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The Act of Listening: The processes involved in listening comprehension

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【Abstract】

For language learners and instructors, listening is one of the most challenging parts of a language. In many instances, it is easier for learners to process written language rather than spoken language. The primary reason for this is the immediacy or urgency required when listening to spoken language. While there is an overall agreement that listening to language in real-time requires the simultaneous operation of several processes, there is still an incomplete understanding of the processes involved in listening comprehension. This paper gives a brief outline of the components that researchers mostly agree on: Quality of input, cognition, social aspects, and strategy use.

【Keywords】

Listening, Comprehension, Language Education, Input, Processing

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In conceptualizing a model of the processes involved in listening, most would agree that the act of listening seems to be a combination of several things operating simultaneously. That is, listening seems to be a unified device where the processes involved do not take place in separate, distinct parts of the brain. Despite this overall agreement, there is still an incomplete understanding of listening comprehension. Perhaps Rost (2011) said it best: “Because listening is essentially a transient and invisible process that cannot be observed directly, we need indirect descriptions - analogies and metaphors to describe It.” This would make the act of listening seem like a mysterious, inscrutable phenomenon. However, there is a general consensus as to what constitutes listening comprehension and these components of listening have been identified and studied. The components that researchers mostly agree on and have been the focus of numerous studies are quality of input, cognition, affect, social aspects, and strategy use. As will be discussed later, combinations of these components are considered to work in tandem throughout the process of listening comprehension.

Quality of Input

McBride (2011) studied how the quality of input affected listening comprehension. In her study, she found that the rate of speech would affect the listener’s ability to process information. Clearly, if input is being received too fast, the listener’s working memory would be overtaxed and this would lead to information and/or processing difficulties. Providing input at slower, more appropriate (for the listener) speeds will be beneficial in helping the listener develop bottom-up processing skills. However, research in the effects of speech is not conclusive possibly due to the lack of consistency in what constitutes slow or fast speech. Individual learner differences will ultimately determine if the rate of speech is too fast. In addition, this does not take into account the listener’s background knowledge or ability to use contextual cues which will also affect listening comprehension.

Aside from the speed of the speech, VanPatten’s Input Processing theory would suggest that content words and their placement in an utterance would affect intake (“intake” is described

as the input that is processed). Related to the speed of input is the complexity of input. McBride (2011) has shown how working memory is limited as speech that is too fast would impede comprehension. Similarly, to avoid an excessive burden of working memory, the input needs to be simple enough. In some studies (e.g. Andringa, Olsthoorn, van Beuningen, Schoonen, & Hulstijn: 2012), listeners' syntactic knowledge was tested and the impact of this knowledge on listening comprehension was investigated. However, as VanPatten (1996) has shown, lexis and meaning are arguably more important as listeners tend to process speech for meaning first before syntax.

Just as the rate and complexity of aural input can affect comprehension, sound perception can affect second language (L2) word recognition. Similar to Cutler & Clifton's 2000 paper, Broersma (2012) discusses the idea of lexical competitors. Broersma studied how listeners' phoneme inventories of the L1 and L2 can hinder word recognition and found that if the listener does not have an accurate cognitive representation of the L2 sound system, perceptually difficult phonemes such as minimal pairs or words that are phonetically similar can inhibit or prevent comprehension. This means that the non-native listener may mismatch lexical competitors in the L2 and will therefore lead to misunderstanding.

Cognition

The quality of input has been shown to affect cognition in listening. The input is then processed cognitively in a variety of ways from distinguishing speech from extraneous audio, recognizing phonemes and words, and understanding the intent of the speaker. Other cognitive processes include noticing, and top-down and bottom-up processing. Schmidt (1990) argues that noticing is a requirement for second language acquisition and that learners need to notice something in order to acquire it. It is unclear if noticing is as important for children as it is for adults but it is clear that noticing is related to working memory and the speed of input.

Top-down processes involve the use of schema for conceptual and organizational purposes. As discussed in Goh (2008), the Communicative Language Teaching movement led to

pre-listening activities to activate schema. This helps learners develop their top-down processing skills by encouraging them to use their knowledge of the topic to facilitate comprehension. However, this assumes that the listener is past a certain threshold of linguistic proficiency to be able to utilize top-down processing skills effectively. If the listener is below a certain threshold, then bottom-up processing would be more appropriate as the listener would not be able to understand the incoming speech. Bottom-up processing focuses on the basic elements of language such as phonemes, lexis, and prosody. Arguably, bottom-up processing skills may take precedence over top-down processing skills as the former addresses the simplest forms of language necessary for comprehension. As noted by Andringa, et al. (2012), “As listening is an online activity, it is essential that these processes run fast and efficiently” meaning that bottom-up processing needs to be automatized for skilled performance.

Similarly, Cutler & Clifton (2000) have observed how segmentation cues determine word and syntactic boundaries. Their study found that activation of word candidates with ensuing competition between candidate words is the core mechanism of recognition. The implication being that deeper vocabulary knowledge constrains lexical competition and therefore improves comprehension. They also note that prosody is one of the key aspects of aural processing as a significant amount of meaning is encoded in the prosodic aspects of a language.

To sum up, effective listening requires both top-down and bottom-up processing working in harmony. Bottom-up processing provides the foundations to build meaning and constrains listeners’ interpretations of the utterance. Top-down processing facilitates interpretation by contextualizing, guiding, and enriching the input.

Affect

Affective factors such as motivation, anxiety, and willingness to communicate also play a part in listening comprehension. Specifically, theories of motivation such as Self-determination Theory argue that metacognition can improve autonomy which can lead to a

greater sense of competence, and potentially a greater sense of relatedness. Vandergrift's 2005 paper focused on strategies and motivation and examined motivation through self-determination, which is on an intrinsic/extrinsic continuum, along with amotivation. The finding that amotivated students do not do well is consistent with other studies and hardly surprising. However, the findings related to intrinsic and extrinsic motivation are somewhat ambiguous possibly due to the age of his participants (13 and 14 years old) and suggests that maturity is an important component in motivation studies.

Autonomy, as Deci and Ryan (1985, 2000) state, is genetic. They posit that human beings want some measure of autonomy or control over their lives. As such, the implication is that autonomy directly affects motivation. Research into autonomy suggests that there is the potential for autonomy to produce intrinsic motivation. However, as Stone, Deci, & Ryan (2009) state, the distinction must be made that autonomy does not refer to independence. "Autonomy concerns the experience of acting with a sense of choice, volition, and self-determination ... people may well be dependent on others while acting autonomously." (p. 4).

Anxiety and willingness to communicate are other common affective factors that influence listening comprehension. It is fairly obvious that if a listener is anxious, nervous, or feels socially distanced, understanding a listening segment will not be highly prioritized.

Social Aspects

Vandergrift (2005) also noted how social factors affect listening comprehension. It stands to reason that learners are more motivated when they have positive social relationship. This motivation will lead to increased and better interactions. In line with this are Vygotsky's concept of the Zone of Proximal Development (ZPD), and scaffolding as described by Donato (1994), Schumm (2006), and Verity (2005). These ideas suggest that development depends on social interaction. Through these interactions, learners collaborate and are supported by their more skilled peers. What facilitates development are individual discovery of gaps in skill or knowledge combined with scaffolded learning.

Strategy Use

Another component to listening comprehension is the use of metacognitive strategies. Metacognitive strategies rely on an awareness of what we are doing. Without this awareness, learners are not able to manipulate their behavior to achieve the desired result/s and any changes that result will be coincidental. This can be seen in Vandergrift's 2005 study where he investigated 13 and 14-year old students' motivation. He gave the participants a motivation questionnaire but it is highly unlikely that they were mature enough to be aware of their motivation or metacognitive strategy use and were thus unable to provide accurate responses.

Goh (2008) suggests that metacognitive instruction and strategy use can be beneficial in that it improves affect in listening (confidence, motivation, and anxiety), it can have a positive effect on performance, and that particularly weak listeners potentially benefit the greatest.

Vandergrift & Tafaghodtari (2010) conducted a study in which they taught students how to plan, direct their attention to specific aspects of the task, monitor their performance, and solve problems they encounter in a cyclical manner. The coordinated use of multiple strategies was seen to be a requirement for L2 listening success.

The Steps of Listening Comprehension

Having described some of the core components of listening comprehension, it is important to consider their roles in the act of listening. Rost (2011) goes into great detail regarding the neurological, linguistic, semantic, pragmatic, and automatic processing of listening and how they relate to language acquisition. However, Cutler & Clifton (2000) outlines a simpler and more concise process featuring four major steps: decoding, segmenting, recognizing, and integrating. Decoding refers to recognizing the sounds that make up spoken language, i.e. the phonemes, syllables, and other linguistic units. Segmenting refers to dividing the stream of input into linguistic units such as syllables and words. Recognizing words in the aural input is arguably the most potentially problematic part of listening in that lexical

competition occurs here. Finally, integrating the aural input with the social context and listener schema is necessary for comprehension.

Conclusion

In conclusion, the act of listening requires the operation of several interconnected processes working together in various combinations. The quality of input, cognitive factors such as top-down and bottom-up processing, affective factors including motivation and autonomy, social aspects, and strategy use all determine the degree or success of comprehension during listening. Throughout the four major steps of listening comprehension, it can be seen how the various components outlined above occur in several of them and are not singular, sequential occurrences.

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