

Chapter 1

The Effect of Using Technology in L2 Listening: A Meta-Analysis of Studies From 1980 to 2020

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ABSTRACT

Due to the nature of listening, multiple media tools have been utilized in second language (L2) listening instruction for a long time. This chapter recruited the most recently published empirical studies in addition to the meta-analysis conducted in 2015 (Kang) and analyzed available evidence on the effects of different multiple media tools on L2 listening comprehension. The results revealed a medium-to-large effect of multiple media tools on listening comprehension in between-group designs (Cohen's $d = .70$), which was almost identical to the result observed five years ago. The effects of individual multiple media tools have also been statistically synthesized. Moderator analysis could help L2 educators and test developers make decisions on applying different multiple media tools in the fields of L2 instruction and assessment. Specifically, subtitles, captions, as well as self-regulated listening and slow speed were recommended to teachers and test developers as a means to improve learners' listening comprehension.

INTRODUCTION

Listening comprehension is considered to be a very crucial language skill because it appears at “the early stages of L2 learning” (Nation & Newton, 2009, p. 37), enables learners to receive language input, and facilitates the emergence of other language skills (Vandergrift & Goh, 2012). According to Burley-Allen (1995), the average time spent on basic skills during the daily communication process is 35% for speaking, 16% for reading, 9% for writing, and 40% for listening. However, listening has also been described as “the least understood and most overlooked of the four skills (listening, speaking, reading, and writing)” (Nation & Newton, 2009, p. 37). The continuous speech-flow makes the listening comprehension

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process hard to capture and analyze. For instance, in the real spoken language, listeners cannot slow it down or break it down into manageable chunks. Therefore, effectively teaching and learning L2 listening is the greatest concern for most of the L2 educators.

Several models have been developed to explain how listening process functions, including the bottom-up model, the top-down model, and the interactive model (Flowerdew & Miller, 2005). In the bottom-up model, listeners start with the small units in the acoustic message, such as individual sounds, to achieve listening comprehension. The top-down model suggests that learners rely on prior contextual knowledge and utterance interpretations in processing a text. Allowing for the individual variations in listening processing, the interactive model synthesizes the bottom-up and top-down models. With regards to listening activities, Rost (2011) discussed six widely used instructional designs in L2 listening, namely, intensive listening, selective listening, interactive listening, extensive listening, responsive listening, and autonomous listening.

In light of the possible factors in listening passages that influence listening success, Buck (2001), and Vandergrift and Goh (2012) provided very comprehensive summaries. Specifically, the statistically significant predictors of listening comprehension in listening passages that have been empirically tested are vocabulary, syntax/grammar, topics, speech rate, and multiple media tools. Table 1 summarizes these predictors and the corresponding empirical studies. According to Stæhr (2009), advanced EFL learners' vocabulary knowledge was significantly correlated with their listening comprehension skills and predicted 51% of the variance in their listening scores. In terms of the syntactic or grammatical knowledge, listeners at lower proficiency levels tended to pay more attention to syntactic cues instead of global semantic cues, whereas advanced learners paid more attention to the semantic cues than the syntactic cues in listening passages (Conrad, 1985). Macaro, Vanderplank, and Graham (2005) conducted a meta-analysis on the effectiveness of prior knowledge in listening comprehension. The results showed that prior knowledge was positively related with listening comprehension; however, some studies also suggested that prior knowledge could lead to inaccurate comprehension. With regards to speech rate, as Griffiths (1990b) identified, speech rates faster than 200 words per minutes/3.8 syllables per second would weaken lower intermediate learners' listening comprehension. Specifically, the lower intermediate learners' listening comprehension scores were significantly higher when the passages delivered at slow speech rate (127 words per minutes/2.5 syllables per second) than the average speech rate (188 words per minutes/2.75 syllables per second) or the fast speech rate (250 words per minutes/5 syllables per second; Griffiths, 1992).

Lastly, due to the acoustic nature of listening, multiple media tools have been utilized in L2 listening ever since the sound could be captured through technology. Such multiple media tools include audiocassette players, radio, video, language laboratory, and the like. Multiple media tools have the advantages of facilitating L2 learners' extensive and intensive listening practice, promoting learning motivation, and getting access to authentic listening materials. Different researchers have empirically tested the effects of these multiple media tools in the literature. Specifically, the effects of visual in listening tests have been widely discussed; for example, according to Wagner (2010; 2013), audiovisual input could result in significantly higher listening comprehension scores than the audio-only input.

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