Second Language Listeners' Metacognitive Strategy Use

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Abstract

Metacognition is understood to have the ability to enhance learning, and previous research on second language (L2) learning has explored the relationship between listeners' proficiency and metacognitive strategy use. This quantitative study adds to the existing body of research and explores the underexamined relationship between L2 listening growth and metacognitive strategy use. To explore this potential relationship, 25 university-level learners of English as a second language completed the ACCUPLACER ESL listening test and the Metacognitive Awareness Listening Questionnaire (MALQ). There was no significant correlation found between metacognitive awareness and listening comprehension, nor between any metacognitive listening strategy and listening success or growth. However, findings suggest that more-proficient listeners use more metacognitive strategies, have higher person knowledge, and generally rely on more sophisticated strategies. Additionally, factors other than metacognitive awareness may also influence listeners' L2 proficiency and strategy use. Specific associations are explored, along with recommendations for educators and researchers.

Keywords

Introduction

In second language (L2) writing and speaking activities, students can express themselves utilizing the vocabulary and grammatical structures they currently know. Similarly, during L2 reading activities, students can pause to reread a particularly difficult passage or look up any unknown vocabulary. However, in L2 listening activities students do not have this luxury, as the input cannot be tailored exactly to the individual learners' current vocabulary or acquisitional level. Additionally, beginning and intermediate learners are unable to process the input at a fast enough rate to be able to make sense of what they heard. All these factors contribute to why listening can be a particularly stressful activity for L2 learners (Goh & Taib, 2006). Moreover, previous research has shown many learners simply do not know or understand what L2 listening entails (Vandergrift, 2003), and educators often fail to recognize these difficulties or devote much time to helping students learn how to listen (Vandergrift et al, 2006).

Of the many factors that influence listening comprehension, metacognitive strategies are arguably the most important (Li, 2013), and research from previous scholars has demonstrated that metacognitive activities and instruction promote learning and greater L2 listening success (Cross, 2011; Goh & Taib, 2006; Vandergrift, 2002; Vandergrift & Tafaghodtari, 2010). Vandergrift et al. (2006) explained that "by increasing their awareness of the listening process, students can learn how to become better listeners, which, ultimately, will enable them to

learn/acquire another language more quickly and more efficiently" (p. 454). Thus, providing metacognitive instruction can raise L2 listeners' awareness of the strategies they already use and acquire knowledge about the variety of strategies to employ when attempting to make sense of new input. Research that examines the listening strategies that diverse learners rely on can help provide further insight into the approaches associated with higher and lower levels of listening success.

The purpose of this correlational study was to explore L2 listeners' metacognition and examine the relationship between learners' metacognitive strategy use, or the processes they used to aid in their planning, organizing, and evaluating of tasks and learning, and their L2 listening proficiency gains over time as measured by learners' L2 listening comprehension scores on an academic English listening exam. This study adds to the existing body of research on the relationship between metacognition and L2 listening and provides new insight into the underexamined relationship between L2 listening growth and metacognitive strategy use. Furthermore, the study provides useful insight into advanced-level students enrolled in a degree program at an English-medium university in the United States, which is particularly beneficial given that most previous research has explored learners in other contexts. The study was guided by three research questions: (1) Is there an association between L2 listening comprehension and overall metacognitive awareness? (2) Does L2 listening proficiency correlate with the use of any particular metacognitive listening strategy?; (3) Is there a relationship between L2 listening proficiency growth over time and the use of any particular metacognitive listening strategy? This paper explores the existing research on metacognition and L2 listeners' metacognitive strategy use before discussing findings from the current study related to L2 listeners' metacognitive strategy use.

Literature Review
Metacognition
Metacognition, or "one's knowledge concerning one's own cognitive processes and products or anything related to them" (Flavell, 1976, p. 232), can be divided into three distinct types of knowledge: *person knowledge* (everything you know or perceive to be true about yourself and others' cognition), *task knowledge* (the information you know about the task and how that affects your approach to completing it successfully), and *strategy knowledge* (the strategies one uses or could use in a variety of tasks) (Flavell, 1979). It is comprised of five attended thinking and reflective processes: (1) preparing and planning for learning, (2) selecting and using learning strategies, (3) monitoring strategy use, (4) orchestrating various strategies, and (5) evaluating strategy use and learning (Anderson, 2002). Metacognition "can lead to any of a wide variety of metacognitive experiences concerning self, tasks, goals, and strategies, and can also help you interpret the meaning and behavioral implications of these metacognitive experiences" (Flavell, 1979, p. 907).

While m*etacognitive strategies* refer to the processes intentionally selected and utilized by learners to aid in their planning, organizing, and evaluating of tasks and learning (Cohen, 1998), there is no distinct set of metacognitive strategies. Rather, metacognitive strategies are simply cognitive strategies that "are used for more metacognitively aware purposes" (Grabe, 2009, p. 224), meaning that what differs between cognitive and metacognitive processes is the degree to which one is consciously thinking about their awareness of the task at hand. Regarding L2 contexts, metacognitive strategies are the processes which are deliberately selected and executed by the learner in an attempt to be more successful in a L2 task.

Since its conception, metacognition has been heavily studied across a variety of contexts. Metacognitive strategies form a central part of metacognition and aid learners in controlling their cognition and coordinating the planning, organizing, and evaluation needed to successfully learn (Cohen, 1998). These strategies have also been studied across a variety of educational contexts, including studies on motivation to learn (e.g., Aydin, 2016), middle school online learning environments (e.g., Zhang et al., 2022), perceptions of fixed versus growth mindsets in relation to personal abilities and writing (Karlen & Compagnoni, 2017), and the impact of metacognitive strategy instruction, which had been shown by many (e.g., Apaydin, & Hossary, 2017; Birjandi & Rahimi, 2012; Maftoon & Fakhri Alamdari, 2020) to lead to improved learning outcomes. Given its demonstrated benefits on the promotion and transfer of learning (Scharff et al., 2017), metacognition is now considered a central tenant in the field of the Learning Sciences (University of Arizona, 2022) and is largely accepted as beneficial for learning across contexts.

Metacognition and L2 acquisition

Within the L2 classroom, it has been demonstrated that learners do employ planning, monitoring, and evaluating strategies during their second language tasks and learning (Vandergrift, 2002). Additionally, the reflective process inherent in metacognition can increase L2 learners' confidence and learning, as well as raise their level of metacognitive awareness (Vandergrift, 2002). Thus, metacognition and metacognitive knowledge are essential components of L2 learning that help shape how learners plan and direct their learning (Vandergrift & Goh, 2012). Much research on L2 learners' metacognition has examined learners' planning, monitoring, and evaluation strategies in regard to their person, task, and strategy use. While findings vary, these are all generally thought to be positive and beneficial strategies to utilize. In fact, it has been suggested that those with a higher level of knowledge about the task are more successful in planning, monitoring, and evaluating their approach, progress, and outcome in said task (Vandergrift & Goh, 2012). Other such strategies which have been identified as positively influencing learning and task progress include directed attention, making inferences, attempting to problem solve, and utilizing prior knowledge.

The approach selected in any L2 task is impacted by the learner's current level of metacognitive awareness and arsenal of metacognitive strategies. What the learner knows about their learning impacts the approaches selected for the task, and their overall outcome in said task. That being said, simply utilizing metacognitive skills and/or strategies does not necessarily guarantee success or comprehension, as not all strategies are always beneficial, or even applicable, to the given task. This is precisely why having a large repertoire of strategies to choose from is thought to be essential for success, especially since learners are not always successful in executing their selected strategy, or the strategy they select does not aid them in being successful for the task at hand (Afflerbach et al., 2008).

Metacognition and L2 listening

Goh and Hu (2014) explored the relationship between L2 listeners' metacognitive awareness and their listening proficiency and found a statistically significant relationship between these factors, with metacognitive awareness accounting for 20% of the variance in L2 listening comprehension. However, their findings also demonstrated all participants, even the more-successful ones, only used a moderate level of metacognitive strategies when listening in English (Goh & Hu, 2014). While overall metacognitive awareness correlated with listening success, the specific type of strategies employed had an even stronger correlation with listening comprehension (Goh & Hu, 2014). Li's (2013) work found a significant difference between the higher- and lower-score groups' metacognitive knowledge, but only the differences in the

directed attention and planning and evaluation categories were statistically significant. Findings from Cao and Lin's (2020) exploration of vocational college students supports these earlier studies, as they also found a positive relationship between listening comprehension and metacognitive strategy use.

Goh (1998) suggests that regardless of proficiency level, L2 listeners employ selective attention, directed attention, comprehension monitoring strategies, and making inferences. However, learners do not rely equally on metacognitive strategies when listening in an L2 (e.g., Hawras, 1996; Kern, 1994; Liyanage & Bartlett, 2012), and differences related to listening comprehension ability have been found. For example, less advanced listeners may utilize the bottom-up skill of translation significantly more frequently that the more-successful learners, while advanced listeners use questioning elaboration, on-line monitoring, and evaluation strategies more often than their less advanced peers (Chien & Wei, 1998; O'Malley et al., 1989; Vandergrift, 2003; Vandergrift et al., 2006). Additionally, person knowledge and problem-solving have been found to significantly predict listener performance, meaning that those listeners who have more success in the listening task also feel more confident and less anxious than their less-successful peers (Goh & Hu, 2014; Graham, 2006; Lynch, 1997).

Overall, more advanced L2 listeners use more metacognitive strategies than less advanced listeners (Chien & Wei, 1998; Vandergrift, 2003). While more advanced learners tend to rely more often on the more sophisticated metacognitive strategies, in general, research suggests that advanced learners use all the metacognitive strategies more often than the less-successful listeners. This suggests that more-successful learners are more likely to effectively employ planning, monitoring, and evaluating strategies in their L2 listening tasks, and that these strategies help learners achieve even greater L2 success (Vandergrift & Goh, 2012). However, research indicates that L2 listeners across proficiency levels rely too much on translation and have insufficient person knowledge and planning and evaluation strategies (Goh & Hu, 2014; Li, 2013).

As the review above highlights, the construct of metacognition has been heavily researched across contexts and has been linked to many positive benefits for learning. Additionally, existing research suggests a positive correlation between metacognitive strategy use and L2 listening comprehension and that more advanced L2 learners rely more heavily on certain strategies than their less proficient peers. However, few studies have explored this relationship among relatively advanced learners or those in an ESL context. Additionally, due to the research gap concerning the relationship between metacognitive strategy use and L2 listening comprehension growth over time, it remains unclear the extent to which metacognitive skills can help L2 listeners achieve significant and sustained improvement in their L2 listening.

Theoretical framework
This study is informed and guided by Nelson's (1996) theory of metacognition. In this theory, Nelson distinguishes between the object level (where execution processes, which are lower-order cognitive processes, occur) and the meta-level (where higher order executive functioning, like decoding information, parsing conception, and drawing connections, occurs). In this way, learners use metacognitive strategies at the meta-level to help assess their object-level performance (Veenman, 2016). This is a bottom-up process in which problems or abnormalities in performance trigger the learner to engage in monitoring strategies, but it can also be a top-down process when learners are instructed, or self-instruct, to use these metacognitive skills to plan, monitor, and regulate their performance during an activity (Veenman, 2016).

Methodology
Research design
This quantitative study used correlational analysis to explore participants' L2 listening comprehension proficiency and growth, as well as their metacognitive strategy use, to investigate the potential relationship between these factors. Because the study sought to explore the relationship between variables, a correlational design was the most appropriate design for the study (Mackey & Gass, 2005).

Participants
All participants were recruited into the study through a convenience sampling approach based solely on their enrollment in an oral skills course at a university located in the North-Central region of the United States during the spring 2014 semester. These courses were designed for L2 learners of English that had been admitted to the university, but who still lacked the necessary academic language and skills necessary to be successful at the English-medium university. During the recruitment phase, participants were informed about the study, including the scope, potential risks, and the steps taken to maintain participants' privacy. In total, 28 participants consented to participate, but two of the participants failed to attend the testing session and an additional participant was eliminated after the data collection due to evidence that they failed to provide thoughtful and accurate survey responses. Thus, 25 students (7 females and 18 males) from 16 majors, including the sciences, technology, business, economics, healthcare, and the arts, participated in the study. The participants ranged in age from 18 to 28 years of age ($M = 22$, $SD = 3$), and the females were slightly younger ($M = 20.67$, $SD = 3.44$) than the males ($M = 22.22$, $SD = 2.96$).

There were seven first languages reported, as detailed in Figure 1. The average reported time spent learning English was three years and six months, but this ranged from six months to thirteen years. At the time of the study, the participants' length of time spent living in the United States also varied, ranging from four months to three years, with a mean time of one year and three months. However, all participants were in their first year of the four-year university, and were enrolled in university-level, English-medium courses specific to their academic interests and degree requirements. Additionally, 84% of participants (21 out of 25) were placed in both an oral skills and a written skills course offered by the university for English L2 learners.

Figure 1
Breakdown of Reported L1s
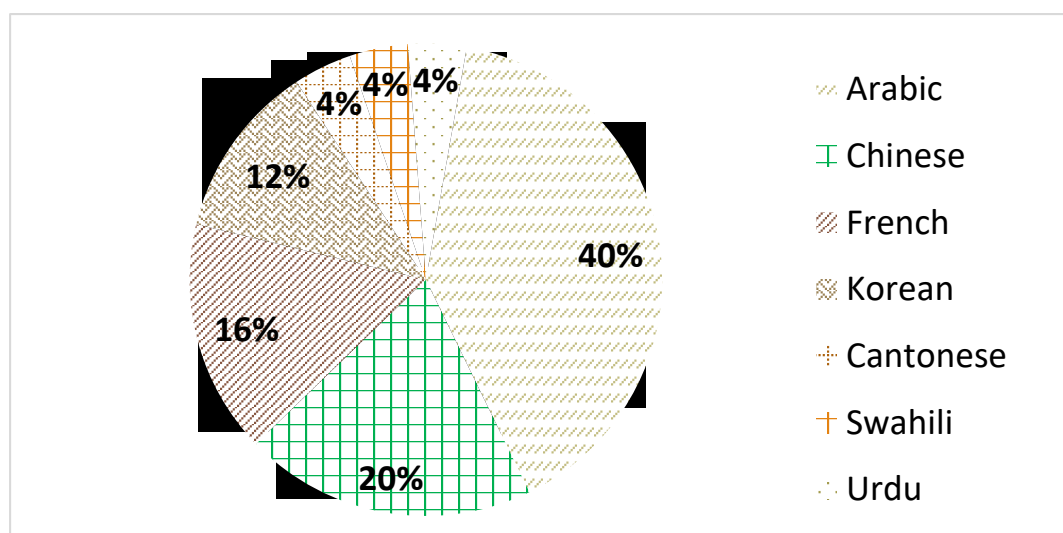
At the beginning of the semester, participants possessed between an intermediate and an advanced level of English language proficiency and were placed in either the lower- or upper-level oral skills course based on their score on the Accuplacer ESL listening test. Given that a score of 90/120 exempted individuals from both courses, all participants scored somewhere below 90, with one notable exception who was recommended to take an oral skills course despite scoring above 90. The mean score on the placement exam for those enrolled in the lower-level course was 71, but scores ranged from 50-85. The mean placement score for the upper-level course was 80, and scores ranged from 71-93. The participant pool was rather evenly split between the two levels, with 14 participants enrolled in one of the two lower-level sections, and 11 participants in the upper-level section.

Instruments
The instruments used to conduct this research were the Accuplacer ESL listening test, the Metacognitive Awareness Listening Questionnaire (MALQ), and a short demographic survey.

Accuplacer ESL
The Accuplacer ESL listening test is an untimed, computerized listening comprehension exam which seeks to assess students' ability to understand one or more English speakers in both academic and everyday environments. It is comprised of 20 multiple-choice questions that examine both literal comprehension and implied meaning (College Board, 2009). Participants were instructed to listen to the recorded audio conversation and subsequent comprehension questions while looking at pictures of the speakers. Then, they were to choose one of the four answers listed on the screen that best answered that particular question. Each audio recording could be replayed two additional times, and participants received an overall score between 0 and 120 (College Board, 2007).

Metacognitive Awareness Listening Questionnaire (MALQ)
The final, validated MALQ is comprised of 21 6-point Likert items and seeks to examine which skills L2 listeners employ during listening activities by instructing respondents to select the answer that most appropriately reflects the extent to which they do (or do not) use a certain strategy while listening. Potential answers range from strongly disagree – strongly agree, with no "neutral" or "undecided" option. The MALQ assesses four distinct listening strategies: problem-solving, planning and evaluation, mental translation, and directed attention. The questionnaire also assesses a fifth category –person knowledge– which examines learners' confidence in and anxiety about their L2 listening. While the fifth category is not a strategy per say, assessing it is essential because "learning a language cannot be separated from the learner's confidence or lack of it" (Lehtonen, 2010, p. 75). Moreover, it directly relates to the person knowledge component of metacognition. Table 1 details these survey categories.

Demographic survey
The demographic survey is comprised of eight questions about participants. Amongst other things, it records the participants' age, gender, country of origin, and time spent learning English. Obtaining this information was vital in exploring any potential correlation between participants' metacognitive strategy use and listening comprehension score (Goh & Hu, 2014) and was crucial in assessing the generalizability of the findings.

Table 1
Description of the Survey (Li, 2013)

Category	Description of skills	MALQ Questions
Planning and evaluation	The strategies learners use to prepare themselves for listening, and to evaluate the results of their listening efforts.	1. Before I start to listen, I have a plan in my head for how I am going to listen. 10. Before listening, I think of similar texts that I may have listened to. 14. After listening, I think back to how I listened, and about what I might do differently next time. 20. As I listen, I periodically ask myself if I am satisfied with my level of comprehension. 21. I have a goal in mind as I listen.
Directed Attention	The strategies that listeners use to concentrate and stay on task.	2. I focus harder on the text when I have trouble understanding. 6. When my mind wanders, I recover my concentration right away. 12. I try to get back on track when I lose concentration. 16. When I have difficulty understanding what I hear, I give up and stop listening.
Person Knowledge	Listeners' perceptions about the difficulty presented by and self-efficacy in L2 listening.	3. I find that listening is more difficult than reading, speaking, or writing in English. 8. I feel that listening comprehension in English is a challenge for me. 15. I don't feel nervous when I listen in English.
Mental Translation	The online mental translation strategy.	4. I translate in my head as I listen. 11. I translate key words as I listen. 18. I translate word by word, as I listen.
Problem-solving	The strategies used by listeners to inference and to monitor these inferences.	5. I use the words I understand to guess the meaning of the words I don't understand. 7. As I listen, I compare what I understand with what I know about the topic. 9. I use my experience and knowledge to help me understand. 13. As I listen, I quickly adjust my interpretation if I realize that it is not correct. 17. I use the general idea of the text to help me guess the meaning of the words that I don't understand. 19. When I guess the meaning of a word, I think back to everything else that I have heard, to see if my guess makes sense.

Procedure

This research was conducted by correlating the results from two distinct tasks: the listening comprehension exam, and the MALQ scores. Respondents first took the computerized final for their oral skills course, which was the Accuplacer ESL listening test. This exam was administered and monitored by an administrator and multiple graduate assistants, and while it

was given during finals week, it did not have any effect on participants' grade in their oral skills course. Upon completion of the exam, participants were given a packet containing a copy of their informed consent letter, a coded MALQ, and a coded demographic survey. Participants were instructed to complete the MALQ by reflecting upon what they did during the recently completed listening activity, as suggested by Vandergrift et al. (2006). Finally, after completing the questionnaire, participants were also asked to complete the short, coded demographic survey.

Analysis

With participants' consent, their scores on the placement and final listening comprehension exams were obtained after the data collection period had ended. These scores were recorded using a chart that contained both participants' ID and code numbers, and after all subjects' scores were recorded, the column containing the ID number was removed. This left only the coded number, meaning that all analysis from this point on was done anonymously and did not contain any identifying information. The initial and final exam scores were then used to figure each participant's gain score, or the change in their measured listening comprehension over time.

Before scoring the questionnaire, three scales needed to be reversed. Questions 3, 8, and 16 on the MALQ are worded negatively so that participants would be less likely to get into a pattern of only marking one side of the scale, meaning these scales needed to be switched in order to accurately capture participants' mean score. After this, the MALQ was scored. To do this, the numbers reported by the learner for all questions in each category were totaled and averaged to find the participant's mean score for that particular strategy. The next step was to figure participant's mean metacognitive awareness by averaging their responses on all MALQ items.

However, before this could be completed, the scales for questions 4, 11, and 18 needed to be reversed. This is because these items are about the translation strategy, which is thought to be a 'negative' strategy to utilize in L2 listening. Furthermore, the survey assumed that as proficiency and metacognitive awareness increase, the use of translation would decrease. Because of this, without reversing these scales when computing learners' overall metacognitive awareness, participants who reported translating more would end up scoring higher and the results would not accurately represent participants' metacognitive awareness (Vandergrift et al., 2006). This overall score and participants' score on each strategy assessed on the MALQ were recorded in the chart containing their initial and final listening comprehension score. Participants' responses on the demographic survey were also recorded in this same chart. Descriptive statistics were used to examine the groups' demographics as well as their metacognitive awareness and strategy.

To address the first research question, if there is an association between L2 listening comprehension and overall metacognitive awareness, a comparison had to be drawn between participants' overall MALQ scores and their score from the final listening comprehension exam. To avoid oversimplifying the data, which would potentially erase crucial differences, the participants' final listening score and overall MALQ score were organized using an interval scale. Mackey and Gass (2005) explain that doing so awards the opportunity to see both the order of the scores and the degree to which they differ from one another. Presenting this variance is crucial in order to provide the most accurate and complete representation of the participant pool and gathered data.

Because the study is concerned with the relationship between variables, it is correlational in nature and thus correlational data analyses needed to be conducted to address the research questions (Mackey & Gass, 2005). To determine which correlational analysis to use, the data was checked for normal distribution and the presence of a linear relationship between variables. Scatter plots, skewness and kurtosis, and a Shapiro-Wilk Test of Normality were run using SPSS, and it became evident that several of the variables were not normally distributed and no linear relationship existed between many of the variables. Because of this, Spearman's rank correlation coefficient was selected and performed using SPSS. This analysis examined each participant's listening comprehension score, gain score, metacognitive awareness, and mean score from each subset of the MALQ to investigate whether particular strategies correlated with success in L2 listening. An additional correlational analysis was also run to examine if listening comprehension, gain score, and metacognitive awareness each correlated with any particular demographic information, as well as how these factors related to strategy use.

Findings

As Table 2 indicates, the average metacognitive awareness score was 4.25 out of a possible 6. Participants utilized problem-solving the most ($M = 4.77$, $SD = .52$), followed by directed attention ($M = 4.62$, $SD = .57$), and planning and evaluation ($M = 3.98$, $SD = .75$). Overall, participants reported moderate person knowledge ($M = 3.64$, $SD = 1.08$), and relied least on the mental translation strategy ($M = 3.21$, $SD = 1.07$).

Table 2
Descriptive Statistics for Listening Scores, Metacognitive Awareness, and Listening Strategies

Variable	N	Min.	Max.	Mean	SD	Skewness Statistic	SD	Kurtosis Statistic	SD
Listening Score	25	64.00	105.00	82.80	11.54	.58	.46	-.48	.90
Gain Score	24	-7.00	36.00	7.75	10.98	.96	.47	.60	.92
Metacognitive Aware.	25	3.57	5.01	4.16	.43	.35	.46	-1.29	.90
Planning & Evaluation	25	2.20	5.40	3.98	.75	-.39	.46	.06	.90
Directed Attention	25	3.50	5.75	4.62	.57	-.13	.46	-.73	.90
Problem- Solving	25	3.50	5.83	4.77	.52	.09	.46	.32	.90
Translation	25	1.00	5.33	3.21	1.07	-.22	.46	-.25	.90
Person Knowledge	25	1.67	6.00	3.64	1.08	.20	.46	-.55	.90

As shown in Table 3, no significant correlations were found between listening success and any metacognitive strategy assessed on the MALQ. Only one strategy, planning and evaluation, approached significance, $r_s(23) = -.376$, $p = -.064$. However, participants reported considerably higher utilization of problem-solving and directed attention than person knowledge and translation, with planning and evaluation in between. Additionally, there was a weak correlation between gain score and directed attention, $r_s(22) = .356$, $p = .088$.

Table 3
Correlational Analysis of Listening Scores and Metacognitive Strategy Use

		MC Awareness	Planning & Evaluation	Directed Attention	Problem Solving	Person Knowledge	Translation
Listening Score	rho	.014	-.376	.114	.051	.172	.018
	Sig. (2-tailed)	.949	.064	.588	.808	.411	.933
	N	25	25	25	25	25	25
Gain Score	rho	.048	-.066	.356	-.024	-.058	.076
Sig. (2-tailed)		.825	.758	.088	.913	.789	.723
	N	24	24	24	24	24	24

Due to the potential influence other variables might have played on listening success, metacognitive awareness, and strategy use, a post-hoc Spearman's rho correlation of the variables obtained from the demographic survey was conducted. Table 4 reports the findings from this analysis. A strong correlation was found between the gain score and the number of ESL classes, $r_s(22) = -.606$, $p = .002$, as well as a moderate correlation between the amount of time spent in the United States and the use of the planning and evaluation strategy, $r_s(23) = .40$, $p = .047$. A negative correlation between the number of ESL classes in which the participant was placed and the use of the problem-solving strategy approached significance, $r_s(23) = -.362$, $p = .075$.

Table 4
Analysis of Variables, Listening Scores, and Metacognitive Awareness and Strategy Use

	Listening Score	Gain Score	MC Awareness	Planning & Eval	Direct. Attention	Problem Solving	Person Know.	Transl.
Gender rho								
Sig. (2-tailed)	-.143	-.077	-.093	-.118	-.137	.038	.025	.037
	.497	.722	.660	.574	.513	.858	.906	.860
N	25	24	25	25	25	25	25	25
Age rho								
Sig. (2-tailed)	-.229	-.089	.032	-.023	-.038	-.020	-.065	-.063
	.271	.678	.878	.912	.855	.924	.758	.767
N	25	24	25	25	25	25	25	25
Years in US rho								
Sig. (2-tailed)	-.330	-.045	.299	.401*	.122	.193	.095	-.091
	.107	.834	.146	.047	.562	.356	.650	.667
N	25	24	25	25	25	25	25	25
Years learning Engl rho	.370	.080	-.059	-.035	.090	-.323	.023	.123
	.090	.730	.793	.878	.689	.143	.918	.584
	22	21	22	22	22	22	22	22

Sig. (2-tailed)
N
Course
level
rho

Sig. (2-tailed)	.566**	.073	-.145	-.174	-.090	-.080	-.073	.034
	.003	.736	.488	.405	.668	.705	.728	.873
N	25	24	25	25	25	25	25	25

ESL
classes
rho

Sig. (2-tailed)	.539**	-.606**	-.280	-.023	-.214	-.362	-.244	.008
	.005	.002	.175	.914	.304	.075	.240	.971
N	25	24	25	25	25	25	25	25

*p <.05, **p <.01

Table 5 details the descriptive statistics for participants belonging to particular variable groups. There was a moderate correlation found between listening score and the level of the oral skills course the participant was in, $r_s(23) = .566$, $p = .003$, as well as listening score and the number of ESL courses in which the participant was enrolled, $r_s(23) = -.539$, $p = .005$. Additional analysis explored these factors in relation to gender. No significant differences were found for females, but for males (see Table 6), the most likely predictor of gain score, directed attention, reached significance ($r_s(16) = .491$, p = .039).

Table 5
Descriptive Statistics for Variable Populations

Variables		F	M	Lower lvl	Upper lvl	LS Only	Both classes
Listening Score	*M*	85.429	81.778	78.143	88.727	98.5	79.810
SD		13.126	11.107	10.756	8.986	8.5	9.09
Gain Score	*M*						
		10.5	6.8333	7	8.636	25.25	4.250
SD		14.963	9.685	10.777	10.654	8.288	7.175
MC Awareness *M*							
		4.286	4.237	4.585	4.132	4.478	4.131
SD		.425	.414	.435	.409	.388	.405
Plan & Eval	*M*						
		4	3.967	4.029	3.909	4.1	3.95
SD		.833	.746	.891	.47	.57	.76
Directed Att.	*M*						
		4.75	4.574	4.667	4.568	4.875	4.575
SD		.456	.616	.629	.453	.375	.577
Problem Solve	*M*	4.738	4.448	4.857	4.97	5.5	4.794
M		.744	.4667	.563	.448	.312	.471

SD						
Person	*M*					
Knowledge		3.714	3.611	3.738	3.515	4.333	3.508
SD		1.458	.938	1.121	.947	1.202	.968
Translation	*M*						
		3.19	3.222	3.143	3.303	3.417	3.175
SD		1.331	.997	1.252	.703	1.164	1.022

Table 6
Correlational Analysis for Males

		MC Awareness	Planning & Eval	Directed Attention	Problem Solving	Person Knowledge	Translation
Listening	Score						
rho		.149	-.402	.139	.211	.319	-.137
Sig. (2-tailed)		.555	.098	.583	.401	.197	.588
N		18	18	18	18	18	18
Gain	Score						
rho		.136	-.047	.491*	.221	.003	-.058
Sig. (2-tailed)		.590	.852	.039	.378	.992	.819
N		18	18	18	18	18	18

Additional analyses, which examined the lower and upper course levels as separate populations, are detailed in Tables 7 and 8. For those participants in the lower-level course, no correlation was found between listening success and metacognitive awareness, but there was a moderate, negative correlation between listening score and the use of planning and evaluation that approached significance, $r_s(12) = -.494$, $p = .073$. For the upper-level course, no correlation was found between listening score and metacognitive awareness, $r_s(9) = .018$, $p = .957$, nor with any specific strategy.

Table 7
Correlational Analysis for Participants in Lower-level Course

		MC Awareness	Planning & Eval	Directed Attention	Problem Solving	Person Knowledge	Translation
Listening	Score.						
rho		.086	-.494	.164	.012	.255	-.394
Sig. (2-tailed)		.770	.073	.576	.967	.378	.163
N		14	14	14	14	14	14
Gain	Score						
rho		.361	-.216	.362	-.014	-.194	.146
Sig. (2-tailed)		.226	.478	.224	.964	.525	.633
N		13	13	13	13	13	13

Table 8
Correlational Analysis for Participants in Upper-level Course

		MC Awareness	Planning & Eval	Directed Attention	Problem Solving	Person Knowledge	Translation
Listening	Score						
rho		.018	-.369	-.019	.298	-.088	.037
Sig. (2-tailed)		.957	.264	.956	.373	.796	.914
N		11	11	11	11	11	11
Gain	Score						
rho							
Sig. (2-tailed)		.191	-.139	.328	.393	.106	-.115
N		.574	.684	.325	.232	.757	.737
		11	11	11	11	11	11

Tables 9 and 10 document the results from the analyses of those enrolled in only one ESL course (oral skills) or both of the ESL courses offered at the university as distinct populations. Looking at the analysis which examined participants in both ESL courses, two findings become apparent. First, there is a moderate, statistically significant, negative correlation between the listening score of these participants and their use of the planning and evaluation strategy, $r_s(19) = -.481$, $p = .027$. Second, problem-solving appears to be the biggest predictor of these participants' gain scores, but this correlation is weak and non-significant.

Table 9
Correlational Analysis for Participants in Only Oral Skills

		MC Awareness	Planning & Eval	Directed Attention	Problem Solving	Person Knowledge	Translation
Listening	Score						
rho		-.400	-.316	-.316	.600	.800	.400
Sig. (2-tailed)		.600	.684	.684	.400	.200	.600
N		4	4	4	4	4	4
Gain	Score						
rho		-.800	-.316	-.632	.000	.400	.800
Sig. (2-tailed)		.200	.684	.368	1.000	.600	.200
N		4	4	4	4	4	4

Table 10
Correlational Analysis for Participants in Both ESL Courses

		MC Awareness	Planning & Eval	Directed Attention	Problem Solving	Person Knowledge	Translation
Listening	Score.						
rho		-.106	-.481*	.020	-.173	.019	-.047
Sig. (2-tailed)		.649	.027	.931	.452	.935	.839
N		21	21	21	21	21	21

Gain Score						
rho	-.172	-.056	.291	-.304	-.296	.095
Sig. (2-tailed)	.470	.813	.214	.192	.206	.691
N	20	20	20	20	20	20

Discussion

Research question 1: Is there an association between L2 listening comprehension and overall metacognitive awareness?

No significant correlation was found between listening success and metacognitive awareness, meaning the more-successful listeners did not report higher awareness of their metacognitive strategy use than the less-successful listeners. This finding counters existing research and may be a result of extenuating factors. Specifically, this finding may be impacted by two of the study's limitations: the challenges of self-reporting and survey research (Grabe, 2009) and the possibility that participants were relying more on skills than strategies (Afflerbach et al., 2008; Grabe, 2009). The latter is particularly possible given the relatively advanced proficiency of all participants and may indicate that some of the more-successful participants' strategies had already been converted into skills due to their repeated, prolonged, and successful implementation. If this were the case, it is plausible that these participants reported lower strategy use because they were utilizing fewer strategies and relying on a larger array of skills to help them be successful. This explanation refutes previous research, as it suggests that the more-successful participants actually relied on fewer strategies than the less-successful listeners. Future research that assesses both the strategies and the skills utilized by participants from a variety of proficiency levels is warranted to gain a more complete picture of what distinguishes the two groups from one another.

Given findings from previous research, the lack of a significant relationship between listening score and metacognitive strategies is surprising. One potential explanation may be due to the sample's overall proficiency level. Table 11 outlines the mean scores from the listening test, metacognitive awareness, and each of the five subsets assessed on the MALQ from the current study compared to similar studies from Goh and Hu (2014) and Li (2013). As demonstrated in the table, participants in the current study not only achieved a higher mean listening score and possessed a higher level of metacognitive awareness, but they also reported utilizing all strategies more often than participants in the two other studies.

The current study did not find an association between listening success and problem-solving strategy use. On the surface, this may not appear to support previous findings that more-successful learners use problem-solving more often than less successful learners (Chien & Wei, 1998; O'Malley, Chamot, & Kupper, 1989; Goh & Hu, 2014, Vandergrift, 2003). However, as argued above, all participants in the current study possessed a more- advanced proficiency level, as evidenced by their admittance to an English-medium university and their final listening comprehension scores, than participants in many other studies. As such, this finding suggests that problem-solving strategies are more sophisticated strategies employed by higher-proficiency learners.

Similarly, previous research suggests a relationship between person knowledge and listening success, as more proficient learners have lower anxiety about, and higher confidence in, their L2 abilities (Goh & Hu, 2014; Graham, 2006; Lynch, 1997). The current study found no such correlation within the sample, but on average, participants in the current study reported higher person knowledge than in similar studies with less-advanced participants (Goh & Hu, 2014; Li, 2013). Finally, this potential explanation is strengthened by the current study's findings on

the use of translation, as the least-successful participants, those in Li (2013), reported utilizing higher levels of translation than person knowledge and the more-successful participants, those in Goh and Hu (2014), relied least on the translation strategy. By comparing these three participant pools, we can see that there may be a trend whereby the more proficient listeners become, the more they begin to shift their reliance on translation to favor one of the other, more sophisticated, strategies.

Table 11
Mean Scores from the Three Similar Studies

	Current study	Goh & Hu (2014)	Li (2013)
Listening Score	82.8/120 (69%)	24.58/40 (61%)	11.07/25 (44%)
Metacognitive Awareness	4.25	3.96	3.65
Planning & Evaluation	3.98	3.68	3.47
Directed Attention	4.62	4.54	4.13
Person Knowledge	3.64	3.22	2.4
Translation	3.21	3.06	3.2
Problem-Solving	4.77	4.41	4.27

Research question 2: Does L2 listening proficiency correlate with the use of any particular metacognitive listening strategy?
No significant correlations were found between listening success and any metacognitive strategy, meaning the more-successful listeners did not report utilizing more metacognitive strategies than the less-successful listeners. However, participants reported considerably higher utilization of problem-solving and directed attention than person knowledge and translation, with planning and evaluation in between. Previous research suggested the planning and evaluation strategy to be a potential indicator of listening success. This study's weak, negative correlation between participants' listening score and their utilization of this strategy approaches significance, and thus would suggest that as listening comprehension increases, reliance on the planning and evaluation strategy decreases. Coupled with the fact that this was the third most utilized strategy, it appears that all participants were favoring other strategies during their L2 listening task which did not prove to predict their listening success. The negative correlation is surprising given Li's (2013) findings that this is a beneficial strategy and one employed by more-successful listeners. Future research should examine this potential relationship, especially due to the negative correlation found. Additionally, directed attention was employed by both more- and less-successful learners, meaning all participants -regardless of listening proficiency- had already recognized the beneficial nature of this strategy and were successful in its implementation. This finding supports previous work from Goh (1998) and suggests that L2 listeners of all levels rely on directed attention during their listening tasks.

Research question 3: Is there a relationship between L2 listening proficiency growth over time and the use of any particular metacognitive listening strategy?
No significant correlation was found between listening success and any metacognitive strategy, meaning the more-successful listeners did not report utilizing more metacognitive strategies than the less-successful listeners. However, the weak correlation between gain score and directed attention suggests that there may be a positive connection between gain score and directed attention, whereby as one increases, so does the other. Given that the directed attention strategy was the second most utilized metacognitive strategy and this finding approached significance, future research should examine this potential relationship on a larger scale.

Limitations

This study is limited by its reliance on only one method, the MALQ, for assessing metacognitive awareness and strategy use, as well as by the test environment and potential mismatch between some MALQ items and the type of listening activity. Moreover, it does not meet Fraenkel and Wallen's (2003) recommendation for a correlational study's minimum number of participants ($N = 50$). However, Mackey and Gass (2005) pointed out that L2 research often does not have access to this large of a participant pool, and that "small groups are sometimes appropriate as long as the techniques for analysis take the numbers into account" (p. 124). In fact, a small sample size can be beneficial in examining previously studied relationships. Thus, while the small participant pool is likely not a large limitation of the examination between listening success and metacognitive awareness or metacognitive strategy use, it is a severe limitation of any of the analyses involving gain score or any subpopulation of participants, as these relationships have not yet been analyzed on a large scale.

Conclusion

The findings from this study suggest that for at least a limited portion of English learners, more-successful listeners did not utilize more metacognitive strategies than the less-successful listeners, nor did the more- and less-successful learners rely on different strategies in their L2 listening. Finally, there were no metacognitive strategies that proved to be predictors in listening proficiency growth. Contrary to previous findings on problem-solving (Chien & Wei, 1998; O'Malley et al., 1989; Goh & Hu, 2014, Vandergrift, 2003) and person knowledge (Graham, 2006; Goh & Hu, 2014, Lynch, 1997), these strategies did not show to be significant predictors of listening success or gain score for this study's participants. Moreover, both the more-successful and less-successful advanced participants appear to continue utilizing moderate levels of mental translation in their L2 listening, a finding which does not support previous research (e.g., Vandergrift, 2003; Vandergrift et al., 2006).

However, participants in the current study were more advanced listeners than those in previous research (e.g., Goh & Hu, 2014; Li, 2013) and reported using higher levels of all the metacognitive strategies assessed on the MALQ. Taken together, this tends to support the theoretical claim that more-successful learners utilize more metacognitive strategies. Additionally, the post-hoc analysis led to several noteworthy findings. Attempting to get back on track after losing concentration, the oral skills course level, and the number of ESL classes enrolled in were all found to be significant predictors of listening success for all participants, while the number of ESL classes was also a significant predictor in participants' gain score. The listening success for different populations of participants may have also been influenced by other variables, such as the course level and number of ESL classes for males, and years spent in the United States for females. Finally, these variables may have influenced strategy use, as the amount of time spent in the United States strongly predicted participants' use of the planning and evaluation strategy, and the directed attention strategy was found to be a significant predictor in males' gain scores. These findings lend support to Li's (2013) argument that although metacognition plays a role in learning and L2 listening, it in and of itself is not enough to predict listening proficiency.

Future research should continue to examine the relationship between listening success and growth, metacognitive awareness, and metacognitive strategy use on a large and diverse scale. Given that the MALQ validation and previous studies have only included participants up to an intermediate-advanced level, future research must be conducted to examine advanced-level listeners' metacognitive strategy use to examine whether there is a threshold beyond which

there is no significant relationship between listening success and the use of any particular strategy.

Educators working with these more-proficient listeners should use caution in prescribing only the use of planning-evaluation strategies during L2 listening tasks, as the results suggest they may negatively correlate with listening success, and instead consider focusing more on directed attention strategies, as these strategies may help advanced listeners make larger growth in their listening proficiency. The pedagogy for advanced-level listeners should not be so focused on teaching the 'right' and 'wrong' strategies to utilize, but rather on ensuring that all learners are aware of the variety of strategies they can implement. This is due to the finding that other variables, like the number of ESL courses and length of time spent in the United States, may have a larger influence on participants' strategy use than previously anticipated, and instructors must be mindful of this. Providing learners with sufficient practice opportunities can help learners become successful in their application of new strategies, build their arsenal of strategies to choose from, and provide more-proficient learners the opportunity to evaluate how helpful particular strategies are for them personally. Furthermore, this practice can assist learners in turning strategies into skills, which in turn will help them become even more proficient in their L2 listening.

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