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Teaching Issue

L2 Listening Instruction: More Bottom-up or More Top-down?

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Introduction

Language comprehension includes both bottom-up and top-down processing (Vandergrift, 2004). In general terms, bottom-up processing involves building meaning from the linguistic content of a text, while top-down processing involves individuals utilizing their existing knowledge to guide and embellish their understanding of the text. Over the years, it has been apparent that L2 learners commonly experience difficulties with many areas of their comprehension, especially in aspects of their bottom-up processing; for listeners, specifically, these bottom-up difficulties lie mainly in understanding the words in connected speech (e.g., Field, 2008a; Goh, 2000). Consequently, there has been much debate over how to address such problems for listeners, pedagogically.

In the 1960s and 70s, theorists were influenced by bottom-up, information processing models of comprehension, and hence advocated listening instruction, as described by Hinkel (2006), which highlighted the need to "identify words, sentence boundaries, contractions, individual sounds, and sound combinations" (p. 177). As an addition to these mainly segmental aspects of the language, Brown (1977) drew from analyses of native English speakers to also emphasize the importance of teaching listeners the suprasegmental aspects of the language, especially those of rhythm, stress, intonation and patterns of connected speech. Consequently, listening instruction during that time was aimed largely at enhancing learners' bottom-up skills in the language.

Following this, in the 1980s, the influence of constructivism and top-down comprehension models, such as schema theory (Rumelhart, 1980), shifted the balance towards teaching learners to use top down processes, in part to compensate for their commonly problematic bottom-up abilities. Cognitive theorists, O'Malley and Chamot (1990), adopted this more top-down approach through strategy instruction, which involved teaching learners to use cognitive strategies, such as predicting and inferring meaning, along with utilizing prominent bottom-up cues such as stressed words to assist in scaffolding these top-down strategies – all of which was overseen by the metacognitive processes of planning, monitoring and evaluating one's comprehension and strategy use. Vandergrift (2004) characterizes strategy instruction as being predominantly top-down, because the listeners "become more aware of how [to] use what they already know to fill gaps in their understanding" (Vandergrift, 2004, pp. 10-11).[1] Note that there are two

[1] Note that a common distinction between *strategies* and *skills*, and one that I adopt in this article, is that strategies are conscious, deliberate procedures used to compensate for comprehension problems, and skills are automatic abilities that native speakers possess and that learners require (Field, 2008b). I confine my discussion of *skills* to bottom-up abilities, particularly those of recognizing words in connected speech and identifying intonation cues. This is because in real-time, listeners either automatically understand these bottom-up cues or they don't. Also, it is

main approaches to strategy instruction. One involves explicitly teaching learners the various strategies, and often includes class exercises to give the learners practice in using individual strategies (Mendelsohn, 2006). The other approach, emphasizing metacognitive processing, provides learners with practice in coordinating their strategies while listening to their regular class texts (Vandergrift, 2007). However, in practice, many researchers and teachers combine elements of both (e.g., Yeldham & Gruba, 2016).

Over the past decade or so, many scholars have debated whether to maintain this more top-down, strategic approach to instruction (Mendelsohn, 2006; Vandergrift & Goh, 2012) or shift back to emphasizing the more bottom-up skills approach of the 1970s (Hulstijn, 2003). Often this debate acknowledges the need for attending to both areas (Field, 2008b), but within this framework, favoring one over the other. Indeed, demonstrating the current relevance of this issue, it was recently debated at length by Swan and Walter (2017a, 2017b) and Newton (2017), in reference to both listening and reading comprehension. In this article, I first briefly outline these authors' arguments as they neatly encapsulate many of the key arguments in this debate. Then I explore these specifically in relation to listening instruction, as listening is my area of research.

Swan and Walter (2017a) criticized what they perceive as the current emphasis on strategy instruction for L2 English readers and listeners, mainly targeting in their critique top-down strategies such as predicting content, guessing word meanings, and identifying main ideas. The authors argued that L2 learners' main problem is their inability to fluently decode the words in texts, and to overcome this, teachers should focus on developing these requisite bottom-up skills. Drawing on a resource-based information processing model (e.g., see Hulstijn, 2003 for such a model), Swan and Walter argued that bottom-up skills instruction can automatize the learners' bottom-up linguistic processes, thus freeing their cognitive space for more effective meaning construction. The authors further contended that L2 learners already possess top-down strategies in their L1, so these should readily transfer to the L2 once the learners' bottom-up skills are automatized. In a follow-up article, Swan and Walter (2017b) did concede that limited strategy instruction may help some learners, but stressed that as instruction time is short, teachers must target aspects that contribute more to successful comprehension in the long run, with the authors maintaining that those aspects were the bottom-up skills.

Newton (2017) concurred with Swan and Walter's (2017a) call for instruction to develop learners' bottom-up skills. However, Newton disagreed with their view that learners' strategy use would readily transfer from their L1 to their L2. He also argued for the addition of strategy instruction, contending that an important benefit of such instruction is to encourage the learners to actively engage cognitively with a text, which he said included highlighting its textual features to the learner. Newton's view here echoes those of advocates of metacognitive instruction, such as Vandergrift and Goh (2012), who argue that such instruction can raise the learners' awareness of the various cognitive and metacognitive processes that are required to successfully manage their listening.

In this article, I highlight findings from various studies that address the main issues raised above.

The Listening Studies

Studies Showing Benefits of Teaching Listening Strategies and Teaching Bottom-up Skills

First of all, it's important to highlight that research has found both strategy instruction and bottom-up skills instruction are useful in promoting learners' listening. In various experimental studies, for example, learner groups taught through both methods have significantly outperformed control groups (with such control groups commonly taught through a comprehension-based approach where learners listen to the

difficult to distinguish between a top-down process as conscious and deliberate (a strategy) or automatic (a skill). As their conscious application is of most concern to L2 instructors, their strategic use is emphasized.

text then answer questions about its content). In relation to strategy instruction, such positive results have been shown for both a strategy approach (Guan, 2014; Paulauskas, 1994; Thompson & Rubin, 1996), and a metacognitive approach (Vandergrift & Tafaghodtari, 2010; Zeng, 2014). In other studies, a bottom-up skills approach was also found to outperform a control group (Siegel & Siegel, 2015), as was an interactive approach, which involved teaching learners in the experimental group both listening strategies and bottom-up skills (Graham & Macaro, 2008).

However, while these studies have shown the usefulness of these forms of instruction, there has been very little research addressing the issue being examined in this article, that of comparing how listeners progress when they learn strategies compared with when they learn bottom-up skills. There are some relevant studies, though, as outlined through the following section.

Studies Allowing Comparison between Strategy Instruction and Bottom-up Skills Instruction

One relevant research project involved using longitudinal multi-case studies to examine the development of one group of learners instructed in a bottom-up skills course (reported in Yeldham & Gruba, 2014), and another group of learners from the cohort instructed in a strategy course (reported in Yeldham & Gruba, 2016). The participants in both studies were intermediate-level Taiwanese EFL learners. Being Mandarin speakers, they are the type of learners who Swan and Walter (2017a) target as most needing to learn bottom-up skills because their L1 phonology differs so greatly from that of English. Such Mandarin speakers also constitute a vast portion of the world's English learners, so the studies are obviously important to the current debate.

Each of the two courses lasted one hour per week over 21 weeks. In the bottom-up skills course, the participants were taught various rules of English connected speech and intonation and practiced identifying these features in spoken texts. In the strategy course, the participants learned cognitive strategies such as predicting content and guessing meaning, and also metacognitive strategies such as planning and comprehension monitoring. They were explicitly taught these strategies (Mendelsohn, 2006), and they also practiced coordinating the strategies when listening to their regular class texts (Vandergrift, 2007). Note that they also practiced utilizing key content words, but the emphasis in the course was on developing their top-down strategies, as is commonplace in strategy instruction (Vandergrift, 2004).

Results from the bottom-up skills study (Yeldham & Gruba, 2014) indicated that while many learners improved their listening comprehension, the nature of their development seemed to hinge partly on their existing orientation to listening – more top-down, or more bottom-up. Of the two predominantly top-down listeners in this study, one flourished, as the bottom-up skills she learned led to a more interactive (top-down and bottom-up) approach to her listening. However, the other top-down listener and one bottom-up listener sometimes appeared bored with learning the skills. In addition, the three bottom-up listeners in the course did not appear to successfully transfer their L1 top-down strategies to L2 use (contrary to the contention of such transfer by Swan and Walter, 2017a). One of these three learners continued experiencing problems with developing her text mental models, another regularly guessed information incorrectly, while the other felt the need to (and indeed did) learn top-down strategies through self-study, employing a CD-ROM listening course which taught him to use such strategies.

By comparison, the learners in the strategy course (Yeldham & Gruba, 2016) generally thrived, developing more interactive approaches to their listening. The two bottom-up listeners in the course gained from learning complementary top-down strategies, while the two top-down listeners become more accurate in interpreting texts mainly from practice utilizing key content words and monitoring their comprehension. Crucially, all four learners felt more confident and motivated with their listening. This gain in confidence underscored earlier findings by Graham and Macaro (2008) that learning how to use strategies can instill listeners with greater self-efficacy, or a feeling of control over their listening.

Comments by one bottom-up listener in this strategy course are informative. She stated before the course, "If I don't understand, I panic and feel frustrated" (Yeldham & Gruba, 2016, p. 21). After the

course, she explained: "Before, nobody taught me these types of strategies, and I didn't know how to improve my listening" (p. 21), adding, "The teacher taught us many kinds of techniques, and you can choose which ones to use. … I think students should be taught these techniques so they can make progress" (p. 23).

A qualitative study by Chen (2009), which included 31 intermediate-level Taiwanese EFL learners in a strategy course of two hours per week for 14 weeks, largely backed up these findings by Yeldham and Gruba (2016), especially in terms of the learners extending their array of strategies and gaining in confidence while listening. Chen's observation that "each student progressed in the way which best suited him/herself" (p. 71) also resonated with Yeldham and Gruba's (2016) findings.

Following these qualitative studies, in a quasi-experimental study (Yeldham, 2016), again involving intermediate-level Taiwanese EFL learners, I compared a strategy approach against an interactive approach that combined instruction in strategies and bottom-up skills in approximately equal amounts.[2] I examined the interactive approach chiefly in response to the failure of many learners to develop in the earlier bottom-up skills study (Yeldham & Gruba, 2014), reasoning that the addition of strategies may help to bolster the effectiveness of the bottom-up skills instruction.

Each course in this quasi-experimental study was taught for 22 hours, one hour per week. There were 33 learners in the strategy course, which contained similar strategy content to that of Yeldham and Gruba (2016). In the interactive course, the class of 34 learners received the same strategy instruction as those in the strategy course, but for half the time, and was also instructed in bottom-up skills similar to those in Yeldham and Gruba (2014). Based on effect size differences, the study found that the interactive class improved their bottom-up skills more than the strategy class, while the strategy class improved more than the interactive class (1) in their listening comprehension, (2) in their strategy use, and (3) in the affective areas of confidence and motivation to learn how to listen. Crucially, too, a repeated measures ANOVA of the groups' listening comprehension found significant improvement by the strategy group, but not by the bottom-up skills group. The study concluded that while it appears useful to teach intermediate level listeners both strategies and bottom-up skills, for such listeners, "it would be better to focus more on developing their strategies" (Yeldham, 2016, p. 414).

Interestingly, one of the findings from this study, that the interactive group's improved bottom-up skills did not translate into significant improvement in their listening, somewhat echoes findings from two other experimental studies. One of these, a study by Brown and Hilferty (1986) of intermediate-level Chinese postgraduate EFL learners, found that compared with a control group, an experimental group that was taught reduced speech listening skills, improved significantly on both a partial dictation test, and on a test of reduced speech, known as the Integrative Grammar Test (Bowen, 1976). However, these gains in bottom-up skills did not also lead to significant gains in listening comprehension. In the other study, by Champagne-Muzar (1996), lower-proficiency level French L2 learners in Canada were taught bottom-up receptive skills in the areas of phonemes, intonation and rhythm. Champagne-Muzar (1996) found, compared with a control group, significant improvements by this experimental group on a test assessing overall improvement on all three sets of skills. As in Brown and Hilferty (1986), though, the learners' significant gains in bottom-up skills did not also significantly improve their listening comprehension.

These findings that improvements in learners' bottom-up skills did not greatly develop their listening comprehension tend to weaken the argument, further, for focusing instruction on bottom-up skills in order to improve learners' listening. Specifically, the findings lend lukewarm support to the theoretical notions underscoring bottom-up skills instruction, outlined early in this article: those claiming that automatizing learners' bottom-up linguistic processes frees working memory for more effective meaning making processes and transfer of L1 strategies to the L2, thus improving listener comprehension.

[2] A combined approach also advocated by Newton (2017).

Conclusion

In reflecting on these various studies outlined above, it must be acknowledged, though, that those in which bottom-up skills were taught (Brown & Hilferty, 1986; Champagne-Muzar, 1996; Yeldham, 2016; Yeldham & Gruba, 2014), this bottom-up skills instruction time was never longer than 21 hours, thus perhaps not accounting for the possibly lengthy time needed for development in these abilities to translate into better listening comprehension (Tyler, 2001). Therefore, it would seem unwise to simply jettison this approach based on these findings. However, some of the key studies here do highlight how strategy instruction can lead learners to adopt the type of coordinated approach to strategy use required to deal with, and importantly, to feel confident in dealing with, the real-time comprehension demands of spoken L2 language. It would also seem that the perceived benefits of strategy instruction – improved strategic repertoire to enhance comprehension, greater confidence to keep on listening rather than give up, and motivation to do more listening – would lead learners to more opportunities for spoken language input. This could help their bottom-up skills to develop, implicitly (Ellis, 2002), and/or more explicitly, through strategies use encouraging active engagement with the text, including drawing attention to its bottom-up features (Newton, 2017). Therefore, a strategy approach to listening instruction would appear to be worth foregrounding when teaching intermediate level learners, while also focusing some attention to teaching the learners bottom-up skills. Such an eclectic approach would also likely address the needs of different types of learners.

Finally, it is worth noting that the findings outlined through this article suggest a model of effective L2 listening which is largely characterized by being able to identify key words and build on this by using one's background knowledge of the topic. This tends to dominate over (but without rejecting, though) a view proposed by Field (2008a) that the finer nuances of meaning from being able to understand textual aspects such as the reduced words are also vital for comprehension.

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