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**Phonological Awareness**

**in Mandarin of Chinese and Americans**

胡敏\_著

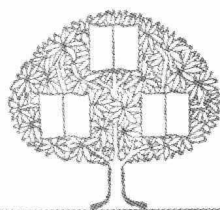
# 中国人和美国人普通话 语音意识的对比研究

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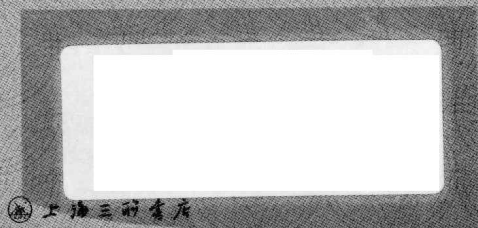
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## 中文摘要

语音意识指个体对口语或书面语中言语音位片断的分析和控制能力。语音意识并不是一个单一的技能,它包含不同类别的语音意识:对音节的意识、对音素的意识以及对音节内单元(首音-韵脚)的意识。基于普通话语音体系,普通话语音意识包括音节意识、声母(首音)意识、韵母(韵脚)意识和声调意识。相关文献表明,普通话语音意识受不同因素组的显著影响,如语言经历(包括口语、字母知识、二语习得)、测试项类型、声调环境、音乐才能和说话者变量。但是,大多数前期研究主要考察普通话声调意识,只有极少数的研究对汉语者和世界上其他语言者的不同类别的普通话语音意识进行比较。

本研究对比分析以上所述因素组对中国人和美国人的四类普通话语音意识的影响。受试共有四组,每一组均为 10 人。第一组具有拼音字母知识,其母语不是普通话所基于的北方方言中的一种;第二组的母语也不是普通话所基于的北方方言中的一种,但其受试没有学过拼音。第三组和第四组都是以美式英语为母语者,区别在于第三组有学过普通话的经历。测试材料是音节同异判断、声母判断、韵母判断和声调辨识任务。对测试结果的数据分析采用 Logistic 回归分析和卡方检验,以考察不同因素组对普通话语音意识的影响。另外,我们也对声调辨识任务的结果进行分析,以探究错误模式及原因。

本研究要解决的四个问题是:(1)哪些自变量因素显著影响普通话语音意识?哪些因素引起汉语者和非汉语者普通话语音意识的差异?

- (2) 声调辨识的错误模式在不同受试组之间是否存在差异? 原因何在?
- (3) 研究结果对语音意识研究和普通话语音意识研究有何理论意义?
- (4) 研究结果对对外汉语教学有何启示?

针对以上问题,本研究得出的结论如下:

(1) 研究结果证实语音意识的层级结构理论,发现普通话语音意识受字母知识、测试项类型和声调环境因素组的不同程度的显著影响。但音乐才能和说话者变量两因素组的研究结果值得商榷。数据分析显示,语言经历是引起汉语者和非汉语者语音意识差异的最重要因素。

(2) 普通话四种声调在单音节和双音节词中表现出不同的难度。声调辨识的错误模式在汉语者、普通话学习者和英语母语者之间存在差异。

(3) 本研究对相关文献提供了新的发现。结果表明,字母知识因素组比母语因素组对声母意识和音节意识具有更强的解释力。结果还显示,字母知识对普通话语音意识的影响不具有叠加效应。这是因为,虽然第一组中国受试具有拼音和英语两种字母知识,但他们与第三组(具有英语字母知识和有限拼音知识的美国受试)及第四组(只有英语字母知识的美国受试)在声母意识任务中没有显著差异。另外,这一组的韵母意识和第四组之间也没有显著差异。

(4) 本研究对对外汉语教学具有实际意义。我们提议,对外汉语教师应该在教学中通过强化普通话和英语同异音知识来提高学生的声母和韵母意识,通过强化第三声调和其他声调的差异性以及易混淆声调组合来提高学生的声调意识。

## **English Abstract**

Phonological awareness ( PA ) is the ability to analyze spoken or written language into its component sounds and to manipulate these smaller units. PA is not a single skill, but includes different types of PA based on phonological units: syllable awareness, onset/rhyme awareness, and phoneme awareness. Based on Mandarin phonology, PA in Mandarin consists of syllable awareness, onset/rhyme awareness, and tone awareness. Literature review related to PA shows that a variety of factors have a significant effect on PA in Mandarin such as linguistic experience ( spoken language, alphabetic literacy, and second language learning ), item type, tone context, musical ability, and talker variability. However, most previous studies focus on the PA of Mandarin tones; only few studies have compared native speakers of Chinese and of other world languages on all levels of PA in Mandarin.

The present study is a factorial examination of the effect of various factor groups discussed above on all levels of PA in Mandarin by four groups of participants with different linguistic experience, each group having 10 participants. The first and second groups included non-Mandarin Chinese speakers with or without *Pinyin* alphabetic literacy. The third and fourth groups consisted of native speakers of American English with or without learning experience with Mandarin. Participants were given a

syllable same-different task, an onset oddity task, a rhyme oddity task, and a tone identification task. Logistic regression and Chi Square analyses were performed on the responses to these tasks to determine the conditioning effect of different factor groups. Error analyses were also conducted to examine error patterns of the tone awareness task.

The specific questions guiding this research are: (1) what independent variables significantly affect PA in Mandarin and what variables contribute to patterns of difference across the native and nonnative speakers of Chinese? (2) are there error patterns of the tone awareness among the different groups, and if so, how might they be explained? (3) what contributions do the results make to the growing literature in PA in general and Mandarin PA in specific? and (4) what implications do the results provide for teaching Mandarin to L2 learners?

Corresponding to the research questions, this study has obtained the following findings:

(1) In addition to confirming the heterogeneity of overall PA established in earlier research, the results demonstrate the relative contributions of several factor groups such as alphabetic literacy, item type, and tone context and raises questions about the relevance of several others such as musical ability and sex of talker. Prior linguistic experience is the most important variable contributing to the differences between native and non-native speakers of Chinese.

(2) The results point specifically to the relative difficulty of the four tones both in mono- and disyllables. It also reveals relative patterns of confusion across three linguistic groups: Chinese speakers, Mandarin learners, and native speakers of English.

(3) The study has theoretical implications. Results indicate that language experience in the form of alphabetic literacy differentially overrides native language experience for onset awareness and syllable awareness. These data also suggest that the effect of literacy on PA in

Mandarin is not cumulative since the Chinese group with L1 *Pinyin* literacy and L2 English literacy (C1) differed neither from the English-speaking group with L1 English literacy and limited L2 *Pinyin* literacy (E1) and the monoliterate English-speaking group (E2) on the onset awareness task nor from E2 on the rhyme awareness task.

(4) The study has pedagogical implications. It is suggested that more instructions will facilitate the learning of Mandarin as a L2 on the correspondence or difference between Mandarin and English sounds and on the distinction between tone 3 and other tones and the distinction between confusing tone pairs.



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# **CHAPTER 1 INTRODUCTION**

Phonological awareness (PA) is the ability to recognize internal auditory segments of words and manipulate them mentally (Sodoro, Allinder, & Rankin-Erickson, 2002; Stuart-Smith & Martin, 1999). It is also the awareness of sounds in spoken language relative to speech sounds in print (Bentin, Hammer, & Cahan, 1991; Jones & Munhall, 2002).

PA research started with native speakers of English, an alphabetic language. Previous studies have examined different types of PA: syllable awareness, onset awareness, rhyme awareness, and phoneme awareness. The underlying rationale of PA research is the well-accepted hierarchical view of the syllable structure which posits that the syllable consists of subunits, an onset and a rhyme, which are smaller than the syllable and larger than the phoneme. Research by Treiman (1985, 1986, 1995) on speech errors, short-term memory errors, word games, and the perception of phonological units provides evidence for the hierarchical onset and rhyme structure.

Previous research with alphabetic languages, especially English, has found that both linguistic and non-linguistic variables are related to PA. Three major ones related to linguistic experience have been identified: (1) spoken language prior to alphabetic reading instruction; (2) alphabetic knowledge identified as a result of literacy or explicit training on the alphabetic principle; and (3) the learning of at least one second language



or foreign language. PA research has investigated to a lesser extent whether or not item type (presence or absence of L2 test items in L1) affects PA. Non-linguistic variables that have been investigated include musical ability and talker variability.

Although the alphabetic system dominates world languages, pioneers in the study of PA such as I. Y. Liberman (Liberman, Shankweiler, Fisher, & Carter, 1974) and Treiman (1985, 1986, 1995) have called for the expansion of such research using the techniques used with speakers of alphabetic languages to examine the PA of logographic languages such as Chinese and Japanese. Experimental work examining the PA of Chinese speakers and learners has focused on Mandarin, the official Chinese language, and has yielded converging evidence with research on speakers of alphabetic languages. Spoken language, alphabetic knowledge (e. g. , *Pinyin*), L2 learning experience, musical ability, and talker variability all have been found to facilitate PA in Mandarin. It has also been found that tone context has an effect on PA of Chinese speakers and learners.

However, previous research on Mandarin has several limitations. First, many studies of Mandarin focus exclusively on the PA of tone, especially the acquisition of tone by native speakers of Mandarin dialects (e. g. , Li & Thompson, 1977; Wong, Schwartz, Jenkins, 2005; Zhu, 2002; Zhu & Dodd, 2000); only a few studies have compared speakers of different languages (e. g. , Chen et al. , 2004; Halle, Chang, & Best, 2004; Liow & Poon, 1998; McBride-Chang, Bialystok, Chong, & Li, 2004). More research is needed to explore the difference between speakers of Chinese and of other world languages. Second, although Mandarin is also learned and spoken as a lingua franca by a large number of the Chinese whose first language is not a Mandarin dialect, existing studies typically ignore this group of subjects whose PA needs to be further explored. Third, little is known about the effect of item type, musical ability, and talker variability on PA in Mandarin. Therefore, more research is needed to