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Recognition of high frequency words from speech as a predictor of L2 listening comprehension



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ABSTRACT

This paper investigates the relationship between recognition of high frequency words from speech and second language (L2) listening comprehension among 167 tertiary level Chinese learners of English. It also interrogates the extent to which the ability to recognise words from speech contributes to the prediction of L2 listening comprehension scores. Word recognition from speech (WRS) was assessed with a partial dictation test which targeted high frequency vocabulary. These target words were categorised as belonging to either the first, second or third thousand word frequency levels through comparison with the British National Corpus and the Corpus of Contemporary American English (BNC/COCA) word family lists. L2 listening comprehension was assessed with a version of the International English Language Testing System (IELTS). Multiple regression analysis revealed that recognition of words from the third thousand frequency level alone could predict 52% of the variance observed in the listening comprehension scores. Recognition scores for words below the third thousand frequency range added very little unique predictive power to the regression model. This was the case despite word recognition scores for the first, second and third thousand frequency ranges strongly correlating with listening comprehension scores. Findings suggest the ability to recognise high frequency words from speech is predictive of the aural modality specific word knowledge indicative of successful L2 listening comprehension. Pedagogical implications and applications are discussed.

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1. Introduction

Second language (L2) listening is a fundamental component of L2 learning. Proficient listening comprehension enables learners to understand the spoken discourse of the target language which in turn aids the development of other language skills (Dunkel, 1991; Rost, 2002). The skill of listening is also of strong contemporary significance to L2 learners as it enables engagement with a vast range of online spoken target language samples such as those from video sharing websites and digital audio/video on demand systems (Robin, 2007). Despite the centrality of listening comprehension in L2 learning and the huge range of listening materials available, of the four main language skills, listening comprehension remains arguably the least well understood and researched (Vandergrift, 2007). Listening comprehension is now becoming a more prominent area in L2

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teaching and testing (Buck, 2001; Cai, 2013; Field, 2008a, 2008b; Song, 2008). Of significance in relation to this development has been an increased research effort directed towards understanding the processes which underpin successful L2 listening (Field, 2008a, 2008b; Vandergrift, 2007). This emerging picture of the specific knowledge types which support skilled L2 listening provides a useful framework for further advancements in L2 listening research, teaching and testing.

One domain of knowledge which is an important component of skilled L2 listening comprehension is linguistic knowledge at the word level (Graham, Santos, & Vanderplank, 2010). Previous studies have confirmed the value of various constructs of word knowledge in supporting and predicting L2 learners' listening comprehension proficiency level (Bonk, 2000; Stæhr, 2008, 2009). However, as has been acknowledged within the field of L2 vocabulary development, L2 word knowledge is not a unitary construct (Daller, Milton, & Treffers-Daller, 2007; Henriksen, 1999; Nation, 2001; Qian, 2002). There are multiple aspects of knowing a word, with evidence indicating that each has a differing importance in explaining various aspects of L2 language proficiency (Milton, Wade, & Hopkins, 2010; Stæhr, 2008). Arguably, the construct of word knowledge that is of strongest importance in successful L2 listening comprehension is the ability to recognise words from speech (Field, 2008b; Hulstijn, 2003; Rost, 2002). Word recognition from speech (WRS) is here defined as the ability to map information from the speech signal onto the lexical units that information represents. WRS enables establishment of links between the formal and semantic attributes of known words (Hulstijn, 2002) which in turn enables fluid application of both linguistic and non-linguistic knowledge during the listening process (Graham et al., 2010). If WRS is as important to skilled L2 listening as has been suggested by previous research (Field, 2008a, 2008b; Goh, 2000; Hulstijn, 2003; Tsui & Fullilove, 1998), then this construct of word knowledge should be of direct interest to language teachers. However to date, research which specifically explores the relationship between WRS and L2 listening comprehension is scarce (Broersma & Cutler, 2008). This research seeks to contribute towards filling this current gap in knowledge.

2. Literature review

2.1. Models of L2 listening comprehension

Many of the challenges associated with teaching and testing listening comprehension relate to the observation that “the product of listening comprehension is a construction or representation of meaning in the mind” (Buck, 2001, p. 99). This covert attribute of listening comprehension makes adequate description and subsequent development of constructs of listening comprehension particularly challenging (Vandergrift, 2007). However, a number of models of listening comprehension are widely accepted and provide a valid point of departure for ongoing listening comprehension research.

Bachman and Palmer (1996) use *language competence* and *strategic competence* to broadly describe the competencies required for successful listening comprehension. Language competence relates to the implicit and explicit forms of language knowledge that can be applied while listening. Strategic competence relates to the executive processes, such as metacognitive strategies, which facilitate effective application of language competence (Buck, 2001). The role of linguistic and non-linguistic knowledge, and theoretical positions on how these forms of knowledge interact, provide the basis of contemporary descriptions of L2 listening comprehension. The widespread application of information processing models which use both top-down and bottom-up components to conceptualise L2 listening is evidence of this influence (Bonk, 2000; Cai, 2013; Goh, 2000; Graham, et al., 2010; Vandergrift, 2007; Wilson, 2003). Bottom-up processes consist of “speech perception and word recognition” and provide the linguistic input needed for comprehension. Top-down processes are primarily associated with the use of non-linguistic knowledge such as the application of “semantic expectations and generalisations” (Rost, 2002, p. 96). It is broadly accepted that successful listening comprehension depends on the simultaneous application of linguistic and non-linguistic knowledge while processing the incoming speech signal (Buck, 2001).

The exact manner by which bottom-up and top-down information processes interact and the relative contribution these processing types play in successful listening comprehension has been the focus of previous research effort and debate (Field, 2008b; Goh, 2000; Hasan, 2000; Osada, 2001; Tsui & Fullilove, 1998; Wilson, 2003). The value of applying non-linguistic knowledge, in particular metacognitive strategies, has been of central interest in previous L2 listening comprehension research (Macaro, Graham, & Vanderplank, 2007). Another component of the research effort has been directed towards investigating the relative importance of non-linguistic and linguistic knowledge in listening comprehension, with findings suggesting that lower order linguistic competence plays a primary role in L2 listening comprehension.

An early study by Tsui and Fullilove (1998) sought to determine whether bottom-up or top-down processing was more important in determining higher L2 listening comprehension test performance. The study involved approximately 20,000 students of English as a second language (ESL) who were undertaking public examinations in Hong Kong. In order to address the research question, two question types from the exam were investigated: *matching schema* and *non-matching schema* types. In matching schema test items, the listeners who formed hypotheses based on the initial input could primarily use top-down processes to select the correct answer. Non-matching schema test items required candidates to process spoken linguistic input which ran counter to the initial input in order to select the correct answer. Analysis indicated that candidates who correctly answered the non-matching question types were the more skilled test takers. Yi'an's (1998) smaller scale study also suggests lower order linguistic processing is primary in L2 listening comprehension. Ten native Chinese speaking ESL students listened to an English language radio interview that was the stimulus for multiple choice questions and retrospective verbalisations. Yi'an was interested in determining the manner by which linguistic and non-linguistic knowledge was engaged during completion of the multiple choice questions. Analysis of the verbalisation recalls indicated that partial

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