year when in senior middle school. The result is very evident from the explanations in Table 4 that there is no obvious significance between the scores of those who have or have not learned English for 3 years in primary school. Therefore, we can come to the conclusion that there is no significant correlation between the "English scores" and "Age of Onset". It can clearly be seen from the result of T-Test that the idea of "the younger, the better" in foreign language learning should be doubted. So, it is a bit lax to say that there is a critical period in language learning. Scientifically speaking, there is no critical period in foreign language learning. Just as E. Lenneberg put forward in 1967 that the critical period probably exists only in natural language (i.e. mother tongue, L1 or native language). In a word, the above findings show that the "Age of Onset" is not "the younger, the better". Therefore, H. H. Stern's view that a language can be taught from

any age upwards is proved to be true again here in China. Learning successfully or not depends much on the quality of teachers, the learning environment and personal effort.

In order to get more profit, some people and institutions are doing their best to propagate the so-called ideas of "critical period in language learning", "the younger, the better" in FLL, "the five-year child-caring classes" in FLL in kindergarten, bringing about so much bad effect both to children and society. Such phenomenon should be paid great attention and it is high time for us to say "No" to the fashion of starting to teach English or any other foreign languages both in kindergarten and primary school.

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