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Age Factors in Second Language Acquisition: A Comprehensive Analysis of Chinese Learners' English Proficiency and Multilingual Skills

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Abstract: This study investigates the individual differences in language learning among Chinese speakers who have learned English as a second language and other languages as additional foreign languages. The research focuses on factors such as age, education, occupation, the starting age of language learning, learning duration, frequency of language use, and overseas living experience. The data is collected from a survey involving participants with diverse backgrounds, including English teachers, HR professionals, and bank clerks. The findings indicate that early exposure to the language, higher education in language teaching, and frequent use of the language are positively correlated with language proficiency. Additionally, overseas living experience plays a significant role in language acquisition, particularly in pronunciation and fluency.

1. Introduction

The acquisition of second languages (L2) has been a focal point for linguists, educators, and psychologists due to the increasing global need for multilingualism. This study aims to explore the factors influencing the proficiency levels of Chinese individuals in English and other foreign languages. We focus on demographic variables, educational backgrounds, and personal experiences that may contribute to differences in language learning outcomes. The research is grounded in the theory of Second Language Acquisiton (SLA) and draws upon data from a comprehensive survey of participants with varying ages, educational qualifications, occupations, and language learning experiences. The study is informed by the Critical Period Hypothesis, which suggests that younger learners have an advantage in language acquisition due to neurological plasticity.[1] Additionally, the work of Krashen on the Input Hypothesis highlights the importance of exposure and comprehensible input in achieving language proficiency.[2]

This paper conducts a comprehensive review of three significant studies concerning the relationship between age and SLA. It aims to explore whether young learners have a distinct advantage over older learners in acquiring a second language, the specific impact of age on second language proficiency in older adults, and how individual factors intersect with age in influencing language learning outcomes. By examining the critical period hypothesis and other related theories, this paper seeks to elucidate the role age plays in language learning and the extent to which it should

be considered in comparison to other influential factors.

2. Literature review

In this section, three studies will be reviewed. They cover three areas related to the study: whether young learners learn second language better than the older, the effect of age on SLA in older adults, and what age factors do accounting for the individual factors in second language learning.

2.1 Whether young learners learn second language better than the older

According to Hu's study, some age-related differences between young and old learners in SLA are observed, aiming to identify the other factors and draw some conclusions related to this field. The results showed that young learners will learn foreign language better than older learners in the ultimate attainment, even though older learners are tending to learn foreign language fast and efficiently. Young learners are equipped with superior learning quality to acquire second language compared to older learners. It is beneficial for young learners to start foreign language learning earlier in the long run.[3]

According to the Critical Period Hypothesis, age is proved to be the myth that young learners stand the advantage stage in second language learning. In this paper, young learners' foreign language learning is thought to perform better than older learners' in the ultimate foreign language learning. However, this is not the common case in L2. Some older language learners show their much more excellent proficiency in L2 even compared to younger learners. Therefore, we can admit that age will influence language learning based on CPH while some other factors should also be taken into consideration such as frequency of use of L2 and learning efforts in the long term of language learning.

2.2 The effect of age on SLA in older adults

Much previous research show that younger learners are more adept than older learners at learning an L2. Major's study aims to find out if there are age effects between groups of older adults learning an L2. In order to collect sufficient data, the study was conducted by experiments. The subjects participated in the experiments included 38 native Spanish speakers and they were divided into four groups: 10-19, 20-29, 30-39, and over 40. In order to assess their global proficiency in the L2, an elicited imitation task was also taken among participants. Results suggest that age effects exist even in older learners. Relatively younger participants who spend more time on speaking the L2 tended to have greater proficiency in the L2. [4]

As Charisse Alaine Major concluded, age effects are demonstrated among the older learners.[4] And demographic variables are treated as the most prominent factors in predicting L2 success in this paper. However, the definition standard of proficiency is not rigorous enough based on percentage of time speaking the L2. The amount of L2 use might not necessarily be completely equivalent to the percentage of time speaking the L2. For example, participants had kept repeating similar conversation with family members or friends which means that the words or sentences he or she used had hardly changed compared to those who had been taking advantage of L2 in many different fields even though the total time was not long.

2.3 What age factors do accounting for the individual factors in second language learning

It is believed that younger learners have advantages in second language learning over older learners, especially in the acquisition of pronunciation.[5] L2 learners beyond the age of about 9 or 10 years are particularly unusual to pronounce as good as "native" or "near native." Mayor's study aims

to define what age factors do accounting for the individual factors in second language learning. Some basic assumptions and critiques found related to age research are outlined as well as those issues which attach importance to the late learner's role in both process and outcome of second language learning. The results suggest a reorientation of the age question in L2 phonology in consideration of its multiplicity such as some age-related factors in empirical work, incorporating neuro-cognitive, social-psychological, and experiential influences on L2 accent.

This study repeatedly highlights the importance of age factors in second language learning especially in pronunciation, and some age-related factors are also taken into consideration in order to refute the ideas which overemphasize the individual factors. Age plays a key role in the acquisition of pronunciation, however, individual factors are indeed more important in the overall language learning. Taking mandarin learning among Chinese as an example, most of Chinese are born with speaking dialects, and they more or less have an accent even though they started their mandarin learning at really an earlier age. While, many people still can speak standard mandarin after being trained no matter how old they are.

3. Methodology

As language learning is a developmental process, age factors play a role but not the leading role in the acquisition of second language. Relatively, demographical variables in which educational background, occupation, marriage, behavior change and so on are involved are tending to be more useful in the further study of SLA. According to what was mentioned above, a questionnaire was conducted in a group of 10 people.

The data was collected through a survey distributed to Chinese individuals who have learned English as a second language and have experience with other foreign languages. The survey included questions on participants' ages, education, occupation, the age at which they started learning each language, the duration of learning, frequency of language use, and any overseas living experiences. The proficiency levels were self-reported and included aspects such as fluency, pronunciation, and overall language ability.

4. Results

Table 1 captures detailed individual differences among language learners. It includes data on participants' number, name, age, first language (L1), education background, occupation, foreign languages learned with their levels (L2, L3, etc.), starting age of learning each language, years of learning, onset age of living abroad, years of residence abroad, frequency of language utilization, and self-assessed proficiency levels in fluency, pronunciation, and additional comments. Each row represents a different individual, with information indicating their age, the languages they have learned (such as English, Japanese, French, or Korean), how long and at what age they started learning these languages, and their fluency and pronunciation levels. Additional notes in the "Others" column provide context, such as their professional experience, willingness to learn additional languages, and details about their residence abroad.

Participants vary in age, with the youngest being 25 and the oldest 27. Education levels range from Bachelor's to Master's degrees, with fields of study including English Language Teaching, Economics, and Computer Science. Occupations are predominantly English teachers, with a few in HR and banking. English is the most common second language, with Japanese and French as additional languages. Starting ages for language learning range from 6 to 20, with learning durations varying from 1 to 21 years. Some participants have lived abroad, with onset ages and lengths of stay varying by individual. Frequency of language use is mostly daily or nearly daily, except for some languages where it is occasional or none. Proficiency levels are self-reported as Good, Fair, Limited,

or Weak, with most participants rating their English proficiency as Good or Fair.

Table 1: Individual Language Learning Backgrounds and Proficiency

Number	Age	L1	Education Background	Occupation	Foreign Language	Starting Age	Learning Time(Y)	Onset Age	Length Of Residence (Y)	Frequency Of language Utilization	Fluency	Pronunciation	Others
1	26	Chinese	Master (English Language Teaching)	English Teacher	L2:English L3:Japanese	L2:12 L3:20	L2:14 L3:6	None	None	L2:Nearly Everyday L3:None	L2:Fair L3:Weak	L2:Good L3:Weak	Working as an English teacher for 2 years. Willing to learn Korean as L4.
2	26	Chinese	Bachelor (English)	English Teacher	L2:English L3:JapaneseL4:French	L2:6 L3:19 L4:25	L2:21 L3:6 L4:1	None	None	L2:Nearly Everyday L3:Sometimes L4: None	L2:Good L3:Fair L4:Weak	L2:Good L3:Good L4:Weak	Working as an English teacher for 2 years. Willing to learn Italian and Korean as L5, L6.
3	27	Chinese	Bachelor (English)	English Teacher	L2:English L3:Japanese	L2:10 L3:20	L2:17 L3:2	None	None	L2:Nearly Everyday L3:None	L2:Fair L3:Weak	L2:Fair L3:Weak	Working as an English teacher for 3 years. Willing to learn other languages.
4	26	Chinese	Bachelor (English)	English Teacher	L2:English L3:French	L2:9 L3:20	L2:14 L3:2	None	None	L2:Nearly Everyday L3:None	L2:Good L3:Limited	L2:Good L3:Weak	Working as an English teacher for 4 years. (Colleagues are British. Often travel to Occident)Willing to learn other languages.
5	27	Chinese	Bachelor (English)	Tour Guide(English)	L2:English L3:Japanese	L2:12 L3:20	L2:12 L3:2	None	None	L2:Nearly Everyday L3:None	L2:Fair L3:Weak	L2:Fair L3:Weak	Working as tour guide for 4 years.
6	25	Chinese	Associate(Japanese)	HR	L2:EnglishL3:Japanese	L2:8 L3:19	L2:15 L3:4	23(Japan)	2	L2:None L3:Everyday	L2:Fair L3:Good	L2:Fair L3:Good	Work in Japan for one and half a year
7	27	Chinese	Maste(Computer Science)	Bank Clerk	L2:English	L2:10	L2:6	13(Australia)	14	L2:Everyday	L2:Good	L2:Good	Settle down in Australia.Willing to learn other languages.
8	26	Chinese	Master (Korean)	Korean Teacher	L2:English L3:Korean	L2:8 L3:19	L2:11 L3:6	21(Korea)	1	L2:None L3:Nearly Everyday	L2:Fair L3:Good	L2:Fair L3:Good	Working as an Korean teacher for 3 years. Willing to learn other languages such as Japanese.
9	26	Chinese	Master (Economic)	Bank Clerk	L2:English	L2:8	L2:10	18(Australia)	8	L2:Everyday	L2:Good	L2:Good	Settle down in Australia.Willing to learn other languages.
10	27	Chinese	Master (Media and Communiction)	Copywriter	L2:English L3:Japanese	L2:8 L3:20	L2:12 L3:2	20(Malaysia) 23(Hong Kong, China)	1(Malaysia) 1(Hong Kong,China)	L2:Nearly Everyday L3:None	L2:Good L3:Limited	L2:Good L3:Limited	Work in Hong Kong, Chia Now

Table 2 focuses on the relationship between age and language learning duration, showing data on participants' number, name, foreign languages learned, starting age of learning, years of learning, proficiency level, and a ranked list by English proficiency. The data includes information about different individuals and their experiences with learning foreign languages. Each row represents a different language learning experience, with details such as the language code (e.g., L2 for English, L3 for Japanese, etc.), the age at which they started learning the language, the number of years they have been learning, and their proficiency level (e.g., Good, Fair, Weak, Limited).

Individual number 7 is a proficient English speaker who began learning the language at the age of 10. With a total of 6 years of learning experience, they have achieved a 'Good' level of proficiency. While both his starting age and learning time is not as much as other good learners, he has lived in Australia for 14 years which is really helpful for his language learning. Individual number 6 started learning English (L2) at the age of 8 and has been learning for 15 years, achieving a 'Fair' level of proficiency. They also learned Japanese (L3) starting at the age of 19, with 4 years of learning time, and have attained a 'Good' proficiency level in Japanese. This suggests that individual number 6 has a stronger command of Japanese compared to English, despite starting English at a younger age and having spent more time learning it.

The table highlights that younger starting ages for language learning do not always correlate with higher proficiency levels. Learning durations vary, but longer durations do not consistently result in higher proficiency. The ranking by English proficiency shows variability, indicating that factors beyond age and learning time, such as frequency of use and overseas experience, might influence proficiency.

Table 2: Chronological Record of Language Learning Achievements

Number	Foreign Language	Starting Age	learning Time(Y)	Level
2	L2:English L3:Japanese L4:French	6 19 25	21 6 1	Good Fair Weak
9	L2:English	8	10	Good
10	L2:English L3:Japanese	8 20	12 2	Good Limited
4	L2:English L3:French	9 20	14 2	Good Weak
7	L2:English	10	6	Good
6	L2:English L3:Japanese	8 19	15 4	Fair Good
8	L2:English L3:Korean	8 19	11 6	Fair Good
3	L2:English L3:Japanese	10 20	17 2	Fair Weak
1	L2:English L3:Japanese	12 20	14 6	Fair Weak
5	L2:English L3:Japanese	12 20	12 2	Fair Weak

Table 3 examines the impact of overseas living experiences on language proficiency. It includes data on participants' number, name, onset age of living abroad, years of residence abroad, proficiency level, and a ranked list by language proficiency. The data shows a range of proficiency levels, primarily "Good," with some individuals also having proficiency in the local language of their country of residence, such as "Good(Japanese)" and "Good(Korean)." There are also entries where the "Onset Age" and "Length of Residence" are listed as "None," indicating that these individuals are likely native speakers of the language and have not moved to a new country for language learning purposes.

Participants who have lived abroad, particularly in countries where the language they are learning is spoken, tend to have higher proficiency levels. The onset age of living abroad varies, but those who lived abroad during their formative years or early adulthood show better language proficiency. The ranking by language proficiency reflects the significant impact of immersion experiences on language acquisition.

However, individual number 4, according to the provided table, has not indicated any overseas living experience, which is denoted by "None" in both the "Onset Age" and "Length of Residence(Y)" columns. This suggests that this individual has likely learned the language within their home country without the influence of immersive experiences abroad. Despite this, they have achieved a "Good" level of language proficiency, which may imply effective language learning through other means such as education or self-study.

Table 3: Language Proficiency Correlated with Overseas Experience

Number	Onset Age	Length of Residence(Y)	Level
7	13(Australia)	14	**Good**
9	18(Australia)	8	**Good**
6	23(Japan)	2	**Good(Japanese)**
10	20(Malaysia) 23(Hong Kong,	1(Malaysia) 1(Hong Kong, China)	**Good**

	China)		
8	21(Korea)	1	**Good(Korean)**
4	None	None	**Good**
2	None	None	**Good**
1	None	None	**Fair**
3	None	None	**Fair**
5	None	None	**Fair**

Table 4 provides a summary of demographical variables affecting language learning, including participants' number, name, education background, occupation, foreign languages learned, frequency of language utilization, and proficiency level.

Individual number 7 has a Master's degree in Computer Science and works as a Bank Clerk. He's proficient in English (L2) and use it every day, achieving a "Good" proficiency level. Individual number 9 has a Master's degree in Economics and also works as a Bank Clerk, with the same language proficiency and usage as individual number 7. Individual number 6 has an Associate degree in Japanese and works as HR in Japan, proficient in both English (L2) and Japanese (L3), with Japanese being used every day and English not at all, achieving a "Good" proficiency level in Japanese. Even though started from 19 years old, individual number 6's Japanese is very good. Her major in the college is Japanes and then worked at a Japanese company after graduating. After that, she came to Japan and went on her Japanese study at a Japanese language school. And now she still keep working at a Japanese company in Japan. All the factors above are helpful for her improvements in Japanese. As same as individual number 6, individual number 8 started learning Korean at 19 years old, and she had an intensive learning of Korean in the university, and then went on her study of Korean as master. Nowadays, her job is to teach Korean in the university and to host visitors who come from Korea sometimes.

Table 4: Professional Language Proficiency and Utilization

Number	**Education Background**	**Occupation**	**Foreign Language**	**Frequency of language Utilization**	**Level**
7	Master (Computer Science)	Bank Clerk	**L2:English**	**Everyday**	**Good**
9	Master (Economic)	Bank Clerk	**L2:English**	**Everyday**	**Good**
6	Associate (Japanese)	HR (Japan)	L2:English **L3:Japanese**	None **Everyday**	**Good(Japanese)**
2	Bachelor (English)	English Teacher	**L2:English** L3:Japanese L4:French	**Nearly Everyday** Sometimes None	**Good**
4	Bachelor (English)	English Teacher	**L2:English** L3:French	**Nearly Everyday** None	**Good**
8	Master (Korean)	Korean Teacher	L2:English **L3:Korean**	None **Nearly Everyday**	**Good(Korean)**
10	Master (Media	Copywriter	**L2:English** L3:Japanese	**Nearly Everyday**	**Good**

	and Communiction)			None	
1	Master (English Language Teaching)	English Teacher	**L2:English** L3:Japanese	**Nearly Everyday** None	**Fair**
3	Bachelor (English)	English Teacher	**L2:English** L3:Japanese	**Nearly Everyday** None	**Fair**
5	Bachelor (English)	Tour Guide (English)	**L2:English** L3:Japanese	**Nearly Everyday** None	**Fair**

The table underscores the importance of context and practical application in language learning outcomes. Higher education in language-related fields correlates with better language proficiency. Occupations that require frequent use of the language lead to higher proficiency levels. The frequency of language utilization is a critical factor, with daily use correlating with better proficiency.

The results show a clear trend that participants who started learning English at a younger age and have a higher educational background in language teaching tend to achieve better proficiency levels. Occupations that require frequent use of English also correlate with higher proficiency. Moreover, participants who have lived overseas, especially in English-speaking countries, demonstrate superior language skills, particularly in fluency and pronunciation.

5. Discussion

The findings align with the critical period hypothesis, which suggests that early exposure to a language is beneficial for achieving native-like proficiency. The role of education and occupation in language learning highlights the importance of context and necessity in acquiring a second language. The positive impact of overseas living experiences underscores the value of immersion as a method for language acquisition.

6. Conclusion

In conclusion, while age has a measurable impact on SLA, particularly in the realm of pronunciation and ultimate attainment, it is not the sole determinant of language learning success. The findings suggest that although younger learners may generally have an advantage, individual factors such as learning environment, frequency of use, and personal effort play a crucial role in language proficiency. Therefore, while age-related considerations are important, they should be viewed within the broader context of a learner's overall experience and the specific conditions under which language learning occurs. The results have implications for language teaching methodologies, suggesting that immersive experiences and frequent practical application can significantly improve language learning outcomes. Future research could explore the impact of other factors such as learning strategies, motivation, and cultural exposure on language proficiency.

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