

論文審査の結果の要旨
Report of examination doctoral defense

The perception and production of English voicing contrast by Mandarin-Japanese bilinguals
(中国語・日本語バイリンガルによる英語の破裂音知覚と生成)

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The focus of this research was to investigate whether the mastering of two languages facilitates or impedes the production and perception of a newly acquired language (L3) and whether the first language (L1) or second language (L2) affects the third language performance. In an attempt to answer these questions, the present study conducted experiments evaluating L3 production and perception of bilinguals. The participants in these experiments were Mandarin-Japanese bilinguals who learned English as their L3. They immigrated to Japan before or around puberty, with varying age of arrival (AOA) in Japan, from 0 to 15 years old. They were divided into two groups in terms of their AOA in order to investigate the effect of AOA in their L3 production and perception: The bilinguals who arrived in Japan between the age of 0 and 6 years old are referred to as early bilinguals, while the bilinguals whose AOA was between 10 and 15 years old are referred to as the late bilinguals.

The current research on L3 production and perception by bilingual speakers is meant to provide a better understanding of L3 phonetic acquisition, in which L1, L2 and L3 are intricately intertwined with each other. For this purpose, this thesis compared the bilinguals' L3 perception as well as their L1, L2, and L3 production of stops voicing contrasts with monolinguals of each of the three languages of interest: Mandarin Chinese, Japanese and English (North American) monolingual speakers.

This thesis has an introduction, a review of the literature, a chapter dealing with the production experiments and another dealing with the perception experiment, a general discussion chapter, a conclusion, a reference section, and many appendixes, as well as a list of tables and a list of figures. Chapter 2 describes possible influential factors on L2/L3 phonetic acquisition and the L2 phonetic acquisition model that is used for this study. First, it introduces previous studies on L2 phonetic acquisition regarding the possible effect of L1 transfer and L2 transfer. Then, previous studies on the possible effect of L2 experience are reviewed, followed by the effect of age of arrival in the country where the L2 is spoken, effect of length of residence in the L2-speaking country, and the influence of phonetic similarities between L1 and L2. This section also details previous studies on L3 phonetic acquisition focusing on two possible types of transfer, language transfer and language distance, followed by a discussion of the limitations in the previous studies. The following section introduces a theoretical model that has been developed: Speech Learning Model (SLM), Perceptual Assimilation Model (PAM), and the Bi-Level Input Processing (BLIP) model. Section 2 also introduces the acoustic features related to the stop contrasts in English, Mandarin Chinese and Japanese, focusing on the difference between the values of VOT in the three languages, which is the focus of the thesis. Then, the definitions of bilingual, monolingual, L1, L2 and L3 are given along with the researcher's hypotheses for perception and for production.

In Chapter 3, the methodology and the result of three production experiments are presented: the Mandarin production experiment, the Japanese production experiment, and the English production experiment. In these production experiments, the researcher observed and compared the VOT values by Mandarin-Japanese bilinguals and monolinguals of the target language to evaluate, first, if being proficient in two languages has an impact on their production of L1, L2 and L3 VOT contrasts. A summary and discussion of these results are also presented at the end of this chapter.

Chapter 4 reports the English perception experiment, where a VOT continuum was categorized into a voiced (unaspirated) plosive /b/ or a voiceless (aspirated) plosive /p/. Here, the participants were the Mandarin-Japanese bilinguals and the monolingual speakers of English, Mandarin and Japanese. A summary and discussion of these results are presented at the end of this chapter.

In Chapter 5, the results of the production and perception experiments are linked together and a general discussion follows.

Finally, Chapter 6 concludes the dissertation with implications and a suggestion for future research on L3 phonetic acquisition.

Rika Aoki defended her dissertation on June 28, 2017. The committee consisted of Shin-ichi Tanaka, Yuki Hirose, Tom Gally, and Izabelle Grenon of the Department of Language and Information Sciences and Chris Sheppard of Waseda University. The following is our assessment.

Miss Aoki's topic was an important one as not many studies have been conducted on third-language acquisition. Her review of the literature on both second- and third-language acquisition was thorough and detailed, addressing all the relevant issues, such as first language transfer, second language transfer, regressive transfer, effect of age of arrival and length of exposure, etc. Her methodology was sound and consistent, her statistical analyses well conducted and justified, and her discussion complete and convincing. The resulting study broke new ground, and it makes a significant contribution to the field.

However, a few weaknesses were pointed out by the committee members: Miss Aoki's predictions could have been better supported by stronger arguments; the fact that she used English as a foreign language instead of English as a second language may have affected the generalizability of her results; her topic was very focussed, which in itself is a good point, but it fails to capture other factors that may have affected her results; there is a need to explain all results, especially the ones which do not match the research hypotheses; there needs to be a clear match between the conclusions made and the statistical analysis, specifically, the conclusions need to be hedged to recognize the small sample sizes; and finally, maybe a minor point, the Japanese translation of the title doesn't exactly match the English title.

Despite these shortcomings, the committee members agreed unanimously that her dissertation was excellent and fully deserving of the granting of a *Hakase (Gakujutsu)* degree.