

Overview on Language Attrition Theory

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Abstract—Language attrition refers to the loss of any language or any portion of a language by an individual or a speech community. It is often considered as the reverse process of language acquisition. Based on related literature analysis on language attrition at home and abroad, the paper gives an overview on the theoretical system of language attrition and deeply explores nine factors of affecting language attrition, that is, time of attrition, foreign language level before attrition, contact with attrition language, age, language acquisition mode, social emotional factors, reading and writing ability, target language and gender. Through the analysis of these nine factors, the author hopes to have a further understanding to language attrition, clarify the development direction and provides a theoretical basis for effective foreign language teaching.

Keywords—overview; language attrition; language attrition theory; affecting factors; language teaching

Language attrition plays an important role in the study of second language acquisition and has indispensable relation with it. Language acquisition contains not only learning and gains, but also loss and attrition; not only rising and development, but also fossilization and deterioration. In some sense, language attrition is the reverse process of language acquisition and an important factor restricting foreign language learning ability.

About the definition of language attrition, the mostly accepted one in the field of the study of language attrition is defined by Freed in his book *The Loss of Language Skills*.

"Broadly defined, language attrition may refer to the loss of any language or any portion of a language by an individual or a speech community. It may refer to the declining use of mother tongue skills by those in bilingual situations or among ethnic minorities in (some) language contact situations where one language, for political or social reasons, comes to replace another. Language attrition also refers to the deterioration of language skills in neurologically impaired patients and to the decline of certain types of language usage by the elderly. Likewise, language attrition may be used to describe the death of an entire language. There is yet another sense in which the term language skill attrition is used which has received considerably less attention. That is the loss of language skills by those who have studied and then discontinued the use of a second language^[1].

The study of language attrition is paid more and more attention at abroad but still remains a relatively new research field at home. Either the amount of the first-hand research papers on it or the second-hand ones

are relatively few. Based on collecting and sorting to the papers of language attrition research published at home and abroad during these years, the paper makes a systematical overview and analysis on language attrition theory, aiming to give inspiration to the study of language attrition.

I. RETROSPECT OF LANGUAGE ATTRITION RESEARCH AT HOME AND ABROAD

A. Foreign language attrition research

The earliest introduction of the concept of language attrition to linguistic research was made by Lambert. Lambert called on a conference about "The Loss of Language Skills" at the University of Pennsylvania in 1980. *The Loss of Language Skills* published after the conference has been recognized as the very witness of the establishment of the subject: language attrition and it becoming an independent discipline. The meeting about the language loss was held in Kerkela and the paper presented in this meeting further distinguished the differences among language loss, dialect distinction and second language attrition. The opening of the meeting "World Applied Linguistics Conference" in Sidney marked the study transition of language attrition from single theory to applied research and researchers concentrated their study on the first language attrition in foreign language environment. Later some language attrition works had been appeared. Such as Seliger and Vago, they paid attention to the first language attrition in foreign language environment and firstly used the term "attrition" in their papers. After that language attrition research experienced several ups and downs. The holding of "Second Language Research Forum" in Wisconsin and "The Third International Bilingual Thesis Seminar" in Bristol marked the integration of language attrition research. Language attrition research became an independent research field.

The early theory perspective of language attrition research were mainly based on the memory and forgetting theory in psychology, in the 90's on the cognitive linguistics, and during these years on sociolinguistics. Researchers analyzed the rules and phenomena of language attrition and put forward systematic language attrition theories and explanatory framework, such as language dynamic system theory, language retrieval failure, inverse hypothesis, language distortion and interference, critical threshold etc.. It is particularly worth mentioning that under the guidance of these theories, lexical attrition study yielded many fruits ranged from early introspective study to later series of quantitative analysis study. Some researchers

concentrated on the differences of attrition in lexical and other language system, such as Anderden(1982), Bahrick(1984), Mooncraft & Gardner (1987), Weltens (1989), Altenberg (1991), Weltens & Grendel (1993), Kopke (2002), Al-Dabbous(2002), Hutz(2004). And others focused on the lexical itself, such as Cohen (1986), Olshtain & Barzilay (1991), Ellis & Beaton (1993), Laufer (1997b), de Groot & Keijzer (2000), Ross (2002), Russell (2005), Ferguson & Grainger (2005), Fliessbach (2006).

B. Domestic language attrition research

Compared with the study of foreign language attrition, Chinese researchers started late. Language attrition study didn't rise to a trend until the coming of the new century. Zhong Shuneng in 2003 and Cai Hansong in 2004 started to sort and synthesize foreign advanced research findings. Zhong Shuneng translated "attrition" into "liusun" in Chinese, regarding it to be different from pathological language attrition and referring to the loss of any language or any portion of a language by an individual or a speech community^[2]. Cai Hansong and Zhou Rong translated "attrition" into "haosun", thinking of it to be the phenomenon of the loss or degradation of foreign language knowledge and skill by those who had studied but disused for some time (e.g. several months or years or even decades), or the phenomenon of the loss or degradation of the first language skills by those who lived in second language environment^[3]. Based on the sorting and his own practice and combining the characteristics of Chinese language study with language attrition, Ni Chuanbin at Nanjing Normal University has made some achievements from the following aspects: foreign language level before language attrition is a key factor of foreign language attrition; time of language attrition is a decisive factor; contact with foreign language is the most primitive presupposed motivation. He held the opinion that language attrition was a reverse process of language acquisition, referring to bilingual or multilingual users' ability of using the language gradually decreased because of reducing or discontinuing to use the language over time^[4]. The conclusion changed the long-term blank situation, which greatly promoted the development of domestic language attrition research.

In recent years, domestic language attrition research has entered a stage of the close combination of theoretical study with empirical study. Ni Chuanbin and Yan Junrong(2009)^[4] studied the influential factors of foreign language attrition, that is, foreign language level before attrition, time of attrition, age, acquisition mode, social emotional factors, writing and reading ability and so on. They also improved that there was an existence of "Inverse Hypothesis" in foreign language level before attrition, that is, foreign language level before attrition is inversely proportional to the amount and speed of attrition; the time of attrition presents the characteristics of "fast-slow-fast"; foreign language attrition of children is faster than that of adults, younger than older; the foreign language class teaching mode, focus and intensity are all have a certain influence on foreign language learners; social and emotional factors are also

indirect factors of foreign language attrition; the ability of reading and writing can effectively prevent foreign language attrition. Wang Xiangyun(2011)^[5] studied the external and internal mechanisms of foreign language attrition. In internal mechanisms, the degree and speed of language attrition will be slower with the more active attitude and the stronger motivation; language will be kept better with higher degree of education and stronger ability of reading and writing; language attrition will be less with higher contact frequency of target language. In external mechanisms, language attrition will be less with the more extensive culture atmosphere; language interference can eliminate and attrition the inferior language. Ni Chuanbin^[6] and Yu Zhonggen^[7] made a empirical research on the gender differences of language attrition, finding that there are significant gender differences in the language attrition. Besides their determining factors, such as gender and living circumstance, Language attrition is also relevant to learners' own factors, such as learning style and learning strategies.

II. LANGUAGE ATTRITION THEORETICAL SYSTEM

Since language attrition study has attracted many linguists, related theories emerged continually. The Jakobson Regression Hypothesis, Threshold Hypothesis, Retrieval Failure Hypothesis and Interference Theory are far-reaching.

A. Jakobson Regression Hypothesis

Ribot proposed Regression Hypothesis in 1880s and obtained the support of Freed. The hypothesis was originally used in the study of pathological attrition study. Jakobson, a famous linguist, introduced non-pathological language attrition into phonological research until 1950s and finally developed into Jakobson Regressive Hypothesis. The hypothesis mainly discussed the relationship between language acquisition and language attrition, whose core idea is that language attrition is the mirroring process and "First in, last out". That is to say, language attrition develops in the following ways: the first learned knowledge can keep to the last, while the later learned knowledge can be forgotten firstly. In other words, the order of language attrition is reverse to language acquisition. Many linguists made a lot of empirical researches to this hypothesis. But according to the results, the hypothesis was criticized and questioned. Critics believed that this hypothesis lacked enough empirical evidence and sometimes it run counter to the results of practical research. When studying the case markers in Germany, de Bot found that second language attrition had the mirrorimage relation with second language acquisition instead of the corresponding relationship between the first language attrition and the first language acquisition^[8]. Ellis(1994:106) proposed an "ideal model" to verify "Jakobson Regression Hypothesis": "the good command of structure was formed gradually and developed orderly, and the amount of language elements were relatively small."

B. Threshold Hypothesis

Threshold Hypothesis is concerned with the relationship between the level of language learning and

the level of language attrition, which highlights the important role of input reinforcement in the process of language learning. It is believed that the last language being attrited is not that learned first, but learned best (Best in, last out).

The threshold is a quantizer which measures the level of learners' language learning. Its significance lies in the fact that there are obvious differences in the level of foreign language learners in the threshold level. Sring&Berdovi pointed out that when a learner's language level reached a certain threshold, his level of language attrition resistance will be significantly enhanced, and even no longer being attrited^[9]. There are two important hypotheses: Critical Threshold Hypothesis and Activation Threshold Hypothesis.

1) *Critical Threshold Hypothesis*

As one of the main factors influencing language attrition, Kennedy(1932) found that the foreign language level before attrition is of great influence on language attrition. Godsall-Myers(1981) confirmed after the study of German learners that learners' speed of German attrition was negatively correlated to the level of Germany, that is, language level before attrition has an inverse relationship with the speed. The researchers also believed that different language level had different influence on language attrition speed, where there was a divide line, that is, the language attrition speed and amount had great differences up and down the line. Cummins(1979) first proposed the linguistic threshold hypothesis(LTH) and believed that when a learners ability reached the LTH, his knowledge will not be easily forgotten. That is to say, once the learner's ultimate language level reaches the threshold, he owns permanent schema in his mind and this kind of ability makes the learners keep the construction of foreign language, and thus their degradation of language ability will be slowed, too^[10]. Learners must have a good command of writing, listening, reading and other comprehensive ability if they want to reach or overpass the threshold.

Critical Threshold Hypothesis has been supported by many experiments. When studying the relationship between the first language reading and the second language reading, that is, the influence of the first language reading ability on the second language reading ability, Bernhardt&Kamil(1995) found that only learners mastered a certain amount of the second language and its grammar can the role of the first language knowledge be played. The lack of second language knowledge made the use of the first language short circuit. According to threshold hypothesis, only the level of second language reached above the threshold can the first language be used to assist second language reading. Therefore, the target of learning is that second language learners reach above the threshold.

2) *Activation Threshold Hypothesis*

Another branch of Threshold Hypothesis is Activation Threshold Hypothesis. The hypothesis is mainly based on the treatment of aphasia patients. After the sufficient investigation, Paradis pointed out that contact frequency of the language had greater influence than brain damage on the possibility of the rehabilitation of patients with aphasia^[11]. Stinger&Berdovi pointed out

that the higher level the activation threshold, the bigger activation force that the patients with aphasia need. Only when the activation force reached the activation threshold can the recovery of the patients become possible^[12].

Monika S. Schmind indicated that if the bilingual learners' first language words was in the idle state, the threshold would be increased, resulting in the temporary or permanent lexical retrieval failure. The higher the frequency of the lexical retrieval, the less the energy consumption was required when re-extracted again^[13].

3) *Retrieval Failure Hypothesis*

Along with the development of the theoretical study of psychological memory and forgetting, Weltens proposed Retrieval Failure Hypothesis and pointed out that the difference between attrition and forgetting is that: for forgetting, information can be retrieved wholly if you provide a clue; while for attrition, the information can only be retrieved partly. This view has been questioned by many researchers and they tend to the view that language attrition is not a permanent loss but a temporary difficulty when retrieved.

4) *Interference Theory*

Interference Theory originates from behavioral psychology and its meaning in language attrition is that the first language can generate interference to learners under bilingual mode, and that the similarity in the first language and foreign language types helps the maintenance of foreign language ability, while the difference in the first language and foreign language can generate interference and attrition. If the memory of a word interferes the memory of another one, lexical attrition will appear. The appearance of interfered words is one of the important signs of lexical attrition.

III. INFLUENTIAL FACTORS OF LANGUAGE ATTRITION

In the field of language attrition research, the proved attrition factors affecting learners' language ability are the following nine: time of attrition, foreign language level before attrition, contact with attrition language, age, language acquisition mode, social emotional factors, reading and writing ability, target language and gender.

A. *Time of attrition*

In traditional sense, time is considered to be the primary influencing factor in the occurrence of "language attrition"^[14]. The study of language attrition involves the time span of three months, one year to four years, twenty-five years to thirty-five years and fifty years. Take the results of the time span of four years' language attrition sample as an example, the results showed that in the first year, there is no occurrence of attrition, while in the second year, attrition appeared, especially in vocabulary. Researchers tried to analyze the relationship between attrition time and words attrition and got the corresponding equation when studied the sample but failed to find the corresponding function relation. Allendorff believes that the level of foreign language of four-to-eight-year-old children will be in a state of entire loss if they don't learn it within a year and a half^[15]. Wentens believes that the attrition of grammar will be more significant than that of

vocabulary and pronunciation^[16]. Jimenez holds the view that the degree of participation in the language activities can have a greater effect on the development of the foreign language level of the students than that of time of attrition^[14]. So, we might as well say, no contact to a language for a long time is one of the most primary factors causing the language attrition.

B. Foreign language level before attrition

Foreign language level before attrition is a key factor affecting language attrition. Jimenez put forward "Inverse Hypothesis", considering the attrition degree of language learners are negatively relevant to the actual level of language learners, and the higher the level of a language learner, the lower his attrition degree^[14]. Hansen used a more concise summary, that is, "the more you study, the less you loss"^[17].

C. Contact with attrition language

After the end of foreign language study, we may think that language attrition of foreign language learners begins since there is no atmosphere of using foreign language and hence they have no contact with foreign language for a long time. The study of Clark shows that: people who have less contact with foreign language have significant attrition in the aspects of conversation and reading skill; whereas listening ability hasn't been influenced. Therefore, it is of great significance to improve English teaching efficiency to select teaching practice and teaching mode with good long-term anti-attrition result and it is beneficial to get rid of China's embarrassing situation existing in the present stage.

D. Age

In all influential factors, age is in the key position. The effect of age on language attrition is mainly reflected in the following two aspects.

The first one is the comparative study between children and adults. Hansen pointed that children's foreign language level was more easily attrite than that of adults^[18]. The second one is the comparative study between children and children. Cohen and Kaufman made a great many experiments in the field of the influence of children's age on language attrition, which draw a conclusion that the error proportion of elder group was significantly lower than that of younger group.

E. Foreign language acquisition mode

Each individual has different preference in language learning, which leads to the development of specific language skills in the process of study. However, the degree of attrition of different skills and the influence on language maintenance are different. Bahrck found that productive skills, that is speaking and writing, were more easily attrite than that of receptive skills, that is listening and reading^[19]. And Olshtain said that the improvement of reading and writing skills could effectively prevent language attrition^[20].

F. Social emotional factors

Social emotional factors refer to foreign language learners' learning attitude, motivation, personality, emotion and so on. At present, the research on the influence of social emotional factors on language

attrition mostly concentrated on the attitude and motivation. Learners with positive attitude and strong learning motivation had lower speed and degree of language attrition than those with negative attitude and weak learning motivation. Gardner and Lambert(1972) divided motivation into two categories: integrative motivation and instrumental motivation. Learners with integrative motivation showed great interest in target language and its culture, hoping that they could know more about the language and the country. This kind of motivation is good for learners to keep their learning enthusiasm for a long time, which is beneficial to the improvement of foreign language ability. The purpose of learners with instrumental motivation studying foreign language is for practical purpose, such as job requirements, examination, studying abroad and so on. This kind of motivation is direct and purposive, so learners with this kind of motivation tend to lack interest in studying to some degree. Edwards Deci divided motivation into intrinsic motivation and extrinsic motivation. The former originated from learners' intrinsic interest, desire and demand, while the latter originated from the external pressure, encouragement and so on.

G. Reading and writing ability

The influence of reading and writing ability on the first language are as follows. The first one is that reading and writing ability gives children more chances to contact with the first language which is easily attrite, such as reading or writing letters, which reduce the first language attrition (Kopke 2004:5-8). The second one is that having a good command of a language writing code is good for learners to promote the position of the language in learners' hearts, therefore effectively prevent language attrition through improving learners' study motivation (Christian 1977:107). The third one is that reading and writing ability of learners can not only increase language input, but also is helpful to the curing of language information and add another network connection.

H. Target language

Reetz-Kurashige(1999:21-58) confirmed through his research that the similarity of the first language and foreign language in type and pragmatic was helpful to the maintenance of foreign language ability, while the differences between the first language and foreign language could easily lead to interference and attrition. So the research proved that the similarity of the first language and foreign language in structure could influence not only foreign language acquisition but also foreign language attrition.

I. Gender

Foreign study on the influence of gender on language attrition is very little. Hansen mentioned the gender factor of foreign language attrition, but he didn't make a further exploration^[21]. Domestic study is little, too. Ni Chuanbin explored the influence of gender on language attrition on the basis of empirical study^[6]. Based on the results of questionnaire inquisition to 704 graduates, his conclusions were as follows: there were significant gender differences in the degree of language attrition,

which were shown that males' degree of language attrition was significantly lower than that of the female.

IV. CONCLUSION

Language attrition and language acquisition are two indispensable parts in language learning and the study of language attrition is of great significance in China. First of all, the study of language attrition has opened up a new way for the study of language acquisition. Secondly, the study of language attrition in Chinese environment can test whether the existing foreign language attrition has universally applicable value. Thirdly, the study of language attrition can not only provide empirical basis for language planning and language teaching policy, but also bring great influence on the setup of foreign language curriculum.

But domestic study of language attrition starts relatively late and there are still many questions needed to be further explored. The absorption of the latest research achievements in the field of psychology, social linguistics, neurolinguistics, testing and others are needed to develop language attrition study.

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