

Top-down and bottom-up processing in listening comprehension

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Abstract

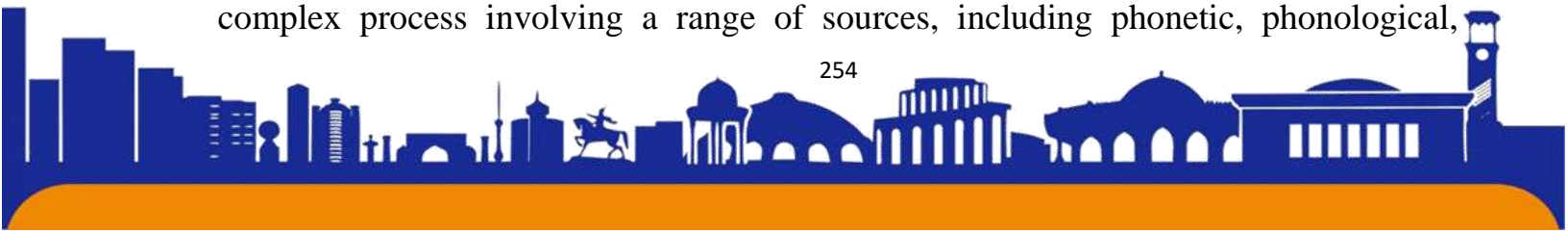
The top-down and bottom-up processing of a piece of information in academic listening are the topics of this article. In order to help language learners become proficient communicators in a communicative competence framework, it is equally crucial to activate prior knowledge and expectations through lexical access (top-down) and to piece together linguistic data until a contextual meaning of an utterance is reached (bottom-up). As a result, the two processes are combined in modern teaching tactics or techniques used to increase listening skills. For some teaching goals, especially in English for Specific Purposes (ESP) course, it may appear more practical to take a top-down approach to academic listening while ignoring a bottom-up one. Top-down processing directs the listening process and creates a connection with higher level reasoning in the course at TSUUL that is specifically developed for third-year students.

Keywords: top-down processing, bottom-up processing, academic listening, communicative competence.

Introduction

The objectives of a language education course frequently relate to the kind of tasks that the students are expected to complete, such as speaking, listening, reading, and writing. The distinction between listening and hearing, as well as between conversational and academic listening, is correct and suitable in the modern era of the communicative competence framework applied to the teaching of any ability, and listening in particular.

The most often utilized language ability in daily life has been identified as listening as part of second language (L2) acquisition (Morley, 2001; Rost, 2001). The majority of academics concur that understanding spoken words in real time requires a complex process involving a range of sources, including phonetic, phonological,





prosodic, lexical, and semantic information (Lynch, 1998). The complexity of listening justifies the shift that has taken place over time from listening being seen as a passive skill unimportant in L2 teaching to listening being prioritized as a skill that is crucial on its own (Mendelsohn, 1998; Morley, 2001; Vandergrift, 2004).

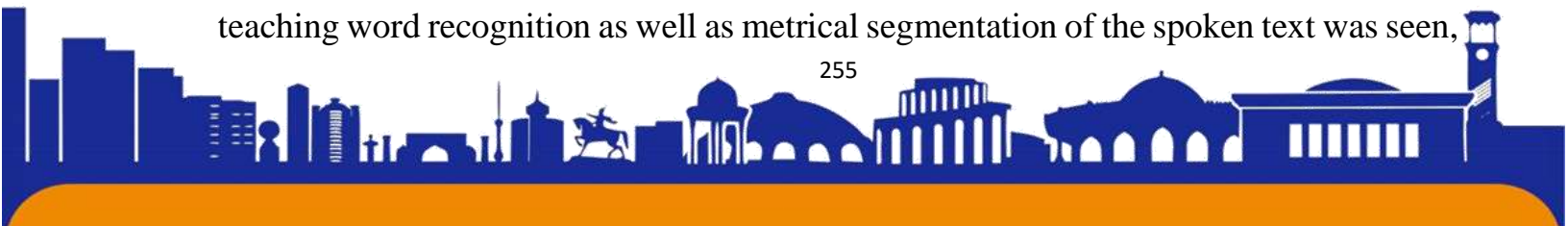
We now discuss the key areas in which research has provided insights into the teaching of L2 listening. Developments in general communicative language learning methodologies as well as advancements in technology have driven the evolution in the teaching of listening. Therefore, top-down and bottom-up language processing are of particular importance in light of our study goals.

The purpose of the current paper is to first explore some general theoretical results regarding the role of listening within CCF. Following that, it will go into detail on the top-down and bottom-up listening processes as well as the characteristics of academic listening. Finally, using examples from the English for Specific Purposes (ESP) course at TSUULL, it will discuss the roles that both processes play in the instruction of academic listening.

Processing top-down and bottom-up in listening comprehension

Another field of research is the levels of decoding information supplied in a given spoken text. Here, the concept of acquiring overall communication competence, or rather segmenting it into the five components stated above, is mirrored. These layers of interpretation, which encompass both internal and external resources accessible to the listener, include phonetic, phonological, prosodic, lexical, syntactic, semantic, and pragmatic information. Bottom-up and top-down techniques were devised to categorize them all (Lynch, 2006). Bottom-up processing, in general, entails decoding based on the separation of the individual words from the voice stream. It is retrospective in that it necessitates word recognition and the activation of lexical knowledge associated with those words. It is prospective in that it facilitates "proactive processing" by signaling the syntactic and semantic restrictions of the utterance it is a part of (Field, 2001; Rost, 2006) and enables the listener to pinpoint the beginning of the word that will be spoken immediately after it. It is true that bottom-up processing can help L2 listeners comprehend a spoken text more effectively, especially when the phonological patterns of the two languages do not match.

Under the impact of information theory and its later computational variations, teaching word recognition as well as metrical segmentation of the spoken text was seen,



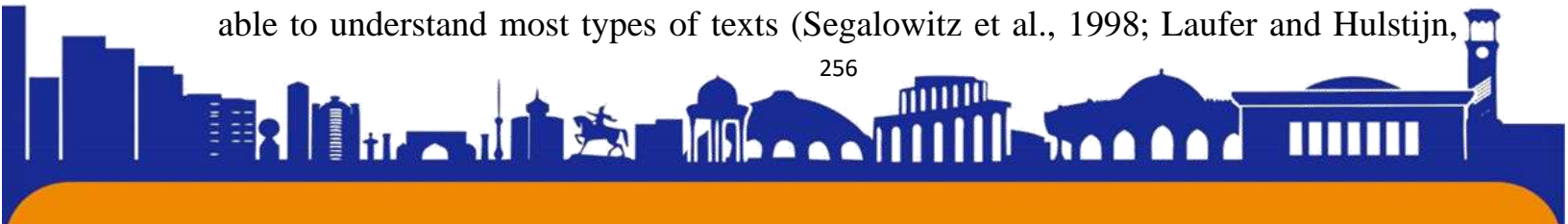


not by chance, as a sufficient definition of successful listening. Growing data suggests that L2 listeners' capacity for dealing with the linguistic end of processing may be crucial to success. To determine if expertise in bottom-up processing makes certain listeners more effective than others, Tsui and Fullilove (1998) sampled 150,000 item performances by Chinese English language learners. They reached to the conclusion that it did. Similar to this, Wu (1998) investigated how listeners used linguistic and non-linguistic processing of L2 speech and came to the conclusion that linguistic processing is fundamental for L2 listeners.

Top-down communication emphasizes the listener's use of prior knowledge of a subject and the pertinent context to build hypotheses about the speaker's meaning and, as necessary, to adjust those assumptions to take into account new information. In top-down processing, we start with what we already know about the topic and our lexical knowledge. As a result, it is possible to speak about activating existing schemata, the pertinent collections of prior information and experience that we can access in the course of understanding something through lexical access, or word recognition. The three categories of known schemata are: content schemata, or knowledge of various themes; formal schemata, or knowledge of various discourse forms; and cultural schemata.

Speaking of the first component of top-down processing, having knowledge of a subject and content schemata facilitates speedy processing of oral communication, even if they occasionally result in incorrect interpretations of what a speaker intended or said. It is much simpler for us to understand what someone is saying when we can connect their discourse to the formal schemata and content that are familiar to us. Cultural schemata, or common ideas and responses to the world, improve our comprehension of what is being spoken. Additionally, by changing the schematic organization of memory to incorporate fresh interpretations necessary for learning an L2, it is possible for the speaker and the L2 listener to "share common activation spaces in memory" (Churchland, 1999). Despite having various sources of prior knowledge and experiences, this process enables the speaker and listener to experience "mutual meanings" (Lustig and Koester, 1998).

Regarding the second aspect of top-down processing, lexical access, it is presently thought that these two factors essentially predict how well a reader would be able to understand most types of texts (Segalowitz et al., 1998; Laufer and Hulstijn,



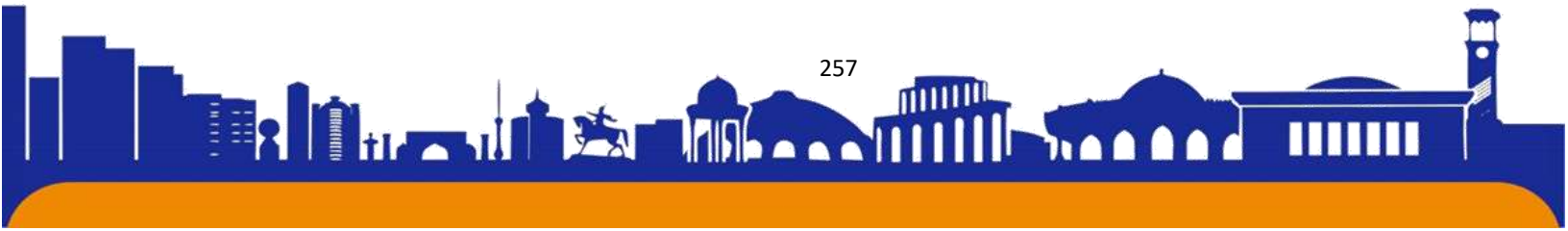
2001). Word knowledge comprises the ability to identify a word's spoken, written, and grammatical forms as well as its collocations, linguistic frequency, usage restrictions, etc. (Rost 2006) Another strong source for understanding in top-down processing is context.

Clearly, the link between top and bottom is a crucial issue for the instruction and testing of L2 listening abilities. The integration of the listener's top and bottom information is supported by many practitioners. According to Buck and Tatsuoka's analysis of TOEFL candidates' listening scores, for instance, the ability to listen in a second language is "not the point on one linear continuum, but a point in a multi-dimensional space" (Buck and Tatsuoka, 1998, p. 146). However, we think that making a clear distinction between conversational and academic listening makes sense for a number of reasons and affects the instructional strategies used. It is true that successful listening comprehension requires a synthesis of both decoding information (bottom-up processing) and activating background knowledge (top-down processing) when teaching is focused on conversational listening and the students' general L2 proficiency is between elementary and upper-intermediate. But compared to conversational hearing, the ratio of both processes in academic listening appears to be different.

Developing academic listening comprehension proficiency

The distinction between academic hearing and conversational listening, as well as what makes academic listening proficient and how it is fostered, are other crucial issues for our research.

The increase in university enrollment has affected learners all around the world, increasing demand for academic skill proficiency and spreading the lecture method of instruction. According to Flowerdew (1994), attending lectures and honing academic listening skills are significant components of both domestic and international students' university experiences. The ability to focus and comprehend for extended periods of time without having the chance to participate in interactive discourse's enabling functions, such as asking for clarification or negotiating meaning, must therefore be developed by the listener (Flowerdew, 1994, p. 7). This type of assignment is made possible by the fact that L2 academic listeners generally operate at an advanced or higher level, which guarantees that the students have a firm grasp of the L2 system. In other words, students should be proficient in all five areas of communicative





competence by the time they start learning a language for academic purposes: linguistic, pragmatic, intercultural, strategic, and discourse.

Additionally, Flowerdew argues that it would be inaccurate to categorize advanced L2 students as only "information sponges." They perform the roles of producers and users of information and knowledge in addition to gathering and taking in information and knowledge. Seasoned listeners respond to information received, frequently engaging in peer discussion of the problems. In addition, students are required to submit oral reports in class and take part in study groups during their time in college (Flowerdew, 1994), with further examination and reaction to the information offered.

In the final analysis, the highest level of this sort of listening can be attributed to the fact that advanced listeners not only grasp, analyze, and store knowledge they have received, but also create and share information through speaking and writing. A methodological conclusion might be that academic learners, and listeners in particular, should be assisted in both activating prior knowledge and expectations through lexical access and changing their ingrained schemata to take into account new ways of seeing the world.

Conclusion

In conclusion, effective listening does not always need the listener to integrate the top and bottom information they have heard. The ratio of the two phases in instructional practice depends on the size of the job. The goals of a privately taken ESP course emphasize the necessity of strategic listening by utilizing as much top-level schematic information as is practical.

Thus, top-down processing is crucial for academic listening because it gives listeners the ability to interpret and deepen the speaker's meaning while also laying the groundwork for them to take an active role in language learning.

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