

# A Literature Review on Individual Differences in Second Language Acquisition

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## Abstract

There are many factors influencing second language acquisition, such as learner external factors including social factors, the input of second language acquisition and the relationship between acquisition; internal factors including the transfer of language, cognition of second language and language universals, etc, which influence the psychological factors of learner's second language; individual differences include some factors in physiological emotion, cognition, and learning strategies. This article is to explore the role of learners in second language acquisition from the perspective of individual differences (age, aptitude, learning motivation).

**Keywords:** Individual differences, Second language acquisition, Influencing factors

## 1. Introduction

Individual differences (ID) in second language(L2) learning refer to the age of onset, motivation, aptitudes, learning strategies, personalities and cognitive styles, etc., which account for differential learners' success concerning learning outcomes and ultimate attainments. This paper offers a brief overview of individual differences mainly about the first three individual differences in second language acquisition, and this is because the students' view of second language acquisition and their mental and psychological states will have a direct impact on second language acquisition, but they are, to a large extent, influenced by these general factors.

The age of onset is conducive to curriculum design and the making of second language education policies. What's more, it is generally believed that the availability and strength of motivation play an important role in the success of any task, certainly in the process of second language acquisition.

Study motivation is the most dynamic one among many factors affecting Second Language Acquisition. It is the stimulation and cultivation of study motivation that directly give rise to the success or failure of SLA. For human beings, the desire to understand or learn certain knowledge is the essence of human being. When people complete a task toward a set goal, the motivation for action is indispensable, and the motivation is also different due to human differences, the passage of time and the external causes. For example, when we learn a second language at school, we do not want to learn a foreign language on our own initiative, but with the deepening of learning, people gradually become interested in the language, thinking of studying abroad or going to the university. It shows that there is a great relationship between language learning and motivation and the psychological factors of individual and the external factors surrounding these factors will also affect the language action,

And it is aptitude that can solve the problem – how achievement gaps are formed. Moreover, offering a conclusion of other factors on how further research could influence L2 learning scores or ratings. Therefore, a better understanding of L2 learners' individual differences is an excellent way to improve all forms of language acquisition.

## 2. Age of Onset

Age is one of the factors that make second language acquisition present individual differences, but what is the relationship between the starting age of learning second language and the level of second language acquisition is a controversial topic in the field of acquisition. Some scholars believe that the earlier the second language acquisition conducts, the better the acquisition effect achieves, the closer to the level of native speakers is, and put forward the slogan “the younger, the better”; however, some scholars believe that there is little connection between the age of onset and the effectiveness of second language acquisition. Adult acquisition can also reach the language level of native speakers.

The concept of critical period first appeared in the field of biology, which refers to the stage where the organic individual is most sensitive to some kind of external stimulation. In terms

of language acquisition, the key period hypothesis is the brain plasticity proposed by neurologist Penfield & Roberts (1959) for the clinical phenomenon of aphasia the Brain Plasticity Hypothesis. They believe that the brain is closely related to language acquisition, and the best stage of language acquisition is within the age of 10. At this stage, human beings can master a language easily and quickly in the natural environment without external interference and professors; however, after puberty, the left and right hemispheres of the brain perform different functions, and lateralization may occur. Lenneberg (1967) accepted and developed the view of Penfield & Roberts, and proposed the current language critical period hypothesis. He believes that the key period for children's acquisition of language is from the age of two years to adolescence (10-12 years), and at this stage, the natural development of language can be realized.

There are some debates around the specific cutoff time, which means the exact age of onset and age of offset. It is not true that before the age X L2 learners are indeed to develop their accent like native speakers, but after the age X, the foreign accent cannot be avoided. Instead of the critical period, "sensitive period" is considered as a better term, which means L2 learning can be improved during this set period and L2 learners can get a higher level of learning proficiency, but it is still possible to learn well after that period. While Long (1990) claimed that CPH is an inevitable condition for nativelikeness in the L2 acquisition. In his research, the scores and ratings of native speakers (NS) are always higher than the post-CP learners. Some of these studies support this contention by using some tests, which illustrate that post-CP acquirers do not achieve NS levels. For instance, Johnson & Newport (1989) gave some grammatical judgments which contained 276 correct and incorrect sentences to 46 Korean and Chinese learners of English with different Age of arrival ( $3 < \text{AOA} < 39$ ) who have been lived in the USA more than 5 years. The findings from that research are AOA 3-7, participants can get higher level test scores and they are the most similar to ratings of native speakers; AOA 8-17 gradual linear decline decrease following the AOA in the test scores; AOA > 17, the distribution of test scores is irrelevant to age. In contrast, Birdsong (1992) claims that L2 learning confers a positive impact during the CP, but it is not indispensable because post CP acquires can also achieve NS levels. Like the research by choosing AOA 19-48 years old L1 English and L2 French speakers who are highly educated and successful French users. The finding is that 15 out of 20 showed within NS range on different levels of grammatically judgment tasks. The second research to illustrate the weak version of the CPH is done by Munoz & Singketon (2007), which they have the phone interview with 12 L1 Spanish learners of English who have been lived in Ireland more than 6 years. These participants are given the task-free speech about retelling a movie, and the scores are rated by NS judge on a scale of 4 (no foreign accent)-0 (very strong foreign accent). The result is that NS range at 3.5-4 and two of NNS of these participants range around 3.75, so it appears that post L2 learners can reach NS levels. From previous research, when L2 speakers at the native level are examined by using different test tasks covering a range of linguistic abilities, L2 speakers can perform within NS range on some of the measures but not all.

Abrahamsson & Hyltenstam (2009) explained the age effects in L2 acquisition from two aspects. The first is biological explanation, learning L1 refers to left brain activation (left

laterization) which people are sensitive to semantically and grammatically anomalous sentences; acquiring L2 refers to bilaterization which is the process of substantial involvement of right brain to compensate for lower level of learning efficiency. The second is non-biological explanation, defining CP as a confound of the following age factors. On the one hand, usage-based views of L1 has a significant impact on L2 learning because L2 learners focus more on specific cues of L1 than others. On the other hand, L2 learners are influenced by many socio-educational and motivational factors such as some adult L2 speakers do not want to imitate the accent of NS.

To conclude, the facilitating effect of brain help L2 learning from the massive input is unproblematic under age 6 and it is still effective somewhat between age 6 and age 16. The majority of L2 learners cannot achieve the NS-like level of competence after age 16 to some extent. However, some late learners will be functionally nativelikeness owing to the high aptitude, high motivation and using skillful learning strategies.

### **3. Motivation**

Motivation is one of the most active factors in language learning. There lie inherent and continued relations between motivation factors and various motivation theories. Motivation is also considered as an important individual difference factor due to determining the choice of a particular L2, learning persistence, ultimate achievement and the rating of learning.

At present, there are two main trends in the study of L2 learning motivation. The first is to discuss the components of motivation and the theoretical framework of motivation; the second is to explore the internal structure of L2 motivation with empirical methods. In terms of theoretical exploration, although the motivational factors were confirmed, there was no further examination of the relationship between the intrinsic structure of motivation and the components of motivation. In the empirical research, the existing research has not been able to deeply discuss the internal relationship of the motivation structure, and the will factor of the second language learning, external factors are not explored enough. We should stick to the combination of theoretical and empirical research, explore ways and strategies to stimulate foreign language learning motivation, and promote second language teaching.

The definition of motivation given by Clément (1986), “The connection of effort, desiring to reach the goal of learning the language and favorable attitudes towards L2 learning.” If someone has the strong positive attitude/motivation to L2 community which refers to integrative orientation. And if one L2 learner’s motivation is driven by utilitarian purposes for gain positive benefits such as meeting an educational requirement, it is regarded as instrumental orientation.

Gardner (1985), a Canadian linguist, thinks that motivation is the internal force and motivation that motivates people to act, including personal intention and desire. He developed the Attitude/Motivation Test Battery (AMTB) by using 104 motivation questions and 12 attitude questions in the research. According to the aim of learning second language, Gardner thinks that motivation is divided into integrative motivation and instrumental motivation. If the aim of learning a foreign language is to have a better understanding of a

certain social culture, or to communicate with the group, it is prepared to accept people who use it the culture and way of life, this motivation is the integration of motivation; instrumental motivation emphasizes that learning the real value and benefits of a new language. Its main characteristic is that there is no persistence and selectivity. Gardner, from the perspective of social psychology, deeply analyzes the theoretical framework of second language learning motivation, and forms the basis of motivation theory.

In the 1980s, American Psychologist Deci and Ryan put forward the theory of self-determined cognitive motivation. Deci thinks that motivation can be divided into intrinsic motivation and extrinsic motivation from the source, and intrinsic motivation refers to the completion of a task based on the happiness of interest and activity itself move, which is a highly autonomous type of motivation. the stronger intrinsic motivation is, the stronger self-awareness is, and the more obvious effect is. While extrinsic motivation refers to the individual's desire to take some action for the purpose of being influenced by the external factors of others.

In the 1990s, Dornyei, a Hungarian scholar, put forward the three-dimensional framework theory of foreign language learning motivation, and thought that the motivation of foreign language learning should be from the language level, research and measurement are carried out at the student level and at the level of teaching situation, and these three levels contain different factors in the process of language learning. The biggest characteristic of Dornyei's learning motivation framework is that it reflects the organic combination of learning motivation and teaching situation, and provides the empirical support for the effect of motivation research in school education scene, which fully shows the diversity and complexity of learning motivation factors.

Moreover, Dornyei (2005, 2009) developed the motivational self-system that contains three components: Ideal L2 Self (people would like to possess all the attributes of the L2), Ought-to L2 Self (people believe that they should possess the attributes of L2 because of various duties or obligations), L2 learning Experience (the experience of success or failure). From his research, I can find that integrative motivation by Gardner is subsumed in the ideal L2 self, and instrumental motivation by Gardner is contained in the ought-to L2 self. From previous research, I think motivation is dynamic and changing over time because it is more a series of states rather than a stable trait. L2 learners' motivation might change owing to the external impacts, such as making friends with L2 speakers and travel to L2 countries which will increase their investment. Therefore, motivation research maintains at the periphery of L2 learning, but it is hard to capture because of its dynamic character.

#### **4. Aptitude**

As one of the main factors that lead to individual differences in the process of second language acquisition, linguistics has attracted the attention of the academic community since the beginning of the 20th century, and it is widely regarded as " the best predictive tool for predicting the success of language learning. The definition of aptitude is always considered as "raw learning power", which means L2 learners have some specific talents. This concept was

first put forward by John Carroll, who believes that linguistics can be relatively stable in the life of people, and it is difficult to change in a specific way.

However, since the 1990s, with the development of cognitive psychology and other disciplines, scholars began to reflect on and try to break through this static point of view, gradually completed the fundamental change that is the development of linguistics can be dynamic and will be changed because of other conditions.

This new understanding of dynamics has also been actively applied in the field of second language acquisition. For example, Robinson's "Linguistic Energy Complex" theory is guided by the dynamic nature of linguistic energy, and he put forward a linguistic theory with four levels on the model. Linguistics can be related to the external real world environment, including the language learning environment, and the dynamic interaction between them is studied. In addition, Wesche, Robinson and Erlam have found that linguistics can produce different effects on learning under different learning or teaching conditions. Since linguistics can be considered to be dynamic, it is bound to be related to other individual factors when interacting with external environment, and this relationship is also likely to have an impact on the effect of second language acquisition. However, in the past ten years, most of the related studies have discussed the relationship between linguistics and the external environment, and the relationship between learning and other individual factors is relatively scarce and scattered.

John Carroll (1981) stated foreign language (FL) aptitude as the initial ability to learn an L2. There is no doubt that high aptitude learners learn the L2 more quickly than low aptitude learners and they can reach a high level of ultimate attainment because of the aptitude affects. Recently, a large amount of research focuses on the components of L2 aptitude, which experienced two phases: Test-driven and Theory-driven. In the early test-driven aptitude research, John Carroll (1981) conducted a factor analysis and four factors (phonetic coding ability; grammatical sensitivity; inductive language learning ability; associative memory) are extracted with the highest predictive value. This modern language aptitude test (MLAT) is virtually construct-free in its early period. The researcher uses some sub-tests in MLAT. The first is number learning, which participants are expected to listen, memorize and write down numbers in a new language to examine auditory and memory related to sound-meaning relationships. The second is words in sentences, which the task is to match functions of words like subject or object of words in different sentences to test grammatical sensitivity. The other three sub-tests are Phonetic script, spelling cues and paired associates to test memory.

In the MLAT research, the author pays more attention to grammar and sound discrimination, while ignoring other social and discursive aspects of language use. MLAT tests learning rather than acquisition, so it should emphasize communicative approaches to L2 instruction in the further research. Therefore, language aptitude test CANAL-F (Cognitive Ability for Novelty in Language Acquisition Foreign) is developed by Grigorenko et al. (2000). It is derived from Sternberg's (2002) three-level intelligence-analytical, creative and practical. CANAL-FT in Dornyei & Skehan (2003) concerned the central of foreign language (FL) aptitude is the capability to deal novelty and ambiguity, which refers to recall and inferencing

ability to learn new linguistic materials. CANAL-F uses Ursulu-an artificial language combining oral and visual presentation to test five abilities which are selective encoding, accidental encoding, selective comparison, selective transfer, and selective combination. For example, in one paragraph some words are replaced by Ursulu language and the question requires participants to choose the most likely means of these words.

And since the 1980s, more and more scholars have designed many different language versions, such as French and Japanese, on the basis of MLAT, Thai, Spanish, and other linguistic tests, these tests may be beneficial to the study on the relationship between the other individual factors and the learning ability of the learners who regard Chinese as a second or even trilingual language. Therefore, this is a feasible way to study the relationship between linguistics and other individual factors.

What's more, few researchers are involved in such problems as learning ability and cognitive style, learning ability and anxiety. Therefore, the field has yet to be explored. In addition, the current domestic research on the relationship between the two is mainly concentrated in the field of foreign language learning of Chinese students, which is rarely involved in learning Chinese from foreign students a Study of the Relationship between Language Time Learning and Other Individual Factors.

A large number of studies have shown that there is indeed a certain correlation between linguistics and other individual factors of learners, and the author think we can try to introduce the information processing step (by Skehan) of second language acquisition, which may be possible to see more clearly the interaction between linguistics and other individual differences in different information processing steps, thus, stronger results can be obtained to support the research in this field, and it can also provide more specific and effective help for the design, second language learning and teaching of linguistic tests. Because the language itself is very complex, the individual factors in second language acquisition are numerous and varied, and the research on the relationship between linguistics and other individual factors is necessary to be further developed.

## **5. Conclusion**

These tests about age, aptitude and motivation of this topic help us to understand the relationship between individual differences and learning outcomes. It is essential to recognize in L2 learning and teaching that are ID between learners and of the language learning process itself. Therefore, researching on the ID is an effective way to improve second language learning and teaching, so that teachers will comprehend students' differences better. In addition to the three aspects I mentioned before, a large number of ID variables has been suggested, like the age of onset, cognitive and learning styles and learning strategies etc., which makes the research challenging to generate predictions and should be undertaken in the future research. From that, we can find that one ID variable cannot conclusively explain the whole learning outcomes and understanding that L2 learners' different characteristics is a dynamic process. The more we learn about ID, the more complex this field generates. Knowing and researching ID, how individuals acquire languages, how they undertake and why they can succeed in L2 study, in addition, how an individual differs from another in

his/her motivation, strategies, styles etc. and succeeds in his/her own way. The question about what is individual and what is universal, which is a challenging mystery to explore in further research.

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