

A Study on English Listening Attrition among English-Japanese Majors Based on Dynamical Systems Theory

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Abstract

To respond the needs of the times, some universities have established English-Japanese bilingual programs to cultivate multilingual talents. Mastering two foreign languages simultaneously is a significant challenge for students. English listening plays an important role in their English learning process. Therefore, based on Dynamic Systems Theory (DST), this study uses questionnaires and semi-structured interviews to analyze the specific impacts and causes of listening attrition from the perspectives of environment, learners, and teaching—three subsystems. The study finds a significant correlation between the frequency of Japanese usage and English listening attrition, suggesting that frequent use of Japanese may negatively impact students' English listening skills. This research provides a new perspective on the phenomenon of listening attrition among English-Japanese bilingual students and offers valuable guidance for related educational practices.

Keywords

Dynamical Systems Theory; English-Japanese Majors; Listening; Language Attrition

1. Introduction

With the deepening of globalization, some universities have established bilingual programs majoring in both English and Japanese to meet the significant strategic demand for foreign language talents in response to China's socio-economic and cultural development and international communication needs. This requires students to learn and master the knowledge and skills of both languages simultaneously. In the process of bilingual learning, if students favor one language over the other, it is likely to lead to the attrition of skills in the other language. Consequently, English-Japanese bilingual students face numerous challenges in

acquiring English. Most domestic studies on language attrition focus on Chinese native speakers learning English as a second language. The English-Japanese bilingual program, being relatively new, presents a broad research space. Listening, as the foremost of the essential language skills—listening, speaking, reading, writing, and translating—plays a crucial role in the process of learning English. Understanding the English listening attrition among English-Japanese bilingual students not only helps these students improve their English listening skills but also aids in the adjustment and optimization of course design and teaching strategies for this program. Therefore, based on domestic and international research, this study combines qualitative and quantitative approaches to explore the phenomenon and causes of English listening attrition among English-Japanese bilingual students.

2. Literature Review

2.1. Key Principles

Dynamic Systems Theory posits that the process of language learning is complex and dynamic. In 1997, Larsen-Freeman first studied dynamical systems theory, Larsen-Freeman (2012) equated complexity theory with dynamical systems theory, Ellis (2008) lumped emergentism, chaos theory, and connectionism together. Analyzing second language acquisition (SLA) through the lens of Dynamic Systems Theory can be explained through four aspects: initial state, non-reconstructed equilibrium, variability, and non-linearity (De Bot, Lowie & Verspoor, 2007:15). The greatest contribution of Dynamic Systems Theory to SLA research lies in its provision of a framework that integrates the social and cognitive dimensions of SLA, demonstrating how the integration of these dimensions ultimately facilitates language development.

2.2. Language Attrition

In the 1980s, research on language attrition began abroad, with Lambert (1982) introducing the definition of language attrition. Domestic research on language attrition started relatively late, originating at the end of the 20th century. Language attrition refers to the phenomenon where bilingual or multilingual individuals, influenced by physiological, psychological, cognitive, and social factors, experience a reduction or cessation in the use of one or more specific languages (which can refer to either a native or foreign language). This leads to a non-pathological, intra-generational, reversible, and individual decline in language proficiency over time [5].

Wang (2011) posits that the causes of language attrition among language learners result from a combination of internal and external factors, with internal factors being crucial. These internal factors include age differences, learning motivation, and attitudes, while external factors encompass the frequency of exposure to the target language and language interference. A user's language attitude and

motivation influence their frequency of exposure to the target language; the more frequent the exposure, the less likely the language is to be subject to attrition. Age is a significant factor in language attrition; generally, the younger the individual, the more susceptible they are to attrition, mainly because children's language learning lacks rationality and is heavily influenced by the environment. Learners with a positive attitude and strong motivation towards language learning are less likely to experience language attrition, whereas those with negative attitudes and low motivation are more susceptible. Language interference, also known as language transfer, refers to the impact of existing knowledge of the native language or other languages on the learning of the target language.

Therefore, language learning is not static and is influenced by multiple factors. Based on Dynamic Systems Theory, this study proposes the following research questions:

- a. Is there a significant correlation between the English listening attrition of English-Japanese bilingual students and their frequency of Japanese use?
- b. What are the main factors affecting the English listening attrition of English-Japanese bilingual students?
- c. How does Dynamic Systems Theory explain the phenomenon of English listening attrition in English-Japanese bilingual students during the English learning process ?

3. Research Design

This study used a combination of questionnaires and interviews for data collection. The questionnaire survey was conducted using a 5-point Likert scale, while the interviews were designed to obtain deeper qualitative data to complement the quantitative data from the questionnaire survey.

3.1. Research Participants

The subjects of this study were selected from second-year undergraduate students majoring in English-Japanese bilingualism at a university in China. The average age was 19 years old. All scored above 120 points in English on the college entrance examination. These students had taken English courses since the beginning of the school year, and began studying Japanese in the second semester of their freshman year, and by the second semester of their sophomore year, the students had studied Japanese for three semesters. This ensured that these students had a foundation in Japanese and had experienced some degree of language learning and application process. All participants participated in this study voluntarily and had signed an informed consent form to understand the purpose and process of the study and its possible risks and benefits.

3.2. Research Methods

The research methods used in this study were questionnaires and semi-structured

interviews, and quantitative research was combined with qualitative research in order to gain a comprehensive understanding of the phenomenon of English-Japanese bilingual students' English listening erosion and its causes.

The questionnaire was the main quantitative research method in this study and was designed to collect a wide range of data on students' language use, listening skills and their changes. The questionnaire content was designed to include basic information about the participants, English language use, self-assessment of listening skills, and description of attitudes toward learning English. Language use investigated in detail how often students used English and Japanese, including classroom learning, extracurricular reading, and social interactions. Self-assessment of listening skills entails participants' self-assessment of their English listening ability, which includes the level of comprehension of listening materials, the ability to cope with complex listening tasks, etc., and is rated on a five-point Likert scale (with 1 indicating very poor and 5 indicating very good). The questionnaires will be distributed and collected anonymously on an online platform to ensure the authenticity of the data and the privacy of the participants. A total of 60 questionnaires were distributed and 56 were returned, with 50 valid questionnaires. After data collection, the data will be analyzed using SPSS statistical software to explore the relationship between the frequency of Japanese language use and English listening erosion, as well as the main factors affecting English listening erosion.

In order to gain an in-depth understanding of the deeper reasons behind the questionnaire results, this study will conduct semi-structured interviews with some of the students. The interviews will be conducted by the researcher himself, and the interview questions will be determined by the researcher in advance, with no preset standardized answers, and the answers will vary from respondent to respondent. The interviews will be conducted in the order of the questions and no new questions will be asked. The interviews will take about 30-60 minutes and will be audio-recorded and transcribed to ensure the completeness and accuracy of the data. The interviews covered the students' listening learning, whether they felt affected by the Japanese language, subjective explanations and feelings, motivation and attitudes toward learning, and external reasons.

3.3. Results and Discussion

In this study, we collected relevant data from 50 second-year undergraduate students majoring in English and Japanese through questionnaires. By analyzing these data, we can have a preliminary understanding of the phenomenon of students' English listening erosion and its possible causes. The average age of the participants was 19 years old, and all of them had scored more than 120 points in English in the college entrance examination, which meant that they already had a strong foundation in English before entering the university. In the questionnaire

results showed that although the students were still attending English classes, they were using Japanese significantly more often. All participants had weekly classes in English and Japanese, and since Japanese was a newly learned language, the Japanese teacher assigned homework before and after class in order to firm up the students' foundation, whereas English itself had a certain foundation, so the students spent more time in Japanese than in English.

The self-assessment of English listening skills in the questionnaire was scored using a five-point Likert scale, and the results showed that the students' average self-assessment of listening comprehension was 3.2, indicating that the students generally considered their English listening comprehension to be average, and that the average score of their ability to cope with complex listening tasks was 2.8, indicating that the students found it difficult to deal with complex listening tasks. In terms of attitudes towards English learning, the students generally showed moderately positive attitudes, but decreased compared to when they enrolled in school. The data were analyzed using SPSS statistical software, and the results showed that there was a significant correlation ($p < 0.05$) between the frequency of Japanese language use and English listening erosion. Specifically, the higher the frequency of Japanese language use, the lower the students' English listening comprehension scores. This suggests that frequent use of Japanese may have a negative impact on students' English listening skills.

In order to gain a deeper understanding of the underlying reasons behind the questionnaire results, this study conducted semi-structured interviews with 10 students. Most of the interviewed students indicated that their English listening practice had decreased during their college years. The main reasons for this included a tight course schedule, limited time outside of class, and the fact that Japanese language study took up more of their study time. Some students indicated that Japanese language study did have some negative impact on their English listening. They would unconsciously turn their attention to Japanese when listening to English, leading to difficulties in listening comprehension. In terms of motivation and attitudes, although students still maintained some interest and motivation in learning English, it had declined compared to when they enrolled in the program. Many students mentioned that the decline in motivation was related to the increase in Japanese language study. Due to the higher pressure of Japanese language classes, more energy and time needed to be spent on Japanese language.

4. Listening Attrition from the Perspective of Dynamic Systems Theory

According to Dynamic Systems Theory, language learning is a dynamically changing process, a complex, dynamic process consisting of multiple interacting subsystems. These subsystems include the environment, the learner, and the instructor. Therefore, to understand the phenomenon of English listening erosion, it is

necessary to consider the role of each subsystem comprehensively from a systems perspective.

The environmental subsystems include the socio-cultural environment, the linguistic environment and the physical environment in which learners live. These environmental factors have an important influence on the phenomenon of English listening erosion. For English-Japanese bilingual majors, if they are in a non-English environment for a long time, the frequency of using English will be greatly reduced, which will lead to the erosion of listening ability. The maintenance and degradation of listening ability are closely related to the language environment. A rich language environment can slow down hearing degradation, while a monolingual environment may accelerate the wearing away of hearing ability. When students learn Japanese, due to the pressure of learning a new language, they involuntarily pour a great deal of time into learning Japanese, spend relatively less time learning English, and the frequency of exposure to the target language decreases. Frequent use of the target language helps to maintain listening skills, whereas prolonged non-use of English causes knowledge to fade in memory, leading to deterioration of English listening skills.

The learner subsystem includes aspects of students' individual differences, psychological states and learning strategies. These factors directly affect students' listening ability and the degree of erosion. Each learner has his or her unique individual differences in language learning. The subject students who participated in the study were of the same age, and all of them scored above 120 points in English in the college entrance examination, and had an intermediate to advanced English foundation. Moreover, all the students had not systematically studied Japanese before college and had comparable starting levels of Japanese. In addition, learning motivation is also a key factor. Ni (2006) pointed out that having the idea of continuing to learn a foreign language helps to prevent erosion, and that attitudes and motivation can reduce erosion by influencing the degree to which subjects use the foreign language. If students lack interest or motivation in English, their listening skills are more likely to deteriorate. From the interviews, we learned that the students still had a strong interest in English, but the more intensive study of Japanese did not leave much time for students to practice listening in English. Students' psychological state, such as anxiety, stress and self-confidence, also affects their listening ability. As a result of not practicing English listening for a long time, some students felt less confident in their listening, which could affect the maintenance and improvement of their listening skills in the long run. On the contrary, students with high self-confidence are more likely to maintain and improve their listening skills. Both internal and external factors of learners may influence the use of strategies. Such influences are often intertwined and may either reinforce or cancel each other out. At the same time their influences are usually multilevel and multifaceted [8].

The instructor subsystem includes the teacher's teaching methods, teaching attitudes, and professionalism. Teachers play an important role in the retention and improvement of students' listening ability. Teachers' attitudes have a significant impact on students' motivation and confidence. Positive, encouraging and supportive teaching attitudes can stimulate students' interest in learning and enhance their self-confidence, which in turn helps to maintain listening ability. Teachers' professionalism is also a key factor. Teachers should have solid theoretical knowledge and practical experience in listening teaching, and be able to design and implement effective listening teaching programs according to the different needs and levels of students. In addition, teachers should keep their knowledge and skills updated with the latest listening teaching methods and resources to better help students maintain their listening skills.

By recognizing the complexity and dynamics of listening wear and tear, we can develop more effective strategies to slow down the deterioration of listening ability. First, in terms of environmental subsystems, Dai and Wang (2012) argue that better environmental systems for L2 learning should be created to increase language input and output, enhance motivation for language learning, and promote learner strengths. Schools and society should create more opportunities and environments for students to use English, and provide rich listening resources and advanced listening devices. Second, in terms of the learner subsystem, students should set up correct motivation, adopt effective learning strategies, maintain a positive mental state, and take the initiative to seek opportunities for listening practice. Finally, in the teacher subsystem, teachers should continuously improve their professionalism, adopt diverse teaching methods, maintain a positive and supportive teaching attitude, and help students maintain and improve their listening skills. Through the synergy of these three subsystems, we can effectively deal with the challenge of English listening erosion for bilingual English majors, help students maintain good listening skills in non-English environments, and then realize the long-term goal of language learning.

5. Conclusions

This study analyzed the causes of English listening wear and tear among English-Japanese bilingual majors in terms of three subsystems: environment, learners, and instruction through dynamic systems theory. It was found that there was a negative correlation between the frequent use of Japanese and English listening ability before. Based on the findings, appropriate suggestions and countermeasures are proposed for learners and teachers to enable English-Japanese bilingual majors to maintain a certain level of English listening ability while learning Japanese. In the future, dynamic systems theory can be used to study other aspects of English language skills of English-Japanese bilingual majors.

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