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This is an Accepted Manuscript of a book chapter published by Routledge in Goh, C. C. M. (2017). Cognition, metacognition, and L2 listening. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning. Volume III* (pp. 214-228). Routledge, available online: https://doi.org/10.4324/9781315716893-16

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Cognition, Metacognition, and L2 Listening

Christine C. M. Goh

Introduction

The domain of second language (L2) listening has been developing a robust research tradition in the past three and a half decades. Although it is the least researched language skill compared with more established ones such as reading and writing, the various lines of inquiry in L2 listening have yielded important insights that inform both teaching and learning. This chapter begins with a description of the nature of L2 listening that involves various enabling skills, cognitive processes and types of listening. It then gives an overview of important developments, trends and traditions in L2 listening research and instruction, focusing on areas such as factors that influence listening comprehension, methods in investigating L2 listening and listening in English for Specific Purposes (ESP). This is followed by a discussion of current issues that concern the field and concludes with some possible new directions for L2 listening research.

Nature of L2 Listening

Listening is one of the four language communication skills in second language acquisition and learning. Apart from the role it has in communication, listening provides an important source of linguistic input for language learners (Krashen, 1981) and opportunities for language development through negotiations during oral interactions (Gass, 1997). While listening comprehension in a first language (L1) is viewed as a relatively easy process, L2 listening often presents language learners with some of the greatest challenges in their language development.

In order to understand what it means for language learners to listen effectively, it is useful to consider the nature of L2 listening. Listening processes are often invisible to teachers and even to the learners themselves because they occur 'inside the listener's head'. For a long time, listening teachers had focused on what learners did to demonstrate their comprehension, such as by providing the correct answers to comprehension questions and making notes of what they hear. Over the years, however, knowledge about language comprehension emanating from related fields, most notably being cognitive psychology, has led L2 researchers to devote more attention to trying to understand the processes that influence L2 learners' comprehension. In addition, researchers were also keen to investigate pedagogical procedures that can help learners with these processes. The investigation of

L2 listening also expanded to include a better understanding of how learners cope with listening in specific situations of studies and work.

The construct of listening has been defined in numerous ways by L1 communication and L2 listening scholars. There are nevertheless some key characteristics that are common to these definitions: skills that listeners need to comprehend oral texts effectively, cognitive processes that they engage in before, during and after listening, and the non-participatory and interactive contexts of L2 listening. These are explained in the following sections.

Enabling Skills for Communication

It is widely acknowledged that L2 listening comprehension is enabled by a number of sub-skills. These have been presented as taxonomies and lists of varying lengths and levels of detail. For example, Richards (1983) proposed two lists of listening skills, one for general listening and another for academic listening. Munby's (1978) list, which is the longest, covers a wide range of communicative functions involving listening. Buck (2001) makes a distinction between skills needed for listening for explicit information and those for inferring implicit information that language testers could use when designing tests, and Field (2008) presents various skills for decoding small units of sounds and words, as well as for making interpretations based on these decoded sounds. Rost (1990, 2013) presents skills that are needed for low- and high-level inferencing that range from recognising words to applying processes for interpreting and constructing models of understanding. Vandergrift and Goh (2012) suggest that listeners require six core skills in order to engage with listening input in ways that are relevant to their communicative purposes. Depending on the length of the input and the purpose that an individual has for listening, he or she may use one or more of these enabling skills. These are listening for details, listening to infer, listening for global understanding, listening for main ideas, listening to predict and listening selectively.

These skills have been accepted and applied in language teaching and testing to different extents. The rationale of these skills has been applied to developing teaching and learning materials, and various practice activities have been designed for learners to work from listening texts. Such an approach has been helpful to both teachers and learners because they enable learners to model their listening behaviour after what expert L1 listeners appear to do successfully. The question of the psychological reality of these sub-skills is sometimes raised, and there remains a paucity of research on the divisibility of listening into sub-skills. There is therefore still a lack of strong evidence supporting or refuting such divisions within the listening construct which teachers and material developers have been advocating. A recent study by Goh and Aryadoust (2015) offered some preliminary insights into this aspect of the construct of L2 listening. They examined whether listening abilities listed for an international standardised test of academic listening could be empirically separated based on test takers' performance. The results showed that the sub-skills in the test were empirically divisible, and this has lent support to the sub-skill approach to teaching and assessment.

Decoding Skills

In addition to the communication-oriented skills suggested in the previous sections, certain text- or language-oriented skills are also necessary for supporting listening comprehension. An important skill is lexical segmentation, which is one of the key decoding skills, and it enables listeners to recognise sounds in the speech stream and match them to the vocabulary store in memory (Field, 2008). There are other decoding skills, such as recognising phonemes, but these tend to occur almost

simultaneously with the recognition of larger units such as words and phrases, since a strictly linear process of building up meaning from the smallest units of sounds is a view that is hard to defend (G. Brown, 1990). Researchers and listening testers have also been cautioned against testing such low-level decoding skills because the recognition of phonemes is only useful for supporting listeners in applying communication-focused skills such as listening for literal meaning or listening to infer meaning (Dunkel, Henning & Chaudron, 1993). On the other hand, the recognition of larger phonological patterns, such as stress and intonation (Cauldwell, 2013), can play a far greater role in helping learners recognise important units of information from a speech stream, which they can use for constructing a reasonable interpretation (G. Brown, 1990).

Cognitive Processes

The operationalization of the aforementioned listening skills is made possible by several cognitive processes that take place within the listener. It is now widely accepted that listening comprehension comprises two processes that frequently occur together: bottom-up and top-down. *Bottom-up processing* refers to the way meaning is built up from the sounds that are heard. The other is *top-down processing*, where meaning is constructed by listeners applying their prior knowledge about the world and the L2 system. These two manners of processing often interact during listening to enable listeners to interpret what is heard by using both their linguistic ability to recognise sounds and words and their prior knowledge or 'schema' to infer, embellish and construct an interpretation of the words and sounds they hear. In effective listening, these cognitive processes occur harmoniously as different sources of input and knowledge are connected to produce understanding. Posited as a connectionist model, comprehension is viewed as the result of concurrent processing of input through the activation of interconnected or associative neural networks in the brain that attend to audio signals and the retrieval and application of stored linguistic and world knowledge in long-term memory (Bechtel & Abrahamsen, 1991).

In language comprehension, the working memory plays a central role by processing the sounds in the speech through the phonological or articulatory loop as well as monitoring and controlling the processes to enable some interpretation to occur (Baddeley, 2003). The phonological loop holds verbal information for as long as possible so that the information can be processed. In L2 listening, however, learners often complain that they are unable to remember the words which they have just heard (Goh, 2000), indicating that their cognitive capacities are so stretched by various demands that breakdown in comprehension is often a problem. Monitoring and managing of aural information is carried out by the central executive, the system that is responsible for directing attention to the inputs, coordinating smooth and harmonious interaction of cognitive processes, as well as regulating and redirecting attention to the input and unfolding interpretation. These monitoring and management efforts are metacognitive processes that enable learners to manage their listening processes (Chamot, 1995).

A Listening Comprehension Model

These processes are represented in a comprehension model that consists of three recurrent and overlapping cognitive phases—*perception*, *parsing* and *utilization* (Anderson, 1995). Perception is also referred to as decoding, the process in which listeners match the sounds in a stream of speech to words they have in their memory store. Parsing occurs when decoded words are analysed (often simultaneously) in larger units according to the listeners' knowledge of grammar or use of lexical cues. Utilisation is the process by which listeners relate the processed linguistic information to their prior knowledge of the world and knowledge about the context of interaction. Utilisation enables the

listener to arrive at a reasonable interpretation of the meaning and communicative function of the utterances heard. In face-to-face interactions, listeners will need to formulate appropriate responses to what they have understood to be the meaning and intention of the speaker. This process can also be a challenge to L2 listeners because of the need to cope with both comprehension and production of language. If, however, such a need does not arise, the interpretation will be transferred to long-term memory to be stored and retrieved at a later time if necessary.

These cognitive processes in L1, particularly perception and parsing, occur in an automatised manner requiring little or no special effort on the listener's part. The utilisation phase may sometimes require more effort and control, as higher-level processes such as inferring may need more work depending on the context of interaction and the explicitness on the speaker's part. L2 listeners, on the other hand, experience difficulties at all three phases, in particular the perception or decoding phase (S. Brown, 2011; Goh, 2000; Graham, 2006). In discussing learner listening, G. Brown (1990) identified three important abilities needed for constructing reasonable interpretations: using phonological cues, learning to use contextual information and drawing constrained inferences.

For many learners, using phonological cues can be a huge challenge because their lexical segmentation skills are underdeveloped. Lexical segmentation is the ability to distinguish words from one another within a stream of speech and the concomitant ability to group them into meaningful units so that they can use the words and phrases to construct minimally a literal interpretation (Field, 2008). While prior knowledge is often helpful for learners, it can also distract them (Macaro, Graham & Vanderplank, 2007), cause them to ignore useful textual cues (Field, 2004) and limit their interpretations owing to over-reliance on background knowledge (Tsui & Fullilove, 1998).

Some research has also been conducted on the role of working memory in L2 listening, though more studies are clearly needed for this line of inquiry because the results are still inconclusive. While some research found no association between working memory and L2 listening comprehension (Taguchi, 2008; Wolfgramm, Suter & Goeksel, 2016), a significant relationship between the two has been reported in at least two other studies (Brunfaut & Révész, 2014; Kormos & Safar, 2008). Concentration which appeared to be a correlate of working memory was able to predict listening comprehension reasonably well (Wolfgramm et al., 2016).

One-Way and Interactive Listening

There are two kinds of L2 listening. The first involves the listeners to attend to and comprehend the input without the need to respond in any overt manner to what they have or have not understood. Information that has been processed may be stored and used at another time or even discarded if it is deemed unimportant. This type of listening is commonly referred to as on-way or non-participatory listening. It occurs when L2 learners listen to a talk, attend a lecture, watch television or listen to the radio or podcasts. The second type of listening is interactive listening; as the name suggests, listeners have to engage with others in an interaction and use what they have comprehended to formulate appropriate responses. In these oral interactions, L2 learners switch between the role of listener and speaker.

Interactive listening may appear to be a more challenging form of L2 listening because learners have limited time to process what is heard before responding in real time to their interlocutors, and this could add pressure and affect their performance. While this may be true in some situations, learners generally can use communication strategies to request help from their interlocutors by asking them to repeat or clarify what is said. They are also able to check their understanding with their interlocutors. These helping procedures are typically absent in on-way listening, so learners have to resort to other means of enhancing their comprehension, such as by using listening strategies to solve these problems in order to process the meaning of texts on their own (Chamot, 1995). Further discussions about strategy use are found later in this chapter.

Developments and Trends in L2 Listening Research

Although listening research has a relatively shorter history in L2 research, there is now a substantial body of knowledge concerning the nature and role of various cognitive processes in L2 listening comprehension. It has its foundations in earlier discussions (e.g. G. Brown, 1990; Dirven & Oakeshott-Taylor, 1984, 1985; Dunkel, 1991; Rost, 1990) and is now further informed by new developments in psychology and other related fields (e.g. Field, 2008; Flowerdew & Miller, 2005; Rost, 2013; Vandergrift & Goh, 2009, 2012). Dunkel (1991), in surveying the field of L1 and L2 listening 20 years ago, provided a blueprint for areas of focus in L2 listening research, which many researchers still find useful today:

1. Understand the causative role participatory and non-participatory listening plays in second language acquisition (both in naturalistic environments and in formal contexts such as classrooms).
2. Determine the role listening comprehension skill development does or should play in the L2 curriculum, especially in the beginning stages of learning.
3. Pinpoint the factors "inside and outside the head" that enhance or depress comprehension of L2 input.
4. Identify the components (subskills) of listening and to deduce the dynamic process(es) involved in L2 listening comprehension
5. Deduce specific instructional tasks and classroom activities that enhance listening skill development for L2 learners.

(p. 434, 435)

Most of the studies conducted to date have focused predominantly on the last three areas, particularly on the internal and external factors that affect L2 listening performance as well as the interaction of these factors on processes and outcomes of L2 listening comprehension. In her review of listening research, Rubin (1994) identified studies that investigated the respective effects of text, interlocutor, task, listener and processing characteristics on successful L2 comprehension. Goh (2005) focused on the role of linguistic and metacognitive knowledge as well as strategies in creating expertise in L2 listening while Vandergrift (2007) examined the results of research on cognitive and affective factors along with external factors in the form of top-down and bottom-up instructional approaches.

Prior and Linguistic Knowledge

A common thread that runs through L2 listening research is the extent to which learner knowledge can enhance comprehension. Learner knowledge consists mainly of three kinds, namely linguistic (systemic) knowledge, prior knowledge and metacognitive knowledge. Research has shown that applying prior knowledge enhances L2 listening comprehension (Goh, 1998; Long, 1990), but this strategy is not without its limitations if learners rely too heavily on it (Macaro, Graham & Vanderplank, 2007). Prior knowledge is used to enhance or embellish an interpretation. In situations when the spoken input is unclear or ambiguous, listeners may use their prior knowledge to fill in the gaps so as to construct a reasonable interpretation of what is said.

Phonological Knowledge

Linguistic knowledge is an important factor in listening comprehension, and it consists of phonological, lexical and syntactic knowledge as well as knowledge about pragmatics and discourse (Rost, 2013; Vandergrift & Goh, 2012). Listening comprehension can be greatly enhanced when learners'

L2 linguistic knowledge is partially automatised or proceduralised. Phonological knowledge of phonemes, syllables and intonation can help them in lexical segmentation during the perception phase, and syntactic knowledge can facilitate the process of parsing (Brown, 1990; Field, 2008; Lynch, 1998). While some L2 learners believed that familiarity with speakers' accents can assist or impede listening comprehension (Goh, 1999), some recent studies have shown that accents may not have such great effects on listening performance as was generally thought (Abeywickrama, 2013; Ockey, Papageorgiou & French, 2016).

Vocabulary Knowledge

Learners' vocabulary or lexical knowledge has been shown to influence listening comprehension in various L2 learning contexts (Bonk, 2000; Kelly, 1991; Meccarty, 2000; Wolfgramm et al., 2016). Two recent studies in particular indicated strong and significant correlations between the two (Andringa, Olsthoorn, van Beuningen, Schoonen & Hulstijn, 2012; Stæhr, 2009). Stæhr took a more fine-tuned approach that examined the respective effects of breadth and depth of vocabulary and reported that breadth contributed to greater variance in comprehension. L2 learners have an additional challenge with vocabulary, as they may actually know the words in print but are unable to recognise them acoustically in spoken texts (Goh, 1998). Comprehension can also be affected by unfamiliarity with idiomatic and metaphorical language, as found in Littlemore's (2001) study of overseas students' lecture comprehension.

Discourse and Pragmatic Knowledge

Knowledge about how discourse is organised can also assist L2 listening comprehension. In particular, when the role of discourse signalling cues is understood by L2 learners, their comprehension of longer texts such as lecture can be enhanced (Flowerdew & Tauroza, 1995; Jung, 2003). Cross (2014) highlighted the importance of cultivating L2 listeners' knowledge about the structural and functional properties of texts, or what he called metatextual skills, to help them recognize culturally specific conventions of construction and production of text. Equally useful is pragmatic knowledge that enables learners to understand speakers' intentions and attitudes (also known as implicatures) beyond what is understood literally. In this regard, higher-proficiency listeners seem to be more successful (Taguchi, 2005). The ability to provide speakers with backchannelling, such as through receipt tokens (*Mm-hm, yeah, mm*) in interactive listening, is another factor that helps listeners maintain their participation and indicate their engagement or 'listenership' (Farr, 2003; Gardner, 1998).

Metacognition

Metacognition refers to thinking about one's cognitive processes, according to Flavell (1976), and there are two aspects to it: knowledge about cognitive processes and the "active monitoring and consequent regulation and orchestration of these processes" (p. 232). The role of metacognition in L2 listening was identified by Goh (1997) in her study of Chinese ESL learners, and the relevance of this construct to L2 listening research and instruction was further elaborated upon in the articulation of pedagogical approaches and techniques (Goh, 2008, 2010). Metacognitive knowledge about listening has three dimensions, namely knowledge and beliefs about oneself and others as listeners (person knowledge), the nature and demands of listening tasks (task knowledge), and special heuristics or strategies that can be used to facilitate comprehension (strategy knowledge). The processes of monitoring, regulation and orchestration of cognitive processes constitute strategy use by an individual

(Vandergrift, 2003). These are the actual application of special plans and techniques to facilitate comprehension before, during and after listening.

Research on metacognition in L2 listening to date has focused on two areas: learners' awareness of their listening and metacognitive processes and the effectiveness of teaching learners about their listening and metacognitive processes and how to apply listening strategies to achieve better comprehension (Goh & Zhang, 2013).

Metacognitive Awareness

There is abundant evidence now to show that learners of different age groups and learning contexts possess some metacognitive knowledge about L2 listening. Young learners around the ages of 10–12 demonstrated knowledge about factors that affected their listening comprehension, for example, the topic of the listening text and the types of questions asked (see Cross, 2009; Goh & Kaur, 2013; Goh & Taib, 2006; Vandergrift, 2002). Many of these learners were also able to articulate strategies that they believed would improve their listening performance, such as by ignoring difficult words and making inferences. Richer metacognitive knowledge was elicited from adolescent and adult learners who demonstrated more nuanced understanding of the strengths and limitations of strategies (Cross, 2009, 2010; Goh, 1999; Graham, 2006; Zeng, 2012; Zhang & Goh, 2006). These listeners across age groups were also aware of the challenges and factors that influenced their listening, thus demonstrating their person knowledge about L2 listening. They reported problems such as not being able to hear important words and interpret what was heard beyond a literal interpretation of the input as well as being distracted by unfamiliar words. Their knowledge is uneven, however, and learners can benefit from talking about their strategy use and other areas of metacognitive knowledge with one another.

Listening Strategies

The seminal study by O'Malley, Chamot and Küpper (1989) that identified L2 listening strategies provided an important impetus for further research in this area, and the field has since seen a number of studies that reported the strategies used by L2 listeners, with several taxonomies being proposed (e.g. Chen, 2007; Goh, 1998, 2002; Vandergrift, 1996, 1997, 1998; Young, 1997). Many of these taxonomies have been guided by a cognitive-metacognitive-social/affective framework, drawing from the framework of learning strategies of O'Malley and Chamot (1990). Despite some differences in these taxonomies, several commonalities existed.

Vandergrift and Goh (2012, pp. 277–284) proposed 12 groups of strategies that represented mental processes and learning behaviours for L2 listening. Most of these strategies are used to facilitate cognitive processing during listening and often in an orchestrated manner: focusing attention, monitoring, evaluation, inferencing, elaboration, contextualisation and reorganizing. Other strategies, namely planning, prediction, and using linguistic and learning resources, enable learners to make better preparations for listening and to self-direct their overall listening development. Last, but not least, cooperation and managing emotions are strategies that learners can use to cope with stressful face-to-face interactional listening or high-stakes one-way listening situations.

Learning to Use Strategies

L2 learners have also demonstrated gains in listening performance when they were taught listening strategies. Canadian French L2 learners who were guided through a sequence of steps involving predicting, planning, monitoring, evaluating, and problem solving during their listening task made

significant gains in listening comprehension after 13 weeks of instruction compared with their counterparts in the control group (Vandergrift & Tafaghodtari, 2010). In addition, they also experienced an increase in metacognitive knowledge as measured by the Metacognitive Awareness Listening Questionnaire (MALQ; Vandergrift, Goh, Mareschal & Tafaghodtari, 2006). Positive results of strategy instruction were also reported in a UK study of younger French learners who received strategy instruction in listening and reading over a nine-month period (Harris, 2007; see also Carrier, 2003).

Several studies which reported learning success had conducted metacognitive instruction for listening that enriched learners' metacognitive knowledge through planning and reflection, and embedded strategy training within listening comprehension lessons that required students to work directly with texts (Goh, 2008). Zeng (2014) conducted a 10-week study of Chinese college EFL learners, who went through a weekly sequence of individual self-reflection, group discussions and teacher-led awareness-raising of strategies underlying four metacognitive processes: planning, monitoring, evaluating, and problem-solving/inferencing. Although both experimental and comparison groups showed significant improvements, an independent t-test revealed significantly greater progress in the metacognitive group, who also revealed increased confidence through their post-lesson reflections.

When language learners had the opportunities to engage in strategy learning tasks, not only did their metacognitive knowledge of listening increase, but their motivation and self-efficacy was also enhanced (e.g. Graham, Santos & Vanderplank, 2011; Harris, 2007; Zeng, 2012, 2014). Less-skilled L2 listeners also benefitted more compared with their more-skilled counterparts (Cross, 2011a; Goh & Taib, 2006; Vandergrift & Tafaghodtari, 2010).

Methods of Investigating L2 Listening

Vandergrift (2007, 2015) distinguished between methods employed to investigate listening as product and listening as process as follows: when investigating the product or outcome of listening, researchers would typically use experimental designs to determine the existence of causal relationships through tests of significance in performance gains. Correlational studies are conducted to investigate associations among different variables. The process of listening can be examined through questionnaires, interviews, stimulated recall protocols, diaries, observation notes, think-aloud protocols, tracking software and auditory perception processing. To measure listening ability for both types of studies, proficiency test scores and free-written recall protocols are used, with the former being the more common method as it is less labour-intensive and can be easily administered to large groups (Vandergrift, 2015, pp. 301–302). Scores may be taken from tests that immediately follow a pedagogical treatment or are administered after a time interval. Administering both immediate and delayed post-tests are useful for examining longer-term effects of the treatment.

It is common for L2 listening researchers to investigate correlations between learners' test performance and other variables such as motivation, metacognition and self-efficacy by using scores from instruments that measure these constructs. The MALQ, for example, is a 21-item instrument used for eliciting L2 listeners' metacognitive awareness and perceived use of strategies, and it comprises five distinct factors in listening: problem-solving, planning and evaluation, mental translation, person knowledge, and direct attention metacognitive knowledge and strategy use (Vandergrift et al., 2006). Triangulating data from various sources using a mixed-methods approach is increasingly recognised as essential for increasing the validity of any study on listening processes (Vandergrift, 2015).

Goh and Aryadoust (2016) also observed the adoption of different methods in L2 listening research, which included think-aloud protocol analysis, latent trait and latent class modelling, regression analysis of questionnaire data, data mining techniques and a combination of qualitative and quantitative methods in mixed-methods approaches. They further reported that test scores from very large samples were often used to determine the effects of variables such as age, L1 background, topic

difficulty or bias, gender and frequency of exposure to listening test input on performance. Such effects have been investigated through the use of quantitative statistical methods such as regression analysis and psychometric and statistical modelling in the form of Rasch measurement Differential Item Functioning (DIF) and Structural Equation Modelling (SEM).

Listening in ESP

An area of L2 listening research that is often discussed separately is listening in English for Specific Purposes (ESP), which comprises English for Academic Purposes (EAP) and English for Occupational Purposes (EOP). In general, there has been limited interface between general L2 listening and ESP listening, even though the two share many fundamental learner and process characteristics (Goh, 2013). Main differences lie in the additional skills and types of vocabulary and discourse knowledge required for EAP and EOP purposes. As Fulcher (1999) noted about EAP testing, it had focused overly on subject knowledge, thereby detracting it from the main purpose of drawing valid inferences about language knowledge, skills or abilities from test scores. He highlighted that it was language proficiency, not subject knowledge, that mainly accounted for variance in EAP test scores, suggesting therefore that general L2 listening ability had a greater impact on learners' overall EAP listening performance.

EAP listening programmes in general prioritise the development of new skills such as note-taking during lectures, but programmes may also value interactive listening in face-to-face communication (Feak & Salehzadeh, 2001). In some EOP contexts, such as hospitality and aviation, listening teachers may be working with students of lower English proficiency than EAP students, and they would therefore need to enhance their pedagogy to strengthen general comprehension processes. Research into factors affecting L2 listening can assist ESP teachers to understand issues concerning listening problems, needs and pedagogical practices. Although EAP listening has had a relatively long tradition (see, for example, Chaudron & Richards, 1986; Flowerdew, 1994; Graham, 2011), there is still a paucity of research on ESP listening in EOP contexts. It is suggested therefore that research insights in general L2 listening be used to inform and stimulate further research in ESP listening, in particular listening in EOP contexts, where there is a conspicuous lack of attention.

Controversy and Developments

An area of research that has received much attention in recent years is L2 listeners' metacognition: metacognitive knowledge, strategy use and the effects of teaching learners how to use strategies. The benefits of strategy training, however, have been called into question by Renandya and Farrell (2011), who cited two reasons, namely a lack of success with the strategy approach for lower-proficiency learners and the heavy burden it placed on teachers. In its place, the authors have argued for an approach that focused on extensive listening instead. Cross (2011b) criticised the commentary for a lack of evidence from rigorous empirical studies to support the authors' views. Siegel (2011) also refuted the authors' claim by citing more recent research that was beginning to establish a foundation that listening pedagogy that included listening strategies was valuable. Five reasons against strategy instruction were further put forward by Renandya (2012): weak empirical evidence, unreasonable demand and opportunity cost, teachers' and students' views, threshold level and learners do not need strategies.

In his point-by-point rebuttal, Cross (2012) pointed out that the studies used to support the argument concerning a lack of evidence of success were mostly dated (15–20 years ago) and did not represent contemporary knowledge and developments in the field. This echoed Siegel's (2011) observation. Indeed, if we were to consider research in the last five to ten years, it would not be difficult

to see the growing number of studies that have reported the positive effects of teaching learners to use strategies (see earlier 'Metacognition' section). It must be qualified, nevertheless, that many of these studies which showed positive effects did not deliver the original form of strategy instruction, which advocated an explicit focus on presentation and practice of strategies followed by a review of the strategies in the classroom (see Mendelsohn, 1995). This approach has some limitations, one of which is that strategies are taught in an isolated manner and not contexualised within a communication and language learning task or lesson. Learners may therefore not see the relevance of such training, especially when they are already aware of these strategies in their L1 (Chamot, 1995) and they cannot see how they could apply these strategies when confronted with real-time listening that they find challenging.

Recent studies instead adopted a metacognitive approach that planned pedagogical procedures to raise learners' awareness of comprehension processes and teach learners how to use relevant strategies during listening and for self-regulating listening activities beyond class (Vandergrift & Goh, 2012). Such an approach can address concerns that strategy instruction took time away from learners working from texts (Ridgway, 2000). The most notable metacognitive instruction method is the metacognitive pedagogical cycle proposed by Vandergrift (2004, 2007). It consists of several stages where strategies and other metacognitive processes are integrated with listening to texts in a coherent lesson sequence. The sequence enables learners to work from text through close listening at three separate stages and engage in metacognitive processes such as planning, checking and evaluating through peer work.

Goh (2008, 2010) distinguished between two kinds of metacognitive instructional activities: integrated experiential listening tasks where metacognitive reflection and strategy learning are embedded within a lesson sequence (Vandergrift's pedagogical cycle is one such example) and guided reflections for listening which provide prompts and structure to guide learners in evaluating and planning their listening experiences before and after a listening task or event. Research findings on the effectiveness of metacognitive instruction have been encouraging in terms of gains in listening comprehension, improvement in regulation of cognitive processes during listening and improved motivation and confidence (e.g. Baleghizadeh & Rahimi, 2011; Cross, 2011a; Goh & Taib, 2006; Mareschal, 2007; O'Bryan & Hegelheimer, 2009; Vandergrift & Tafaghodtari, 2010; Zeng, 2012, 2014).

Defending the more traditional form of explicit strategy training, Cross (2012) argued that it was an instructional approach that was worth persevering with, and more time should be given to researchers to refine the pedagogy and research methodology before any conclusions about its usefulness should be made. As Cross has previously pointed out in a strategy instruction study that saw limited success (2009), the methodology of intervention would need to be refined. Cross also argued for a broader view concerning the benefits of strategy instruction to learners beyond a narrow focus on proficiency, pointing out that increased levels of control and improved self-efficacy are important to learners, as Graham (2011) has shown.

Cross also warned of another kind of potential opportunity cost if students were not taught systematically how to listen, and suggested that teacher capacity for conducting strategy training, one of Renandya's concerns, be addressed through professional development. While acknowledging that teachers' and learners' views were important, Cross also cautioned that strategy instruction should not be dismissed on account of the views of a handful of teachers and students who viewed it negatively. Positive perceptions of strategy instruction by learners had been reported by Siegel's (2012) study, and gradual changes in perceptions from negative to positive ones have also been recorded among L2 students who participated in another study (Liu & Goh, 2006).

With regard to Renandya's speculation of a proficiency threshold for strategy instruction to be useful, Cross asserted that this perspective would require rigorous theoretical and research substantiation. To delay strategy training till such a purported threshold was reached would be wrong, he

added. Once again, research findings from studies involving less-skilled listeners (Cross, 2011a; Goh & Taib, 2006) suggest that age and proficiency levels may not be an issue when it comes to learners benefitting from learning how to use listening strategies. Renandya's last point that learners did not need strategies was challenged by Cross, who cited Field's (2008) argument that automatic transfer of L1 strategies would not be instinctive because L2 listening is carried out under different circumstances. Even in situations where learners could use some strategies on their own, some form of strategy instruction had also been recommended (Farrell & Mallard, 2006).The broader field of L2 learner strategies also shows that although learners apply strategies in the different domains and modalities of language learning and use, strategy instruction was still found to be needed and beneficial because of the challenges of learning a language (Cohen, 2011).

The recent debates and developments surrounding strategy instruction in L2 listening have highlighted the need for further strengthening of this line of research in the field. However, critics should also recognise that strategy instruction that was first proposed 20 years ago has undergone various levels of improvement, particularly through the metacognitive approach, and research in general has reported greater all-round benefits for learners. Nevertheless, more could still be done in refining the pedagogy and research designs to produce further insights into an approach that engages learners' learning and thinking processes in a direct way. For researchers and teachers who adopted a metacognitive approach, the determination and motivation to persist is strengthened by research findings in general education, which demonstrated the impact of metacognition on creating successful learning (Hacker, Dunlosky & Graesser, 2009).

The importance of extensive listening, however, should not be recognised, as it can be another potential avenue for improving learners' listening. In fact, the extensive listening approach can coexist with strategy instruction (Siegel, 2011), and teachers can benefit by applying principles of metacognition to support their students' extensive listening endeavours, making them teacher-scaffolded and learner-directed. To this end, Vandergrift and Goh (2012) have offered some suggestions on projects for extensive listening, which includes a metacognitive dimension. These suggestions may provide ideas not only for teaching and learning but also possible pedagogical interventions that can be further examined through research and teacher enquiry.

Conclusion and Future Directions

This chapter has presented an overview of research in the field of L2 listening comprehension, which has seen tremendous growth in the last two decades. Owing to this ever-widening scope, the review in this chapter was by necessity selective. For example, it has not discussed the role of technology, which plays an important role in supporting the learning of L2 listening in this era of technology-enabled learning. A discussion of this topic can be found in Vandergrift (2007) and Vandergrift and Goh (2012). With the growth in interest and more rigorous efforts at understanding L2 listening, theoretical perspectives and emerging insights from research that have been posited need to be investigated further. New teaching methods and approaches will also require closer inquiry at various levels. As the field continues to draw from developments in related disciplines such as psychology, human communication and learning sciences, it is hoped that new lines of research will emerge.

The focus on cognitive processes so far has offered valuable insights into the role of stored and proceduralised linguistic and prior knowledge in L2 listening. An area that merits greater attention is the role of working memory in L2 listening. It is a complex area to investigate, but L2 researchers can now benefit from the deeper knowledge that has emerged concerning human cognition. Methods used in fields such as psychology can also be adopted or adapted for examining L2 listening comprehension. Given the importance of intercultural communication in our globalised world, more research is needed in interactive listening. Collaborations between L2 listening and researchers in

the areas of pragmatics and spoken discourse can yield useful insights that will enrich the respective fields. Last, but not least, there needs to be greater confluence of ideas from L2 listening researchers working in what presently appears to be three distinct areas: general L2 listening, ESP listening and testing listening. Collaborations among researchers from these three areas of L2 listening can provide much-needed synergy and directions for the development of pedagogy and techniques in order to strengthen the teaching, learning and assessment of L2 listening. This is the next frontier for L2 listening research.

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This chapter is dedicated to Larry Vandergrift (1946–2015).