

An exploration of the relationships between students' listening skills, self-rated academic listening, and their metacognitive awareness

by

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Abstract

This empirical study investigated international students' challenges in listening to academic lectures, and their use of metacognitive listening strategies to overcome their problems. The participants were 46 international students at Memorial University of Newfoundland who were enrolled in various levels of different academic programs. The data were collected using the following instruments: an IELTS listening test, demographic questions, the self-rated academic listening questionnaire (ALSA), the metacognitive awareness listening questionnaire (MALQ), and two open-ended questions. The results were analyzed using descriptive statistics, one-way ANOVA, Pearson-product moment correlation coefficients, and linear regressions to measure the relationship between listening skills, self-rated academic listening, and the use of metacognitive strategies while performing academic listening. The results of the study suggest that (1) there is a negative relationship between students' listening performance and their use of metacognitive strategies, and (2) there is a positive relationship between students' listening performance and self-rated academic listening skills. ANOVA results show that PhD students perform much lower in listening compared to undergraduate and master's students. The results of the open-ended questions revealed the major reasons behind listening challenges encountered by the international students and their suggestions on the way of overcoming these challenges. The findings of this study are informative for teachers to understand international students' listening difficulties and help them improve their pedagogical methods. The study may also be useful for researchers who are interested to work in the field of second language listening.

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Dedication

This work is dedicated to my loving parents and
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Chapter One

Introduction

My research interest in this topic arose from my own learning experience. During my first semester of graduate studies at Memorial University of Newfoundland (MUN) in Canada, I took a course taught by a Canadian professor and most of the time I had problems understanding his lectures. He never used multimedia, which made it more difficult for me to get the point of the lectures. There were only two international students in that class and we both faced the same problems. I found that I was not used to his accent, pronunciation, and speed of delivering lectures, which made me frustrated. Additionally, I found it challenging to communicate with my classmates. Thus, my personal experience made me curious about what other international students thought of their academic listening abilities to what extent they found understanding academic lectures challenging, and how they overcame these challenges.

While conversing with several international students, I realized that they had been having challenges listening to academic lectures because of their professors' accents, pronunciations, and teaching methods. They also mentioned their own lack of vocabulary and subject knowledge as reasons for listening difficulties. This made me think of international students' problems while listening to academic lectures. Much research has been done on English as a Foreign Language (EFL) or English as a Second Language (ESL) students' problems with listening comprehension, but few have talked specifically about international students' problems with academic listening. Thus, this study will concentrate on international students at MUN and the challenges they face when listening to academic lectures.

1.1 Growth of International Students in Canada

In recent years, the number of international students coming to Canada for higher education has rapidly been increasing. Between 2014 and 2018, the number of international students in Canada increased by 68%, and by 2018 there was a total of 721,205 international students studying at all levels in Canada (Canada's International Education Strategy, 2019). This number of international students is considered the largest number ever. It is not surprising that most students from all over the world choose Canadian colleges and universities as a study destination. The most notable reasons are undoubtedly the quality of the Canadian education and policies put in place to increase their numbers. With regard to Atlantic Canada, the number of international students has risen by 20% each year (Davis, 2019). More precisely, the number of international students in Newfoundland and Labrador has been increasing, and MUN plays a vital role in attracting them. In the past ten years, the enrollment of international students at MUN has also been increasing from 1,143 in 2009 (Fowler, 2009) to 3,067 in 2018 (Leake, 2018). MUN welcomes international students, providing opportunities to build knowledge and to develop diverse skills to better prepare for life ahead.

Though a large number of international students have chosen Canada as a destination for their post-secondary education, they experience a lot of academic and language-related difficulties. Some of these students often encounter challenges in their English skills (e.g. listening, speaking, reading, writing). Especially, challenges in academic listening are integral to the overall learning experience of international students.

1.2 Statement of the Problem

Listening is a complex mental process that involves perception, attention, cognition, and memory (Hamouda, 2013, p. 115). Listening comprehension needs more effort to make meaning from the speech and “matching speech with the background knowledge” (Liubiniene, 2009, p. 89). Therefore, listening comprehension is an “integrative skill” (Vandergrift, 1999, p. 170) that facilitates the emergence of other language skills and determines a student’s academic success in academic settings.

Every international student must take the International Language Testing System (IELTS) or the Test of English as a Foreign Language (TOEFL) exams in order to gain admission into most post-secondary programs in North America. Students still face difficulties in understanding academic lectures (Huang & Finn, 2009) in spite of having strong IELTS or TOEFL scores. Most international students, who come to study in English-speaking countries, often encounter difficulties in understanding academic lectures. These difficulties significantly impact their ability to cope with academic demands. Sometimes, participants who do well in IELTS listening might face challenges in academic listening. Though the IELTS score predicts academic admission, it may not predict academic success (Dooley & Oliver, 2002). Academic listening skills are a necessity for students who study at English-speaking universities (Rahimirad & Moini, 2015). While listening to academic lectures in English, students have to understand the content and the meaning of the lecture simultaneously. This listening could be obstructed by the lecturer’s accents, speed of speech, pronunciation, (Hamouda, 2013); teaching style, and dialect, (Schoonmaker-Gates, 2017); as well as the students’ lack of background knowledge, poor vocabulary (Vandergrift & Baker,

2015). However, the understanding of academic lectures is crucial for students' academic success (Huang, 2005).

Studies (Goh, 1999; Vandergrift, 2003; Moradi, 2013; Gilakjani & Sabouri, 2016) suggested that students can overcome these difficulties using three listening strategies: cognitive strategies, metacognitive strategies, and socio-affective strategies. Different studies have been conducted on the use of listening strategies and their relationship with successful academic listening comprehension. The findings indicate that metacognitive strategies help to improve students' academic listening comprehension and extract information from lectures more effectively (Moradi, 2013) than the rest two strategies. The results of studies by Vandergrift (1999, 2003), Moradi (2013), and Schoonmaker-Gates (2017) suggest that teachers need to apply the metacognitive approach to listening contents and need to arrange explicit listening strategy training. Metacognitive strategies help students to plan, monitor, evaluate, and use their existing linguistic knowledge to comprehend academic listening. It is generally suggested that metacognitive strategies can improve a student's understanding of academic listening. However, before taking the initiative to improve listening skills, it is necessary to look at international student's perceptions about their academic listening ability and use of metacognitive strategies. Graham (2006) claims that though some researchers studied learners' perception of language learning in general, very few studies have been done on learners' perception of academic listening. He also highlights that teachers can help students to gain insights into their perception about L2 listening.

Several studies focus on the relationship between students' use of metacognitive strategies and their performance on academic listening (Baleghizadeh and Rahimi, 2011; Jinhong, 2011; Chang, 2012; Tavakoli, Shahraki, & Rezazadeh, 2012; and Goh & Hu, 2013). They found that there was a positive relationship between students' listening performance and their use of metacognitive strategies, but Buchari (2015) found that students' use of metacognitive strategies did not have any significant correlation with their listening performance. Most of them studied on the EFL or ESL students in Iran, China, Jordan, and Singapore. It would be interesting to explore the academic listening difficulties faced by international students at a Canadian university. Therefore, it is essential to investigate international students' perceptions of their academic listening skills and the metacognitive strategies they use concerning their performance on standardized measures of listening comprehension (IELTS). Thus, this study will empirically investigate the link between listening skills, perception of academic listening skills, and metacognitive strategies. It will seek to answer the following research question:

What is the relationship between international students' listening skills, their self-rated academic listening, and their use of metacognitive strategies?

1.3 Significance of the Study

Many studies have already been done in the arena of academic listening and listening strategy use. The findings of the study are expected to provide some information useful to the development of language teaching and learning. Firstly, this study will contribute to the knowledge base concerning listening in a second language

and what skills underlie successful academic listening with the added dimension of learners' perceptions of their listening skills. This should help to better prepare international students for academic programs in English. Secondly, this study will help teachers to better understand their international students' perceptions about listening skills and academic lecture comprehension. Thirdly, it is hoped that the result of the study will assist universities authorities to become more aware of student challenges and to improve the support system for international students at all levels.

1.4 Definition of Terms

The following key terms are frequently used in this study. In order to establish a consistent meaning for the terms used in this study, the following definitions are provided.

1. *L2* is an abbreviation for 'Second Language'. L2 Listeners refer to international students whose native language is not English and who listen to texts in English as a second language.
2. *Listening skills* generally mean the ability to understand the information provided by the speaker and to respond accordingly. In this study, listening skills are reflected by the students' scores on the IELTS listening.
3. *IELTS* is the acronym for the International English Language Testing System. This is an internationally recognized standardized test of English language proficiency of L2 learners. It tests one's ability to listen, speak, read, and write in English. It is the leading English test, which international students must pass to get admission into an English-speaking university. In this study, an IELTS

listening test is used to identify international students' level of listening proficiency.

4. *Academic listening* refers to international students' listening to a lecture that a professor delivers and their simultaneous responses in the classroom. Academic lecture listening requires students to identify what a lecturer said and to absorb information from the lecture.

1.5 Organization of the Study

The introduction is followed by five other chapters. Chapter 2 introduces the relevant literature for the conceptual framework of this study. It reviews the literature related to L2 listening comprehension, the use of metacognitive listening strategies during listening to academic lectures, and students' self-assessments of their listening abilities. Chapter 3 describes the methodology for the study, covering the research design, the participants, the recruitment of the participants, the data collection materials, the data collection procedures, and the statistical analysis of the study. Chapter 4 presents a detailed statistical analysis of the data and discusses the findings. Chapter 5 discusses the results of the study in light of the research questions. Chapter 6 provides the limitations of this study, discusses some directions for future research, and ends with a conclusion. References and appendices are included at the end of the thesis.

Chapter Two

Literature Review

2.1 Introduction

Academic listening refers to the listening skills used to receive and understand academic lectures in an academic setting. Researchers working on academic listening have identified both problems with listening skills and L2 learners' use of academic listening strategies (Berne, 2004; Moradi, 2013; Hamouda, 2013; Rahimirad & Moini, 2015), studied the relationship between IELTS listening and academic listening (Sabet & Babaei, 2017), looked at the relationship between listening performance and different strategies (Vandergrift, 2003; Goh & Hu, 2013; Tavakoli et al., 2012) and described professors' use of English in academic contexts (Huang, 2005).

A lecture is a common medium for delivering information and knowledge in academic contexts. Comprehension of academic lectures is vital for the academic success of L2 learners. This literature review illustrates various studies that explore L2 learner problems with understanding lectures by analyzing academic listening. First of all, I briefly introduce the definitions of listening, listening comprehension, and academic listening comprehension. Reviewing the literature related to L2 listening, this chapter presents the problems encountered by L2 listeners during academic listening and discusses listening strategies and the importance of metacognitive listening strategies. Then, this chapter reviews previous studies related to the relationship between students' listening skills and their use of metacognitive strategies.

2.2 Listening Comprehension

Listening is a critical yet challenging language skill for L2 learners. According to Rost (2013), listening is a process of receiving the text that the speaker says and responding to that text through involvement and understanding. Listening has been considered “a complex and active mental process comprised of perception, attention, cognition, and memory” (Hamouda, 2013, p. 115). Therefore, the act of listening involves listeners linguistics knowledge, cognitive processing skills, capacity to comprehend and interpret what a speaker says. Furthermore, Gilakjani and Sabouri (2016) point out that “listening is a process of receiving what the speaker says, making and showing meaning, negotiating to mean with the speaker and answering, and creating meaning by participation, creativity, and empathy” (p. 124). So, listening is not something that just happens; it is an active process in which listeners are required to make sense of spoken information at the time of internalizing the information.

Listening plays a crucial role in communication and second language acquisition. It is one of the basic skills needed to learn a language. In second language learning, listening involves understanding the speaker’s pronunciation, grammar, vocabulary, and message. Nunan (2003) states that “listening is the gasoline that fuels a learner’s acquisition process” (as cited in Bozorgian, 2012, p. 658). This idea is supported by Hamouda (2013), who says the first step of acquiring a language is to listen and receive input. Without receiving language input, it is impossible to produce as well as develop other language skills like speaking, reading, and writing. Listening is essential for the lives of students and their academic success, as “listening is used as a primary medium of learning at all stages of education” (Hamouda, 2013, p. 114).

Krashen (1982) argues that language acquisition is possible only when students receive enough comprehensible input. Krashen (1982) states learners need to be exposed to enough comprehensible input that moves from stage '*i*' (their current level of language ability) to stage '*i+1*', which means it is a bit above their current level of competency (p. 23). L2 learners must understand the meaning of the messages, not the form of the messages, that are slightly above their current language level. Thus, acquisition takes place when the learner understands language containing '*i+1*'. This can occur when the learners' focus is on successful communication.

The word 'comprehension' is often automatically connected to 'listening', as "comprehension is often considered to be the first-order goal of listening, the highest priority of the listener, and sometimes the sole purpose of listening" (Rost, 2013, p. 53). For L2 learners, the term 'listening comprehension' is the foundation that enables the learners to process a new language. Vandergrift (1999) states that "listening comprehension is anything but a passive activity" (p. 168). Listening comprehension is a complex process that requires learners to identify sounds, vocabulary, intonation, and grammatical patterns, and to interpret spoken output. It is not just bottom-up or top-down processing, but an interactive process in which listeners need to use both linguistic and prior knowledge to understand messages. Using either of these processes will depend on a listener's knowledge of the language, subject matter, and purpose for listening. It is a process of matching what the listeners hear with what they already know about the subject.

In an academic setting where English is taught as a second language, listening comprehension is very important for students to facilitate their understanding and

learning of what is being taught. Besides, listening comprehension also has a significant effect on classroom interactions because how a student speaks with their teachers and peers depends on their listening skills. Therefore, students' lack of comprehension may leave them silent in classroom discussions. Students need to understand the lecture content and the language simultaneously. That is why listening comprehension is an integral part of second language classes.

2.3 Academic Listening Comprehension

Academic listening usually refers to listening to lectures in an academic setting. In the taxonomies of micro-skills required for listening, Richards (1983) categorized listening as either conversational listening or academic listening. Academic listening is different from everyday conversational listening. Conversational listening is simple and informal. It does not require deep attention to listening, and also does not require any specific background knowledge of the conversation topic. On the other side, academic listening is formal. It requires knowing more advanced vocabulary and concentration to the speaker. Academic listening is identified as listening to lectures that involve skills to use relevant background knowledge, to determine the lecture contents, to recognize lexical items related to the materials, and to figure out the relationship between the contents discussed in the lecture. Flowerdew (1994) states that academic listening requires background knowledge of the subject, extraction of relevant information or ideas, and understanding of the real meaning based on context to grasp the gist of the content (as cited in Huang, 2005).

Imhof (1998) states that academic listening means listening to lectures in academic contexts where a listener requires to develop cognitive skills to interpret

information critically and to incorporate new data into existing knowledge. Surprisingly, to the best of our knowledge, little work has been done in the area of academic listening comprehension. The work that has been done has focused on the problems L2 listeners face while developing academic listening skills, reasons for listening difficulties, and the use of strategies to aid listening comprehension according to a learner's level of proficiency.

2.4 Problems Encountered by L2 Students During Academic Listening

Several studies have investigated L2 learner challenges when undergoing listening. Flowerdew and Miller (1992) used an ethnographic approach to study a group of L2 listeners' perceptions of academic listening skills, problems encountered to understand academic lectures, and their use of strategies to overcome these problems. This study was conducted on 30 first-year Chinese students (randomly selected from out of 60) who attended lectures for a BA ESL teaching method course for eight weeks. Researchers collected the information regarding student's experience of lecture comprehension using questionnaires, diaries, classroom observations, and in-depth interviews. They identified the reason for listening difficulties to be the speed of delivering the lecture, the use of new terminology and concepts, and difficulties in concentrating (Flowerdew & Miller, 1992, p.76). To overcome these difficulties, students sought help from their peers or lecturers, concentrated harder, and took better notes.

Goh (1999) studied a group of Chinese ESL learners to find out the factors that influenced their listening comprehension and investigated their awareness of these factors. Data was collected through small group interviews and diaries. The researcher

identified twelve factors that influenced students' listening comprehension. These twelve factors were categorized under five characteristics: text, listener, speaker, task, and environment. The findings revealed a connection between the degree of awareness of these factors and the student's level of proficiency. Therefore, high-proficiency learners were more aware of their difficulties compared to low-proficiency ones.

A year later, in 2000, Goh conducted another study about the real-time listening problems encountered by the same ESL learners using Anderson's (1995) three-phase model of listening comprehension: perception, parsing, and utilization. Perception is the first phase of listening comprehension, where listeners recognize words. In parsing phase, listeners make a mental model of the combined meaning of the words whatever they heard, and finally, in utilization, they understand the intended meaning of the message. "All three phases are interrelated and recursive and can happen concurrently during a single listening event" (Goh, 2000, p. 03). The participants of the study were 40 Chinese ESL learners, who were learning English in preparation for their undergraduate studies. The participants' responses were gathered from their self-reports about listening in weekly diaries, semi-structured group interviews, and immediate verbalizations. Among 40 participants, 17 students participated in semi-structured interviews and 23 students participated in immediate verbalisations. The results showed that the learners (high- and low- proficiency listeners) reported ten listening problems related to the three phases highlighted above. In the perception phase, the listeners could not recognize words, faced difficulties regarding concentration, and lost streams of speech. During the parsing, the listeners could not form a coherent mental representation of the words heard. In the utilization phase, the listeners had difficulties with understanding the message of the speaker. The listeners, regardless of proficiency,

also reported that they quickly forgot what they heard and could not identify words and sounds they knew. High proficiency listeners reported that though they could understand the meaning of words, they could not understand the meaning of the texts. On the other hand, low- proficiency listeners often missed the next part of the text as they spent too much time thinking about the meaning of what they just heard. Both groups had a tendency to lose attention frequently due to overthinking difficult words. However, high-proficiency listeners were at an advantage as they could bring back their attention to listening using the metacognitive strategy of directed attention.

Sometimes students experience difficulties in listening due to the way a lecture is delivered. Their problems of listening comprehension are related to a lecturer's speed of delivery, varied accents, pronunciation, syntactic structures, and method of teaching. Huang (2005) studied 78 Chinese students to investigate the effects of instructional factors on Chinese students' understanding of academic lectures at an American university. Among the 78 students, 77% were graduate students and 23% undergraduate students. Of those same students 46% were Arts and 54% were Science majors. The data was collected using a questionnaire of 30 items and an open-ended question. Results of the analyses indicated that American professors use of complex sentences, colloquial expressions, unclear pronunciations, diverse styles of delivering lectures, speech rate; and use of visual aids affected those students' academic listening. The finding of the study also suggested that undergraduate and arts faculty students faced more challenges than graduate and science faculty students.

In an attempt to investigate students' perceptions regarding listening comprehension in French and the reasons behind their success or lack thereof in

listening, Graham (2006) studied 595 students (aged 16-18) from different high schools, and 28 of them were interviewed. Many students considered themselves to be less successful listeners and identified the reason behind their listening problems as the speed of text delivery, grasping the single words in a stream of spoken French, and making sense of the sentences. Furthermore, most students acknowledged their difficulties in listening due to their own low ability in the listening skill. The findings suggested that it was not practice but the motivation that could improve a student's listening capacity. It is the duty of language teachers to know students' perceptions about themselves as listeners, as well as to use top-down and bottom-up strategies and help students "to use their non-linguistic knowledge to overcome any gaps in their linguistic knowledge" (Graham, 2006, p. 178).

More recently, Hayati (2010) conducted a study on the effect of speech rate on listening comprehension. The participants were 108 randomly selected EFL students from Islamic Azad University of Abadan. Among them, 62 homogeneous participants were selected based on their proficiency level as measured by Michigan's examination for the certificate of competency in English (ECCE) test and divided into two groups of 31 participants. One group listened to the slow speech rate materials (e.g. interviews, political speeches, and lectures) and the other group to the natural speech rate (e.g. audio and video news, interviews, political speeches, and lectures). The results of this study suggested that both groups, one which was exposed to speech at a slow rate and one which was exposed to speech at a natural rate, demonstrated an improvement in learners' listening comprehension. However, the group exposed to the natural speech rate showed a more significant improvement in listening comprehension than the group

that was exposed to a slow speech rate. Slow speech rate can be used as a path that leads to understanding the natural speech rate.

Hamouda (2013) also examined the listening problems experienced by first-year English majors at an Iranian university and found that academic listening problems were related to accent, pronunciation, speed of speech, insufficient vocabulary, lack of concentration, and anxiety. The study provided some suggestions for teachers to help students overcome their listening difficulties such as providing suitable materials, positive feedback, background knowledge, and visual support. It also suggested teachers could help by their slowing speech rate, using a precise accent and pronunciation, and teaching students how to use listening strategies effectively while they are engaged in listening.

These studies show that there are some internal factors (anxiety, background knowledge, and proficiency) and external factors (accent, speech rate, positive environment, feedback) that directly affect a student's understanding of an academic lecture. Sometimes students do not know that "there are strategies that they could adopt" (Selamat & Sidhu, 2013) so that they can help themselves to comprehend academic lectures more effectively. In order to help improve students listening ability, teachers have to comprehend students' problems with comprehending spoken texts and teach effective listening strategies to mitigate listening difficulties. Teachers can help their students "learn to listen," so that the students can "listen to learn." (Vandergrift, 2004, p. 19). When students know how, when, and why to use different listening strategies, they can have better results in listening in an academic setting.

2.5 Listening Strategies

Strategies are special techniques learners apply to facilitate the acquisition, storage, retrieval, and the use of information (Oxford, 1990). In order to overcome listening difficulties, students need to apply techniques known as listening strategies to comprehend academic lectures. Listening strategies help listeners to understand the meaning of spoken information. Gonen (2009) states the employment of listening strategies use is important as “learners have to decode the message, understand and interpret it in the course of listening” (p. 45). Therefore, listening strategies mean “the skills or methods for listeners to directly or indirectly achieve the purpose of listening comprehension of the spoken input” (Ho, 2006, p. 25).

Listening strategies are divided into three categories: cognitive, metacognitive, and socio-affective strategies (Lynch, 2009; O’Malley & Chamot, 1990; Vandergrift, 1999). Cognitive strategies are used to manipulate listening input directly to find the meaning of the words and text. Metacognitive strategies are used to manage these cognitive processes through planning, monitoring, problem solving, and evaluating. And socio-affective strategies are used to get help from the speaker or others through interaction. Studies on the use of listening strategies by learners of different skills have shown that the use of listening strategies can be influenced by various factors, such as listening ability (Goh, 1999), age (Goh & Taib, 2006), motivation (Hamouda, 2013), and L1 and L2 vocabulary (Vandergrift & Baker, 2015).

Vandergrift (2003) explored the relationship between learner language proficiency and their use of listening comprehension strategies. The participants were 36 junior high core French students in grade seven in Canada. Students listened to three

authentic French texts and then filled out multiple-choice questions. After each text, students said aloud what were they thinking of the text. Students' think-aloud data were audio-recorded, which were later transcribed and coded for analysis. The results of this study illustrated that more-skilled listeners used metacognitive strategies more frequently than less-skilled listeners. They could apply their background knowledge to brainstorm logical answers which also remained congruent with new knowledge and therefore, gain more control over the listening process. On the other hand, Less-skilled listeners used word-for-word translation of a part of text during think-aloud.

Bidabadi and Yamat (2011) studied the relationship between EFL learners' listening proficiency levels and their use of listening strategies. The data were collected from a group of 92 (18-year-old) female students at an Iranian university. Their native language was Farsi and they were at the beginner's level in the Teaching English as a Foreign Language (TEFL) course. The Oxford Placement Test was used first to identify the proficiency level of the students. Then, the Listening Strategy Questionnaire (LSQ) was modified in Iranian students' learning contexts to collect information about students' use of cognitive, metacognitive, and socio-affective listening strategies. The study revealed that learners "used metacognitive strategies more than cognitive and socio-affective strategies" (p. 28). This finding also indicated that all proficiency level students employed metacognitive listening strategies such as planning, directed attention, and selective attention. Therefore, the findings of these studies reveal that metacognitive strategies are the most effective strategies to develop learners listening performance and enhance their success in second language listening.

2.6 Metacognitive Strategies in Listening

Metacognitive listening strategies refer to the activities that listeners use to control the listening processes through problem solving, directing attention, planning and evaluating (Goh, 2013; Lynch, 2009). Knowledge of metacognitive strategies plays the most vital role to help students thinking and comprehension of L2 listening. Students can check up and appraise their comprehension of listening through the use of metacognitive strategies. Students can overcome their problems during listening to lectures using metacognitive strategies frequently (Selamat & Sidhu, 2013). Therefore, this section presents the definitions of metacognition, types of metacognition, and previous studies related to the relationship between students' use of metacognitive listening strategies and their listening skills.

2.6.1 Metacognition

When referring to metacognitive strategies, it is important to discuss the concept of metacognition. The concept of metacognition was first coined by the American psychologist, John Flavell in 1976. Flavell (1976) defines metacognition as “one’s knowledge concerning one’s own cognitive processes and products, or anything related to them” and the capacity for “active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in the service of some concrete goal or objective” (p. 232). Similar to Flavell’s view, Wenden (1998) refers to metacognitive awareness as a specialized portion of a learner’s acquired knowledge, and it consists of what learners know about learning. Vandergrift and Goh (2012) state “metacognition enables us to be agents of our own thinking” (p. 84). In other words, metacognition is the listener’s awareness in

terms of cognitive processes which take part in comprehension, and the capacity to monitor, regulate, and direct these cognitive processes (Goh & Hu, 2013). Therefore, metacognitive awareness has a crucial place in listening development.

According to O'Malley and Chamot (1990), metacognitive strategies refer to thinking and planning about the learning process, planning for learning, monitoring comprehension, and self-evaluating after the learning activity (p. 08). Peterson (2001) states that metacognitive strategies involve planning, monitoring, and evaluating comprehension. However, Vandergrift, Goh, Mareschal, and Tafaghodtari (2006) claim that metacognitive strategies are a kind of self-regulated learning where students attempt to plan, check, monitor, select, revise, and evaluate their learning. Though different researchers define metacognition in different ways, all definitions indicate that metacognition means 'thinking about thinking' (Anderson, 2002) and the conscious knowledge about learning. According to Rahimirad and Moini (2015), "metacognitive strategies provide a context for interpretation, they can assist listeners select their goals, supervise their improvement, and assess learning results, and they may considerably facilitate and accelerate listening performance or develop self-regulated learning" (p. 2). With the help of metacognitive strategies, learners can understand how to gain the maximum amount of knowledge from listening to spoken text. Learners can check-up and evaluate their comprehension of the text they are listening to using metacognitive strategies.

2.6.2 Types of Metacognitive Strategies

Vandergrift et al. (2006, pp. 450-451) studied five underlying factors of metacognitive strategies: problem solving, planning and evaluation, mental translation, person knowledge, and directed attention.

1. Problem-solving represents a group of strategies where learners use known words to understand unknown words, interpret text using general knowledge, adjust and monitor their accuracy and compare their existing knowledge of the topic with their new knowledge.
2. Planning and evaluation indicate having a plan for listening, thinking about similar texts, setting a goal while listening, and evaluating the results of their listening efforts.
3. Mental translation includes strategies that listeners must learn to avoid if they wish to become skilled second language listeners. Mental translation during listening facilitates simultaneous translating word by word, or translating key words while listening.
4. Person knowledge represents the self-efficacy of L2 listeners while listening. It includes learners' perceived difficulties of listening, anxiety experienced in L2 listening, and self-efficacy related directly to academic expectations and performance.
5. Directed attention refers to strategy listeners use to maintain attention on task and recover concentration. It helps learners to keep trying and to refocus even if they face difficulties understanding listening materials.

Therefore, these strategies underpin learners' listening processes, help them plan for learning, monitor, concentrate, and evaluate said learning. Furthermore, metacognitive

strategies help learners think about the process of learning and manage their approach to second language listening (Vandergrift, 1999; Vandergrift & Baker, 2015).

2.7 Previous Studies on Metacognitive Awareness and L2 Listening

Listening tasks which engage students in predicting, monitoring, evaluating, and problem-solving can help learners develop self-regulated listening strategies (Vandergrift, 2003, and Goh & Taib, 2006). Different studies have been conducted on the relationship between students' proficiency levels in listening, academic listening skills, and their use of metacognitive strategies.

Vandergrift and Tafaghodtari (2010) conducted a study on the efficacy of metacognitive and process-based listening instruction for teaching L2 listening. The Metacognitive Awareness Listening Questionnaire (MALQ) was used to measure the data at the beginning, middle, and end of the study and to track listeners' metacognitive awareness in L2 listening. The participants (n = 106) were divided into two groups: the experimental group (n = 59) and the control group (n = 47). Participants were randomly assigned to either the experimental or control group. The control group did not get any formal instruction on strategy use, nor any opportunity to discuss, predict, or monitor their comprehension with a partner. Whereas the experimental group was taught the use of metacognitive strategies (planning, monitoring, evaluating, and problem solving) during listening. Both groups listened to the same text spoken by the same instructors the same number of times, and they performed differently. They found that the experimental group outperformed the control group in listening tests. The findings suggested that metacognitive instruction is more beneficial because less-proficient learners from the experimental group showed more improvement and developed their

metacognitive awareness in listening more than the proficient listeners in the control group.

Baleghizadeh and Rahimi (2011) conducted a study on the relationship between student's listening performance, motivation, and the use of metacognitive strategies. Data were collected from 82 students who studied English Translation and Literature at Allameh Tabataba'i and Shahid Beheshti Universities in Iran. The data were collected using three instruments: MALQ, AMS (academic motivation scale), and the listening section of the TOEFL. The results indicated that there was a positive correlation between metacognitive strategy use and listening performance. There was a significant positive relationship between intrinsic motivation and listening performance, but a negative relationship between extrinsic motivation and listening performance. However, motivation had a significant relationship with metacognitive strategy use.

Jinhong (2011) also investigated the relationship between Chinese students' metacognitive strategies use and their performance in a listening comprehension TEM-4 test of English. The participants were 100 students majoring in English at a Chinese college. The data was collected through the listening test, questionnaire, and interview. First, TEM-4 listening test was employed to identify the proficiency levels of 100 students. Then, among them, 30 students were randomly selected to take part in the metacognitive strategy use questionnaire in order to find the use of metacognitive strategies in different proficiency levels. Analyzing the data from listening tests and metacognitive questionnaires, it had been found that there were four students whose listening test scores and the frequency of metacognitive strategy use was negatively

related. Thus, these four students were asked to answer two interview questions to find the reasons for the negative relationship. Except these four students, the overall results showed that there is a positive relationship between students' frequency of metacognitive strategies use and their performance on the listening comprehension test. The result of the interview revealed that all four students acknowledged the benefit of metacognitive strategy to improve listening proficiency. They also said that they were facing problems either in dealing with the listening comprehension tasks or in the application of metacognitive strategies.

Chang (2012) conducted a study on the relationships between Chinese University EFL learners' metacognitive listening strategies and their comprehension and incidental vocabulary acquisition from listening tasks. The participants were 172 Chinese university students. The participants were divided into three groups who received different experimental treatments: group A (listening texts presented once), group B (texts presented three times at different speeds), and group C (pre-listening text with topic-familiarization which was also presented three times at different speeds). The study was done using the MALQ questionnaire, two listening tasks, a vocabulary selection test, and three types of vocabulary post-tests. Their metacognitive awareness was measured by the MALQ and listening comprehension was measured by their performance on the listening tasks. The listening text of each task included five words for the incidental vocabulary acquisition study. The findings suggested that listening to a text multiple times contributed to improving both listening comprehension and incidental vocabulary acquisition. Regarding the relationship between the participants' metacognitive awareness and listening comprehension, person knowledge was positively related, and mental translation was negatively related to listening

comprehension. In relation to participants' metacognitive awareness, planning and evaluation strategies were positively related and mental translation was negatively related to incidental vocabulary acquisition.

Tavakoli et al. (2012) explored the relationship between metacognitive awareness and listening performance using mixed methods. The total participants of the study were 66 intermediate and advanced level students at a language institute in Iran. The IELTS test was employed to identify the participants as less or more-proficient listeners and the researchers used the MALQ questionnaire to evaluate the students' use of metacognitive strategies. Also, using stratified random sampling, four listeners (two less- and two more- proficient) were selected to take part in a stimulated recall session on their IELTS responses. Results of the analyses indicated that directed attention, problem solving, as well as planning and evaluation had a positive correlation with listening performance, mental translation negatively correlated with listening performance, and person knowledge had very little correlation with listening performance. Use of metacognitive strategies also seemed different according to the proficiency level of the students, as more-proficient listeners used more problem solving and directed attention strategies than less-proficient ones. The less-proficient listeners tended to use the mental translation strategy for listening comprehension. However, there was no significant difference between the less- and more-proficient listeners in terms of using planning and evaluation, and person knowledge.

Goh and Hu (2013) investigated the relationship between metacognitive awareness and IELTS listening performance. This study was conducted on a sample of 113 ESL Chinese learners who were attending a six-month, full-time English

communication skills program at a university in Singapore. Data were collected through the MALQ and an official sample section of the IELTS test. The results indicated that there was a significant positive relationship between a learner's metacognitive awareness scores and their listening performance. Listening performance has a significant relationship with directed attention and problem solving as well as a moderate to low relation with planning and evaluation, mental translation, and person knowledge.

Rahimirad and Moini (2015), in their study, attempted to investigate English for Academic Purposes (EAP) learners' challenges in listening to academic lectures and the impact of metacognition on lecture listening comprehension. They studied 15 female academic staff members (instructors or technicians) from the Faculty of Computer Science, Physics, and Chemistry. They were participating in two workshops to improve their academic listening and speaking abilities which will eventually help them to attend in conferences or PhD interviews. The participants were divided into experimental (8) and control (7) groups. The data were collected through the IELTS academic listening pre-and post-test, and interviews after every eight sessions of academic lectures. The results revealed that metacognitive strategies significantly improved academic lecture comprehension. The majority of the learners used directed attention, planning and evaluation, and problem-solving strategies. They suggested the need for teachers to apply metacognitive approaches to spoken content in class so that the learners could gain confidence and evade listening challenges. Teachers should replace product-oriented instruction with process-oriented instruction in teaching listening so that students can efficiently extract information from the lecture content. In product-oriented instruction, the teacher focuses on the completion of the syllabus and

can only verify the accuracy of students' comprehension at the end of the learning process. However, in process-oriented instruction, the teacher focuses on the process of learning and helps students learn how to listen and process the information using appropriate strategies.

Mohammad, Singh, and Ganapathy (2016) conducted a study to investigate the effects of metacognitive strategies use on academic listening skills. The participants of this study were 22 Masters' students of Linguistics in Jordan. The data was collected using the Metacognitive Awareness Listening Questionnaire (MALQ). The findings of this study revealed that the Masters' students were moderate metacognitive strategies users. The more-skilled listeners used mental translation less than the less-skilled listeners. All students depended on problem-solving and directed attention strategies more than person knowledge and planning and evaluation.

In brief, the previous studies used similar instruments to explore the relationship between metacognitive strategies and listening performance in groups of learners who were at the same academic level. The present study will use the same instruments but will explore whether students are enrolled in an undergraduate, master's or PhD program has an impact on the results.

2.8 Students' Self-perception of Academic Listening Comprehension

All the literature discussed above is about students' listening problems, the application of strategies to overcome the problems, and the teacher's responsibility to teach these strategies. However, before we hope to improve a student's listening skills, it is necessary to know what they (the students) think about their listening skills

(Graham, 2006, p. 166). Students need to identify their problem themselves and rate their own listening performance.

Self-rating or self-assessment can improve students' confidence and learning. The purpose of self-rating is to develop ways in which students can become more perceptive and critical about their learning. Dragemark (2006) says "self-assessment is the practice when the student or learner evaluates or assesses his or her own learning in relation to set criteria" (p. 173). Self-assessment helps students see what they need to concentrate on their learning, and also motivates and enhances their sense of responsibility. Researchers reported self-rating as a method of improving a language learner's awareness of their own strengths and weaknesses (Ekabatani & Pierson, 2000), as well as a useful way to assist teachers to understand a learner's self-perceptions which subsequently helps in their way of teaching (Graham, 2006). While numerous studies have generated self-rating instruments for listening tests, only recently has a study administered a self-rating questionnaire, particularly for academic listening comprehension, to evaluate students' awareness of their listening proficiency level.

Aryadoust, Goh, and Kim (2012) developed an Academic Listening Self-rating Questionnaire (ALSA) to incorporate various subskills of academic listening performance. The questionnaire posits six major factors of academic listening performance: cognitive processing skills (CPS), linguistic components and prosody (LCP), note-taking (NT), lecture structure (LS), relating input to other materials (RIOM), and memory and concentration (MC). It consists of 47-items that were formulated on the basis of these six factors. The questionnaire was first administered to

30 international students (aged 18 - 51) at an Australian university, and secondly, to 119 international students (aged 18 - 39) at six different universities in Malaysia. The participants were non-native speakers of English. The success of the questionnaire was determined by content, substantive, and structural validity (regression coefficients of all items were greater than 0.50) evidence. Overall, ALSA has the potential to raise students' awareness of their academic listening comprehension and therefore, to evaluate their own academic listening ability. It appears as though the ALSA is appropriate to assess students' perception of their academic listening abilities, and it will be used in the present study.

Although a number of studies have been conducted concerning students' problems with listening comprehension, and their use of strategies at school, college or university levels, to the best of our knowledge, no previous study has used international students from different countries as the subject of their study. So, it is necessary to investigate the academic listening difficulties faced by international students at a Canadian university, their use of strategies, and their self-assessment of academic listening skills. In the next chapter, I will present the methodology I employed to answer my research question.

Chapter Three

Methodology

3.1 Introduction

This chapter presents the methodology that was used to investigate the relationship between international students' listening skills, their self-rated academic listening, and their use of metacognitive strategies. Therefore, this chapter describes the methods and procedures used, including research design, research questions, recruiting participants, data collection instruments, and collecting data. Finally, the chapter discusses the methods used in the data analysis of this study.

3.2 Research Question

The objective of this study is to explore deeper understanding of international students' perceptions of their academic listening comprehension and use of metacognitive strategies. This study addressed the following question:

What is the relationship between international students' listening skills, their self-rated academic listening, and their use of metacognitive strategies?

3.3 Research Design

To effectively answer the aforementioned question, an empirical research approach was employed. According to Lapp and Fisher (2011), an empirical research design is a systematic approach that generally searches for answers to practical questions. So, empirical research is based on observation or experience, and it helps to gain knowledge from actual experience rather than from theory or belief. This empirical

study allows me to answer practical questions with the help of two established survey questionnaires: the MALQ which measures international students' use of metacognitive strategies while listening to academic lecture, the ALSA which measures their self-rated academic listening. Then, an IELTS listening module is used to measure their listening performance.

3.4 Research Instruments

The data for the study were collected using three different instruments: the IELTS listening test, the ALSA Questionnaire, and the MALQ questionnaire.

3.4.1 IELTS Listening Test

The IELTS (International English Language Testing System) listening test is a commonly used instrument which measures the listening skills of non-native English speakers. In order to understand students' level of listening proficiency, the listening module of Test 3 of the IELTS practice tests of book 11 (see Appendix D) was used. The listening test consisted of 40 questions divided into four sections. There were four different listening scripts modelled after different communicational situations. The four sections were based on a telephone conversation (questions 1-10), two conversations between students (questions 11-30), and a lecture about an ethnography research study (questions 31-40). The listening tasks involved multiple-choice questions, fill in the blanks, matching items and table completion. The test was scored based on the number of correct responses where each question had a weight of 1 for a total of 40.

3.4.2 ALSA Questionnaire

The academic listening self-rating questionnaire (ALSA) was employed as a standardized measure to assess the students' awareness of their academic listening. The ALSA questionnaires (see Appendix E) was adopted from Aryadoust et al. (2012). The questionnaire has 47 statements related to six factors (subskills): linguistic components and prosody, cognitive processing skills, memory and concentration, note-taking, relating input to other materials, and lecture structure. Each of the 47 statements was grouped corresponding to the six factors in the questionnaire (see Table 1).

Table 1: Six factors of ALSA

Factors	Item Number
Linguistic components and prosody (LCP)	1, 4, 5, 6, 13, 14, 17, 22, 32, 34, 35
Cognitive processing skills (CPS)	7, 8, 9, 10, 11, 16, 19, 20, 21, 24, 45
Memory and concentration (MC)	2, 3, 44
Note taking (NT)	15, 29, 33, 46
Relating input to other materials (RIOM)	12, 23, 27
Lecture structure (LS)	18, 25, 26, 28, 30, 31, 36, 37, 38, 39, 40, 41, 42, 43, 47
Total	47

Responses to the ALSA were collected using 4-point Likert scale for the items where indicating 1 = not at all well, 2 = not well, 3 = well, and 4 = very well. Participants were asked to choose the option that best indicates their self-assessment of their academic listening ability level. Aryadoust et al. (2012) originally piloted the ALSA questionnaire with 30 international students in Australian universities and 119

international students in Malaysian universities. This relatively large sample provided the supportive evidence of the structural, substantive, and content-related validity of the questionnaire. The result of internal consistency for the reliability of each subskill was different with respect to participants location. In Australia, the internal consistency for the reliability of the subskill was 0.83 (Cognitive processing skills), 0.83 (linguistics component and prosody), 0.61 (note-taking), 0.74 (lecture structure), 0.54 (relating input to other materials), and 0.71 (memory and concentration). On the other hand, in Malaysia, the internal consistency for reliability of the subskills was 0.88 (Cognitive processing skills), 0.94 (linguistics component and prosody), 0.52 (note-taking), 0.82 (lecture structure), 0.86 (relating input to other materials), and 0.51 (memory and concentration) respectively. Hence, Aryadoust et al. (2012) deemed the questionnaire reliable to use as a research instrument.

3.4.3 MALQ Questionnaire

The third instrument used in this study was the metacognitive awareness of listening questionnaire (MALQ) created by Vandergrift et al. (2006). This questionnaire was used to investigate the student's awareness of metacognitive strategies and their use during listening. The MALQ (Appendix F) is a self-reported instrument which consists of 21 items related to five factors of metacognitive knowledge: problem-solving, planning and evaluation, mental translation, person knowledge, and directed attention. These five factors appear to correlate with students' listening ability: problem-solving strategies enable students to guess and monitor those guesses; planning and evaluation strategies help to prepare for listening and to assess their performance after listening; mental translation helps to translate into their first

language while listening; person knowledge reveals their confidence or anxiety, and self-perception as an L2 listener; and finally directed attention strategies are needed to concentrate on aspects of the task (Lynch, 2009, p. 83). Table 2 presents the six factors of metacognitive strategies and their item number of corresponding statements.

Table 2: Five factors of metacognitive strategies

Factors	Item Number
Problem- solving (PS)	5, 7,9, 13, 17, 19
Planning and evaluation (PE)	1, 10, 14, 20, 21
Mental translation (MT)	4, 11, 18
Person knowledge (PK)	3, 8, 15
Directed attention (DA)	2, 6, 12, 16

The responses to the questionnaire use a six-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = partially disagree, 4 = partially agree, 5 = agree, and 6 = strongly agree. Participants were asked to choose the option that best corresponds to their opinion. The validity of the MALQ has been field-tested on a large sample of 966 respondents in different learning contexts and different levels of language proficiency in different countries (Vandergrift et al., 2006, p. 441). They also highlighted that the internal consistency reliability score of subsections of MALQ was 0.74 for person knowledge, 0.74 for problem-solving, 0.75 for planning and evaluation, 0.68 for directed attention, and 0.78 for mental translation (Vandergrift et al., 2006, p. 446). Thus, it is a fairly reliable instrument for measuring students' level of awareness of metacognitive listening strategies.

3.4.4 Open-ended Questions

This part included two open-ended questions. These questions were designed to elicit participants' in-depth perspective of the reasons that create problems understanding academic lectures and their suggestions for future students to overcome these challenges. The following questions were posed:

1. Can you think of any other reason for which you may have problems understanding academic lectures?
2. What do you think could help you to overcome these challenges?

3.5 Recruitment and Participants

Before starting the recruitment of the participants, the research proposal was reviewed by the Interdisciplinary Committee on Ethics in Human Research (ICEHR) and found to comply with Memorial University's ethics policy. Once receiving approval from the Ethics Board in March of 2019, I started contacting different departments and organizations at MUN to advertise my study. I contacted organizations such as the International Student Advising Office (ISA), the Bangladesh Students' Association (BSA), the Graduate Students' Union (GSU), and the Memorial University of Newfoundland Students' Union (MUNSU). I requested to distribute an email with an attachment to my invitation letter (see Appendix A) to all international students at the university. The head of the organizations circulated the invitation through their weekly listserv and departments also displayed the information on their notice boards. I also put up posters throughout the university. In the invitation letter, I explained the purpose of my research, the expected duration and date of participation, the responsibilities and benefits of participants, and the confidentiality of the study. I also

clarified that participation was voluntary, and they were free to skip any question they did not want to answer and that they could withdraw from the study for any reason at any time without consequences. At the end of the letter, interested participants were asked to communicate with me through email. Subsequently, those who were interested in sharing their academic listening difficulties through participating in my study emailed me mentioning the chosen date and time of participation. As it often happens that the response rate was fairly low, and I requested ISA to advertise my study three more times to collect responses. Hence, the recruitment process occurred over five months period from May to September 2019 in order to solicit the desired number of participants (40-50).

The total number of participants were 46 international students (18 females, 28 males) enrolled at Memorial University of Newfoundland (MUN) whose first language is not English. The socio-demographic questionnaire (see Appendix C) consisted of 12 questions aimed to elicit information about participants' gender, age, nationality, native language, their previous IELTS/TOEFL scores on listening, program and department of study, time in living in Canada, and the level of education they completed in their home country. Table 3 summarizes the demographic information that will help me to better contextualize students' challenges with listening.

Table 3 : Participants' socio-demographic information

STD No.	Age	Gender	Country	Native language	Program	Department	Length of time in Canada
A1	32	Male	Bangladesh	Bengali	PhD	Oil & Gas	4 Years
A2	35	Male	Bangladesh	Bengali	PhD	Process	3.5 years
A3	35	Male	Sudan	Arabic	PhD	Process	3 Years
A4	25	Female	China	Mandarin	Masters	Education	1.5 Years
A5	28	Male	China	Mandarin	PhD	FEAS	1.5 Years
A6	22	Female	Sri Lanka	Sinhalese	Undergrad	Business	3.5 years
A7	22	Male	Nigeria	English	Undergrad	Computer Sci	6 Years
B1	28	Male	Bangladesh	Bengali	Masters	Oil & Gas	8 Months
B2	30	Female	Bangladesh	Bengali	Masters	Philosophy	1.7 Months
B3	26	Female	Poland	Bengali	Masters	Earth Science	1.5 Years
B4	37	Male	Bangladesh	Bengali	PhD	Oil & Gas	2 years
B5	30	Female	Bangladesh	Bengali	Masters	Folklore	2 years
C1	32	Female	Bangladesh	Bengali	Masters	Gender	8 Months
C2	33	Male	Bangladesh	Bengali	PhD	Oil & Gas	8 Months
C3	25	Male	India	Hindi	Masters	Oil & Gas	8 Months
C4	39	Male	Bangladesh	Bengali	Masters	Folklore	1 Year
C5	22	Male	Bangladesh	Bengali	Undergrad	Computer Sci	1.5 Years
C6	26	Female	Nepal	Nepalese	Masters	Computer Sci	1 Year
C7	28	Male	Bangladesh	Bengali	PhD	Biochemistry	2 Years
D1	29	Male	Turkey	Turkish	Masters	Earth Science	7 Months
D2	20	Male	Bangladesh	Bengali	Undergrad	Science	10 Months
D3	20	Male	Bangladesh	Bengali	Undergrad	Science	19 Days
D4	19	Male	Bangladesh	Bengali	Undergrad	Science	12 Months
D5	31	Male	India	Hindi	PhD	Process	2 Years

D6	30	Female	India	Hindi	PhD	Biochemistry	2 Years
D7	33	Male	Bangladesh	Bengali	PhD	Process	3.5 Years
D8	25	Male	China	Mandarin	PhD	Engineering	3.5 Years
E1	27	Male	Iran	Persian	Masters	Kinesiology	1.5 Years
E2	26	Male	Mexico	Spanish	Masters	Civil Eng.	1.2 Years
E3	24	Female	Sri Lanka	Sinhalese	Masters	ECE	1 Year
E4	23	Female	China	Mandarin	Undergrad	Computer Sci	2 years
E5	24	Female	Nepal	Nepalis	Masters	Computer Sci	9 months
E6	27	Female	Iran	Persian	Masters	Process Eng.	1.5 Years
E7	40	Male	Brazil	Portuguese	PhD	Applied Sci.	2 Years
E8	32	Female	Sri Lanka	Sinhalese	PhD	Applied Sci.	3.5 Years
E9	27	Male	China	Mandarin	PhD	Biochemistry	2 Years
F1	22	Male	Bangladesh	Bangla	Undergrad	Business	2 years
F2	22	Male	Bangladesh	Bangla	Undergrad	Business	2 years
F3	19	Male	Bangladesh	Bangla	Undergrad	Business	2 years
F4	22	Male	Bangladesh	Bangla	Masters	Engineering	1.8 years
F5	21	Male	Bangladesh	Bangla	Undergrad	Science	8 months
F6	17	Female	Nigeria	Edo	Undergrad	Computer Sci	1 year
F7	17	Female	Sudan	Arabic	Undergrad	Humanities	8 months
F8	27	Female	China	mandarin	Masters	Education	2 years
F9	21	Female	Bangladesh	Bangla	Undergrad	Humanities	2 years
F10	27	Female	Sri Lanka	Sinhalese	Undergrad	Business	1 year

This table illustrates diversity among the participants that were helpful to represent the international students of MUN. This allowed for some meaningful comparisons among the participants in terms of data analysis. Participants of the study were undergraduate, master's, and PhD students from different faculties. Besides, the participants were from

different countries with different native languages, and also with different levels of English language proficiency.

3.6 Data Collection Procedure

After getting responses from the participants with their preferred date, I set a venue for the study to take place. The participants were sent a reminder email mentioning the date and venue. In the testing sessions, I first presented an overview of the study, all study protocols like the purpose of the study, risks and benefits, the data collection procedure and storage of the data, confidentiality, data analysis, use of the data in my research, and last but not the least, their voluntary participation including their right to withdraw. All this information was written in the consent form as well. They were instructed not to write their name on any of the questionnaires. Each participant was given an alphanumeric code to identify them. Then, they were given a letter of the informed consent form which they read and signed.

As mentioned, a listening module of the IELTS test, three questionnaires (MALQ, ALSA, and a demographic questionnaire) and two open-ended questions were used in this study. The session was divided into two parts. In the first part, the listening test was administered. The IELTS listening track was played on a laptop with speakers and participants listened to the track with no distractions. The listening components were divided into four sections. The participants answered the questions after listening to each section. The total amount of time spent on the listening test was 25 minutes.

Subsequently, in the second part, they were given a thorough explanation of the purpose of the questionnaires and how to fill these questionnaires correctly. They were

expected to fill out the MALQ and ALSA questionnaires along with demographic questions and open-ended questions, which required approximately 20-25 minutes to complete. During this session, each statement of both questionnaires was assessed on a spectrum of agreement/ disagreement by participants. When participants submitted their questionnaires, all data was kept locked in a cabinet. As data collection occurred concurrently during the recruitment process based on participants' responses and availability, all data were collected over a period of six days (May 1, May 7, June 18, July 12, August 21, and September 9) from May to September 2019. After the data was collected, it was entered in an MS-excel file which was used later in the data analysis using a statistical software program. I described the procedures of data analysis in the following section.

3.7 Data Analysis

The collected data were analyzed using the open-access statistical software program, Jamovi (version 1.0). The data from MALQ questionnaire was analyzed to determine the students' use of metacognitive strategies and the ALSA questionnaire to get their self-rating of academic listening. With regard to the MALQ, students' responses on the 21-items of questionnaire were computed first, and then the scores for five factors were computed cumulating the scores of items of each factor (using the factors computed by Vandergrift et al. 2006). In the same way, students' responses on the 47-items of the ALSA questionnaire were computed, and the scores for six factors were computed cumulating the scores of items of each factor (using the factors computed by Aryadoust et al., 2012). The participants' listening comprehension level was evaluated using IELTS listening, which carried 40 marks for 40 questions and no

change was made in computing; scores out of 40 were analyzed. In addition, the level of the current program of study was a categorical variable where “1” corresponded to undergraduate, “2” to master’s, and “3” indicated PhD.

Descriptive statistics (number, mean, standard deviation, maximum, minimum, skewness, and kurtosis) were calculated for all continuous variables. After that, I ran one-way ANOVA to determine whether there are any statistically significant differences between the three levels of program students and their IELTS listening performance. When the significant mean differences were detected, then I employed the Tukey post hoc test to identify exactly where the differences existed. Next, to examine the relationship between the different factors of students’ metacognitive strategies, self-rated academic listening and listening comprehension skills as measured by the IELTS listening, I first ran Pearson correlations between all the variables. Then, I ran a linear regression analysis using variables which significantly correlated with the IELTS listening scores: one MALQ factor-MT, two ALSA factors-CPS and NT, as well as 3 levels of the program to determine how these predictor variables would relate to the dependent variable, IELTS listening performance. Finally, the students’ response to the two open-ended questions were analyzed in terms of common themes.

Chapter Four

Results

4.1 Introduction

In this chapter, the analyses of the collected data are presented in three sections. Section 4.2 contains the descriptive statistics for each of the measures: IELTS listening, the ALSA, and the MALQ. Section 4.3 presents the preliminary analyses, which are used to better understand the relationships between the variables of the study. The same section also presents the linear regression analysis, which helps to determine the significance and predictive power of the relationships between the variables under study is presented. In section 4.4, a qualitative analysis of the open-ended questions is presented. Finally, section 4.5 presents the overall summary of the findings.

4.2 Descriptive Statistics

Descriptive statistics are used “to simplify a set of data by organizing or summarizing a large set of scores” (Gravetter & Wallnau, 2013, p. 133). In this study, the descriptive statistics for all measures are presented in order to summarize performance on the different measures and to address the normality of the data on all measures. Data were considered to be normally distributed if the skewness coefficient was between -1 and +1 (Gravetter & Wallnau, 2013, p. 221). The mean, standard deviation, minimum, maximum, skewness, and kurtosis values are presented for the dependent variable (IELTS) and each of the eleven independent variables (five subscales of the MALQ, and six subscales of the ALSA).

Students' listening performance was measured by the IELTS listening test. There were 40 questions, and each question was worth one point. Descriptive statistics show that the scores range from 16 to 37 and that the mean was 27.8 with a standard deviation of 4.35 (see Table 4).

Table 4: Descriptive statistics of IELTS listening performance

	N	Mean	SD	Min.	Max.	Skewness	Kurtosis
IELTS_Listening	46	27.8	4.35	16.0	37.0	-0.940	1.35

Furthermore, as previously mentioned, for data to be considered as normally distributed, the skewness value should be between -1 and +1. Scores on the IELTS listening were normally distributed (-0.940).

Students' level of metacognitive listening strategies awareness was measured by the MALQ questionnaire. The descriptive statistics of the overall MALQ is shown in table 5. Descriptive statistics show that the scores range from 2.30 to 4.79 and that the mean is 3.87 with a standard deviation of 0.542 (see Table 5).

Table 5: Descriptive statistics of MALQ and its subscales

Scale	N	Mean	SD	Minimum	Maximum	Skewness	Kurtosis
MALQ	46	3.87	0.542	2.30	4.79	-0.456	0.28
MALQ_PS	46	4.33	0.710	1.50	5.83	-1.43	4.59
MALQ_PE	46	3.83	0.843	1.60	5.40	-0.647	-0.0728
MALQ_MT	46	3.36	1.05	1.33	5.33	-0.138	-0.706
MALQ_PK	46	3.72	0.911	1.67	5.33	-0.212	-0.333
MALQ_DA	46	4.11	0.544	2.25	5.50	-0.337	2.67

As we see, table 5 also presents the descriptive statistics of the subcategories of MALQ where the mean of problem-solving (PS) is 4.33 with a standard deviation of 0.710; the mean of planning and evaluation (PE) is 3.83 with a standard deviation of 0.843; the mean of mental translation (MT) is 3.36 with a standard deviation of 1.05; the mean of person knowledge (PK) is 3.72 with a standard deviation of 0.911; and the mean of directed attention (DA) is 4.1 with a standard deviation of 0.544. All the subscales are normally distributed except for the MALQ_PS, which is negatively skewed (-1.43). In order to correct this, the MALQ_PS was transformed to the power of 2, and it is this variable that will be used in the analysis (see Table 6).

Table 6: Descriptive statistics of transformed MALQ_PS

Scale	N	Mean	SD	Minimum	Maximum	Skewness	Kurtosis
MALQ_PS_ transformed	46	19.3	5.56	2.25	34.0	-0.396	1.34

Among the five categories of MALQ, problem-solving and directed attention are the most frequently used categories, followed by planning and evaluation. Mental translation as well as person knowledge are used the least.

As mentioned previously, students' academic listening skills were measured by the Academic listening self-rated questionnaire (ALSA). This questionnaire is rated by four-point Likert scales. The descriptive statistics of the overall ALSA and its subcategories is shown in Table 7.

Table 7: Descriptive statistics of ALSA and its subcategories

Scale	N	Mean	SD	Minimum	Maximum	Skewness	Kurtosis
ALSA	46	2.91	0.287	2.33	3.68	0.764	0.759
ALSA_LCP	46	2.99	0.287	2.45	3.73	0.389	-0.006
ALSA_CPS	46	2.95	0.371	2.09	3.73	0.291	-0.180
ALSA_MC	46	2.67	0.445	1.67	3.67	0.177	-0.168
ALSA_NT	46	2.85	0.410	2.00	3.75	0.217	0.076
ALSA_RIOM	46	3.00	0.403	2.00	4.00	0.394	0.857
ALSA_LS	46	2.99	0.291	2.53	3.60	0.455	-0.699

Descriptive statistics show that the scores of the ALSA range from 2.33 to 3.68 and that the mean is 2.91 with a standard deviation of 0.287. Among the six categories of the ALSA, the mean score of linguistic components and prosody (LCP) is 2.99 and the standard deviation is 0.287; the mean score of cognitive processing skills (CPS) is 2.95 and the standard deviation is 0.371; the mean of memory and concentration (MC) is 2.67 and the standard deviation is 0.445; the mean of note-taking (NT) is 2.85 and the standard deviation is 0.410; the mean of relating input to other materials (RIOM) is 3.00 and the standard deviation is 0.403; and the mean of lecture structure (LS) is 2.99 and the standard deviation is 0.291. As shown in Table 7, all variables are normally distributed.

4.3 Statistical Analysis

The primary purpose of the study is to investigate the relationship between students' self-rated academic listening, use of metacognitive listening strategies, and listening performances. This part of the study presents the preliminary analyses and the

linear regression analysis which is used to measure the relationship between the predictive variables and the dependent variable. According to Field (2009), “regression analysis enables us to predict future outcomes based on the predictor variables” (p. 198).

4.3.1 Relationship Between Program Level and Performance on the IELTS Listening

The descriptive statistics for each program level students’ performance in IELTS listening can be seen in table 8. The three levels of the program variable are computed by the numeric code: 1 = undergraduate, 2 = masters, and 3 = PhD. The number of undergraduate students analyzed is 15 and that the mean is 30.0 with a standard deviation of 2.33 and a standard error of 0.602. The number of master’s students analyzed is 17 and that the mean is 28.4 with a standard deviation of 4.70 and a standard error of 1.141. The number of PhD students is 14 and that the mean is 24.9 with a standard deviation of 4.18 and a standard error of 1.117 (see Table 8).

Table 8: Descriptive statistics for program levels

	Program_3_levels	N	Mean	SD	SE
	1	15	30.0	2.33	0.602
IELTS_listening	2	17	28.4	4.70	1.141
	3	14	24.9	4.18	1.117

Figure 1 graphically also presents the mean difference between the groups with regards to IELTS listening performance.

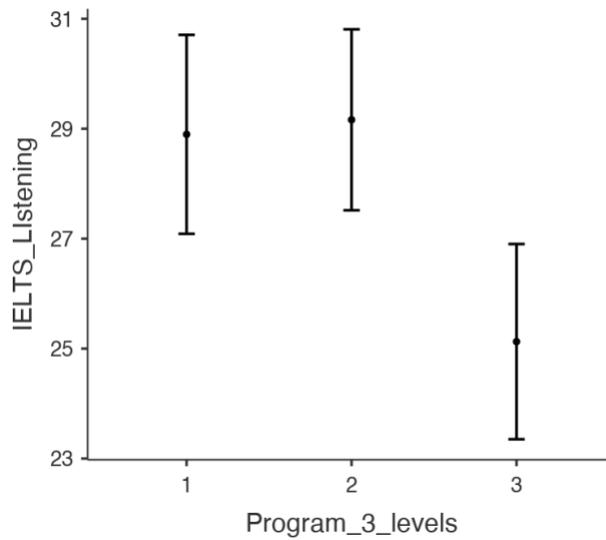


Figure 1. Mean difference between 3-levels program and IELTS listening score.

In order to explore if undergraduate, masters and PhD students performed differently or similarly on the IELTS listening, a one-way ANOVA was carried out. The one-way ANOVA or analysis of variance measures “the probability that the groups are different from each other” (Larson-Hall, 2010, p. 139). The resulting analysis is presented in table 9.

Table 9: One-way ANOVA (Fisher’s)

	<i>F</i>	<i>df1</i>	<i>df2</i>	<i>p</i>
IELTS Listening	6.32	2	43	0.004

The above table summarizes the one-way ANOVA which attempts to provide a statistical test of whether the dependent variable (IELTS listening score) and 3-levels of program (undergraduate, master’s, and PhD) are equal. Results show that there is a significant difference in the IELTS listening performance for these three groups, $F(2, 43) = 6.32, p < 0.005$.

The one-way ANOVA showed that there was a significant difference between the groups but did not show where those differences were. In this case, post-hoc tests were carried out to see how undergraduate, master’s and PhD students differed from each other. Tukey’s post-hoc test was used for this study to find which specific group’s means were different (see Table 10). The test compares all “possible pairs of means for statistical differences” (Larson-Hall, 2010, p. 274).

Table 10: Tukey post-hoc test-IELTS listening

		1	2	3
1	Mean difference	-	1.65	5.07**
	p-value	-	0.466	0.003
2	Mean difference		-	3.42*
	p-value		-	0.050
3	Mean difference			-
	p-value			-

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 10 shows the mean differences within the groups. No statistical difference is found between undergraduate and master’s students’ listening performance where the p -value is 0.466 ($p > 0.05$). But there is a statistically significant difference between undergraduate and PhD students in listening performance at 5.07, and the p -value is 0.003, $p < 0.01$. The test also reports that the difference between master’s and PhD students is statistically significant where the mean difference was 3.42 and $p = 0.05$. The difference between the groups will be further explored in the discussion chapter.

4.3.2 Correlations

An important step in regression analysis is correlations which need to be analyzed as a verification of the assumptions of linear regression. Correlation is “a statistical technique that is used to measure and describe the relationship between two variables” (Gravetter & Wallnau, 2013, p. 510). The correlation is expressed through a numerical value. The most common correlation is the Pearson correlation coefficient, identified by the letter r , which “measures the degree and direction of the linear relationship between two variables” (p. 514). The r value ranges from -1.0 to +1.0. If r is +1.0 then one variable increases as the other variable increases, and -1.0 means one variable increases as the other variable decreases. If r is close to 0 that means no relationship exists. If we get a positive r value that means the correlation between variables is positive; and if the r value is negative, the correlation is negative.

In this study, we used the Pearson correlation coefficient as all variables are normally distributed. Pearson’s correlation allows us to “test the assumptions of linear relationships between all variables” (Larson-Hall, 2010, p. 159) and therefore helps to figure out what variables will be included as predictors in linear regression. The Pearson correlation matrix was computed to determine whether the relationship between these continuous variables (the IELTS, the MALQ, and the ALSA) is linear. Thus, table 11 reveals the result of correlation coefficients between the dependent and independent variables.

Table 11: Pearson correlation coefficients

Variables	IL	PS trans	PE	MT	PK	DA	LCP	CPS	MC	NT	RIOM	LS
IL	-											
PS trans	-0.023 0.877	-										
PE	-0.176 0.243	0.317*	-									
MT	-0.347* 0.018	-0.092 0.544	0.407** 0.005	-								
PK	-0.258 0.083	0.390** 0.007	0.362* 0.014	0.267 0.073	-							
DA	-0.081 0.594	0.575*** 2.945e-5	0.223 0.136	0.156 0.301	0.423** 0.003	-						
LCP	0.128 0.398	-0.124 0.410	-0.149 0.323	-0.135 0.370	-0.195 0.193	-0.099 0.511	-					
CPS	0.402** 0.006	-0.166 0.271	-0.160 0.288	-0.094 0.535	-0.156 0.300	-0.055 0.716	0.752*** 1.709e-9	-				
MC	0.130 0.388	-0.017 0.908	-0.050 0.740	-0.042 0.783	0.078 0.606	0.014 0.927	0.516*** 2414e0-4	0.511*** 2.865e0-4	-			
NT	0.456** 0.001	-0.032 0.832	-0.024 0.876	-0.062 0.682	0.120 0.428	-0.082 0.587	0.522*** 1.963e0-4	0.653*** 8.565e0-7	0.469** 0.001	-		
RIOM	0.123 0.416	-0.121 0.423	-0.278 0.062	-0.248 0.097	-0.215 0.152	-0.134 0.375	0.554*** 6.466e0-5	0.513*** 2.663e0-4	0.359* 0.014	0.415** 0.004	-	
LS	0.176 0.243	0.057 0.706	-0.124 0.413	-0.142 0.345	0.084 0.578	0.157 0.296	0.658*** 6.702e0-7	0.644*** 1.395e0-6	0.550*** 7.625e-5	0.528*** 1.611e-4	0.540*** 1.056e-4	-

Note 1. *p<.05, **P<.01, ***P<.001

Note 2: IL (IELTS listening), PS trans (Problem-solving transformed), PE (Planning and evaluation), MT (Mental translation), PK (Person knowledge), DA (Directed attention), LCP (Linguistic components and prosody), CPS (Cognitive processing skills), MC (Memory and concentration), NT (Note-taking), RIOM (Relating input to other materials), LS (Lecture structure)

Based on the Pearson's correlation, the result indicates that there is a negative correlation between listening performance and the subcategories of MALQ (problem-solving, planning and evaluation, person knowledge, mental translation, directed attention, and listening performance). Mental translation (MT) has a significant negative relationship with listening performance where $r = - 0.347$ and $p < 0.05$. The results also show that there is a positive relationship between the six factors of ALSA and listening performance, which means the higher the self-rating of students, the better their listening result. Specifically, a significant positive relationship is found between listening performance and the two factors of ALSA: Cognitive processing skills (CPS), $r = 0.402$ and $p < 0.01$; and note-taking (NT), $r = 0.456$ and $p < 0.01$. As the correlation coefficient ensures the assumptions of linear relationship that MT, CPS, and NT are statistically correlated with listening performance, so the linear regression analysis is employed to see the contribution of one variable to the other. As these variables are correlated with the IELTS listening, I include them as predictors in the linear regression.

4.3.3 Linear Regression

Linear regression is used to study the best linear relationship between a number of predictive/explanatory variables (independent variable) and a response variable (dependent variable) (Larson-Hall, 2010, p. 176). It attempts to model the relationship between the independent variables and the dependent variable by fitting a linear equation to the observed data. Before attempting to fit this linear model, we need to determine whether there is a significant relationship between the variables or not. The results of the correlation matrix ensure that MT of MALQ, CPS and NT of ALSA are significantly correlated with IELTS listening performance (see Table 11). Furthermore,

the 3-levels of program is also related to listening performance. Therefore, these variables are chosen to put as predictors in the linear regression.

Table 12 presents the ‘model fit’ that summarizes how much of the variance in the IELTS listening performance is accounted for by those predictors.

Table 12: Model Fit Measures

Model	<i>R</i>	<i>R</i> ²	<i>Adjusted R</i> ²	<i>RMSE</i>	Overall Model Test			
					<i>F</i>	<i>df1</i>	<i>df2</i>	<i>p</i>
1	0.707	0.500	0.437	3.04	7.99	5	40	2.696e-5

R in a linear regression represents the linear correlation coefficient which measures the strength and the direction of a linear relationship between two variables, and **R²** determines “how much of the variance in scores of the dependent variable can be explained by the variance in the statistical independent variables” (Larson-Hall, 2010, p. 198). In table 12, the model shows that the R-value is 0.707, and the R² is 0.500 which shows 50% of the variance in listening performance. **Adjusted R²** is a very important output to find out whether the model is a good fit for the data or not. It indicates the percentage of variation explained by only the independent variables that affect the dependent variable. More specifically, the adjusted R² data of the model is 0.437 which indicates that all predictive variables significantly explain (0.437 X 100) or 43.7% of the variance in listening performance. Besides the adjusted R², the F-test is an important determinant of model fit. The **F-test** determines whether the proposed relationship between the dependent variable and predictors are statistically reliable. Table 12 shows that the overall model is significant as $F(5, 40) = 7.99, p = 0.001$.

A linear regression is computed to describe the direction of the relationship between the predictors (MT, CPS, NT, and 3-levels of program) and the dependent variable (IELTS listening). Table 13 presents estimates, standard error (SE), t-value, p-value, standard estimate, and 95% confidence interval. The standard error (SE) is used to measure the exactness of the estimate of the coefficient.

Table 13: Linear regression analysis

Predictor	Estimate	SE	t	p	S. Est.	95% Confidence Interval	
						Lower	Upper
Intercept	16.621	4.660	3.567	9.561e-4			
MALQ_MT	-1.150	0.472	-2.435	0.019	-0.0982	-0.180	-0.0184
ALSA_CPS	0.935	1.809	0.517	0.608	0.0882	-0.257	0.8740
ALSA_NT	4.289	1.572	2.729	0.009	0.8165	0.212	1.8055
Program_3_level							
1-3	3.771	1.278	2.951	0.005	0.7179	0.226	1.5365
2-3	4.035	1.184	3.407	0.002	0.9760	0.397	0.5493

Note. S. Est. = Standard Estimate.

In linear regression, the estimates indicate the direction of the relationship between the predictor variables and the response variable (Frost, 2019). The predictor MALQ_MT has a significant negative ($B = -1.150$, $t = -2.435$, $p = 0.019$) effect on listening performance which indicates that as the MT increases, the listening performance decreases. Another predictor, ALSA_NT has a significant positive effect ($B = 4.289$, $t = 2.729$, $p = 0.009$) on students listening performance which indicates that as the NT increases, the listening performance also increases. But the result of the regression reveals that ALSA_CPS is no longer significant in the regression ($B = 0.935$, $t = 0.517$, $p = 0.608$). Regarding the listening skills of three program levels students, the

regression shows the difference between undergraduate and master's students with PhD students is significant at the level $p < 0.05$. Taken together, the undergraduate and master's students outperformed PhD students.

4.4 Open-ended Questions

Turning now to the open-ended questions. Among the 46 participants, 42 responded to the both open-ended questions, and 4 participants did not respond to either of these questions. First, the answers for each question were grouped into different tables based on the question. Each question had several different answers which had been categorized based on the similarity of students' answers. Then, after categorizing answers for each question, the number of responses was counted and the frequencies of the answer in each category was calculated.

To better understand the students' perception and understanding of academic listening, two open-ended questions were asked. The responses for each question had been categorized according to the same feature/attribute and their corresponding numbers of responses are calculated. The results of each question are presented in the following sections.

Question 1. Can you think of any other reasons for which you may have problems understanding academic lectures?

A total of 42 students responded to this question, and the answers were grouped into nine categories (see Figure 2). The frequencies of the responses in each category are presented in Figure 2.

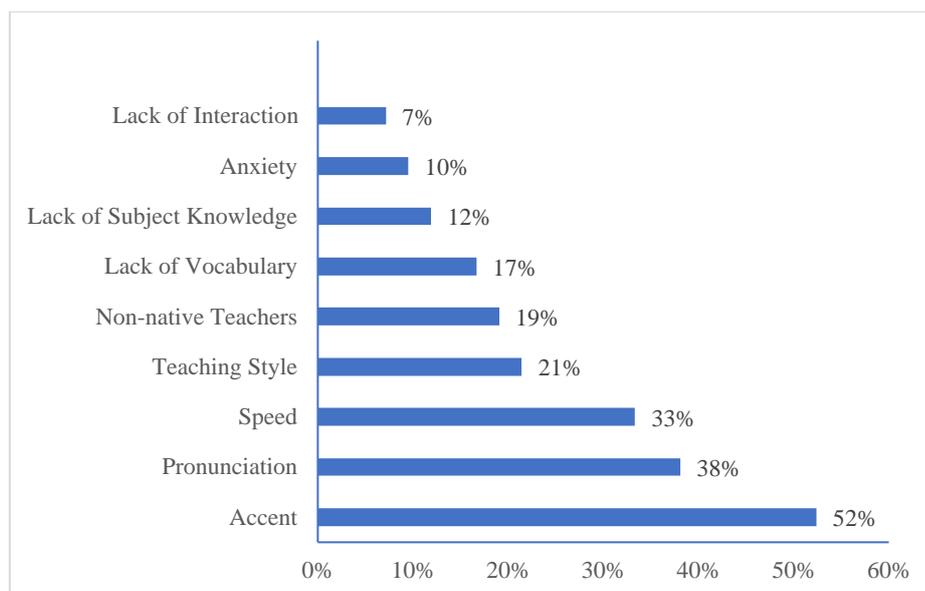


Figure 2. Reasons for listening difficulties.

The results of question 1 demonstrate the reasons that obstruct a student's listening comprehension. These reasons were categorized as accent (dialectal variation of native speakers), speed of delivering the lecture, pronunciation, teaching style, non-native English-speaking teacher lectures, lack of vocabulary, lack of subject knowledge, lack of interaction, and anxiety. According to the students' responses, the major problem that undoubtedly hindered their listening comprehension was an accent. A good number (38%) of students responded that they sometimes found it difficult to recognize words because of the way they were pronounced. About 33% of students mentioned the speed of delivering the lecture as a problem when listening to the lecture. Teacher's teaching style was also connected to problems with listening comprehension. Sometimes teachers teach without any visual supports, which made the lecture less accessible for students. Students found it difficult to comprehend what they are listening to, according to 19% of the total respondents, when non-native speakers (like Iranian or Chinese professors, etc.) speak with an accent which impacts their pronunciation.

Furthermore, students had responded that their own lack of vocabulary and subject knowledge were obstacles to their comprehension of an academic lecture. Around 10% of the respondents mentioned anxiety as a reason for their failure to comprehend academic lectures. When students failed to understand a part of the lecture for any reason, they became more nervous, which led them to have difficulties increased when listening to a lecture. Finally, only 7% of the respondents indicated that a lack of interaction with peers and teachers was an obstacle to understanding an academic lecture.

Question 2. What do you think could help you better to overcome these challenges?

As previously discussed, 4 participants did not respond to this question, responses were given by only 42 participants. The answers were grouped into six categories (see Figure 3) depending on the similarity of the responses. Among these six solutions, five were related to how students can improve themselves and one was about their expectation of how their teacher can help them to overcome these challenges.

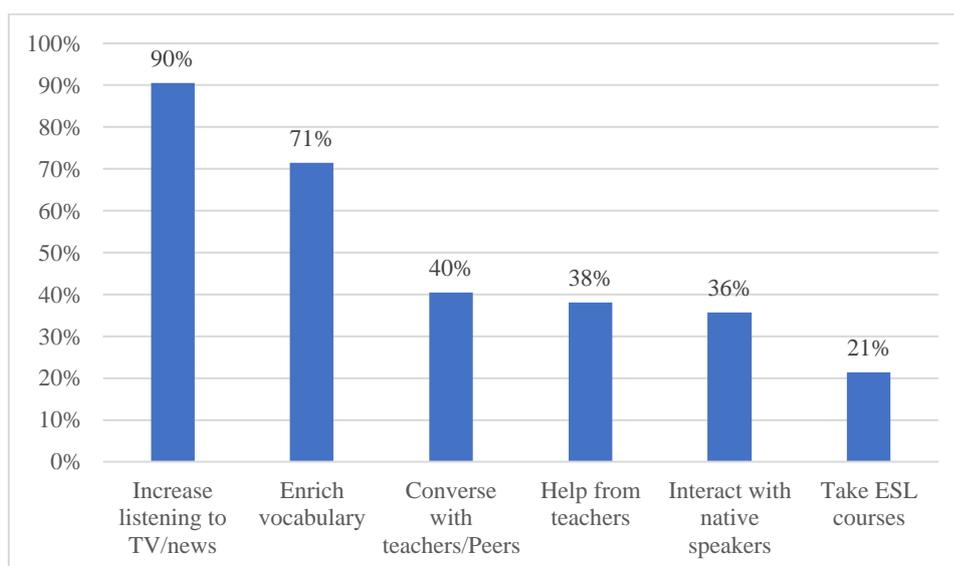


Figure 3. Ways to overcome listening challenges.

Figure 3 illustrates the percentage of total respondents and their given solution to overcome listening problems. So, 90% of total respondents believed that if students practice listening to TV/ Radio/ News/ TED Talks/podcast, then they can overcome these listening challenges. 71% of the respondents mentioned that enriching vocabulary can help to overcome listening difficulties. 40% and 36% of respondents believed that more conversations with peers and teachers, as well as interactions with native English speakers will help students deal with listening problems. Some other respondents (38%) indicated that teachers can help their students to overcome listening challenges using multimedia, speaking loudly, and giving time to international students to share their problems. Furthermore, participating in ESL courses can help students improve their listening abilities which is mentioned by 21% of respondents.

4.5 Summary of the Findings

The results of descriptive statistical analysis for all measures presented the means, the standard deviation of these variables and indicated that all variables are normally distributed. In addition, the one-way ANOVA was used to compare the mean differences between undergraduate, master's, and PhD students' listening performance. The results showed that students from the 3 program levels performed differently from each other. Tukey's post-hoc test compared all possible pairs of means and found that undergraduate and master's students outperformed PhD students in listening performance. No significant difference was observed for listening performance between undergraduate and master's students.

Furthermore, the inferential statistical analysis revealed the relationship between the independent variables (five subcategories of MALQ and six subcategories

of ALSA) and the dependent variable (IELTS listening performance). Pearson's correlation matrix was computed to find the linear relationship between the variables. The correlation matrix revealed that there was a positive relationship between the subcategories of ALSA and listening performance. Also, there was a negative relationship between the subcategories of MALQ and listening performance. More specifically, the independent variables: MT, CPS, and NT had a significant linear relationship with IELTS listening performance which were later inserted as predictors in a regression analysis. In linear regression, MT and NT had a significant effect on listening performance, but CPS was no longer significant.

In analysing students' responses on two open-ended questions, it had been found that students mentioned some other reasons for their challenges during academic listening and also, provided suggestions to overcome these challenges. The results of the questions showed that native and non-native English teachers' accent, pronunciation, speed of delivering the lecture, and teaching style, as well as students' lack of subject knowledge, vocabulary, and interaction were the reasons for their listening difficulties. With regards to suggestions, students can overcome these problems by practising listening to podcast/TV/TED Talks, interacting more with native-speaker teachers and students, and enriching vocabulary. They also said teachers can help their students by planning their lesson in a way that takes into account these students' listening challenges.

Chapter Five

Discussion

5.1 Introduction

This study explores the relationship between international students' listening skills, their self-rated academic listening, and their use of metacognitive strategies. For this purpose, the data were collected from the international students at MUN. This chapter discusses the findings of my study in the context of relevant research based on the statistical analysis of the collected data.

5.2 Findings of the Study

The results of the linear regression analysis demonstrate that note-taking of the ALSA has a significant positive correlation with students' IELTS listening performance. The analysis also reveals that there is a significant negative correlation between students' mental translation of the MALQ and listening performance. The results of the qualitative aspects of this study provide additional information about the listening challenges that the students' face while listening to an academic lecture. It also discusses the suggestions provided by the students to overcome these crucial challenges.

It is important to make it clear that the measure used in this study to examine the students' listening performance was IELTS listening test, which is not an academic measure of listening ability. IELTS is an internationally recognized standardized test of the English language which is required for entry into English-speaking universities. It ensures international students' ability to listen, speak, read, and write in English. IELTS

listening is different from academic listening in terms of “the integration of skills, variety of topics, concept of construct irrelevant variance, and pragmatic understanding” (Sabet & Babaei, 2017, p. 175). IELTS listening is used to measure listening comprehension and therefore, the listening comprehension abilities of the students have implications for academic listening.

5.2.1 Students Performance According to Different Academic Levels

Although researchers (Berman & Cheng, 2001; Huang, 2005) typically grouped masters and PhD students as graduate students, I have decided to divide them into two distinct groups as I have observed that individuals in each group seem to perform differently from each other. The total number of students in each group (undergraduate, masters, and PhD) was nearly identical, which is fair to make a viable comparison. Therefore, I have categorized these students into three groups: undergraduate, masters and PhD.

A one-way ANOVA was performed to analyze the differences between the listening performance of the students from different academic levels. The result indicated that there is a significant difference between undergraduate, masters, and PhD students on their listening performances [$F(2, 43) = 6.32, p < 0.005$]. In addition, a Tukey post hoc test was conducted to investigate whether one group scored significantly higher than another. This test indicated that the students from undergraduate ($M = 30.0, N = 15$) and masters levels ($M = 28.4, N = 17$) outperformed the PhD students ($M = 24.9, N = 14$). Since there were three groups, it was possible to make a pairwise comparison, which included ‘undergraduate versus PhD’, ‘masters versus PhD’, and ‘undergraduate versus masters’. The Tukey’s post-hoc test also

revealed differences between the pairs means. The mean difference between undergraduate and PhD students was statistically significant as $p < 0.01$. Also, there was a statistically significant difference between the masters and PhD students, where the p-value is 0.050. However, the mean score of undergraduate students did not significantly differ from the master's ones (p-value = 0.466, $p > 0.05$). Furthermore, the significant pairs 'undergraduate versus PhD' and 'masters versus PhD' were put as predictors in the linear regression analysis. The result showed that the difference between undergraduate and master's students with PhD students was significant at the level of 0.005 and 0.002. Overall, these results suggest that PhD students are not performing as well in listening as undergraduate and master's students.

Based on these findings, the PhD students scored lower than undergraduate and masters students on the IELTS listening test. One possible explanation for this outcome could be that PhD students are research-oriented, and they spend their days in a laboratory or office. Instead of listening, their primary focus is on scientific writing, which can result in a lack of communication with others. Communication is not just about speaking; it is about listening, too. Students improve their listening skills by listening to lectures from different teachers, participating in class discussions, and communicating with teachers and students. Since PhD students do not have many classes, they have fewer opportunities to improve their listening skills in a real-life environment.

On the contrary, undergraduate and master's students have comparatively more classes, projects, and assignments which allow them to be more connected with their teachers and peers, leaving spaces left for academic listening. Additionally, the

undergraduate students were administered a placement test at the beginning of their program. If they are identified as lacking basic English language skills, they need to participate in an ESL course that ultimately prepares them to join their respective degree program and simultaneously improve their communication skills. Further research is needed to understand what happens if data is collected from a large number of PhD students.

5.2.2 The Relationship Between Self-Rating Academic Listening and Listening Performance

Descriptive statistics show that students seem to have a moderate to a competent level of academic listening ability based on their response to the self-rated academic listening questionnaire. Pearson correlation coefficients show that there is a positive correlation between a students' self-rated academic listening and their IELTS listening performance. More specifically, the two factors of ALSA- cognitive processing skills and note-taking are significantly correlated to IELTS listening performance. So, we put these factors as predictors in the regression. The results of the linear regression demonstrate that note-taking has a significant positive relationship with listening performance. However, cognitive processing skills are no longer significant in linear regression. Whilst cognitive processing skills are correlated with successful listening performance, when controlling for other variables such as NT, MT and three program levels, it no longer makes a significant contribution to listening comprehension.

5.2.2.1 The Relationship Between Cognitive Processing Skills and Listening

Performance

In Pearson correlation, cognitive processing skills are significantly correlated with students' listening performance; but when used as a predictor in linear regression, they no longer make a significant contribution to listening skills. However, given their status as a controlled effect, I will discuss this aspect further. Cognitive processing skills help students to construct meaning in second language listening (Lynch, 2009; Rost, 2013).

Before explaining the cognitive processing skills of listening, it is necessary to understand the concepts of top-down and bottom-up processing. Listeners use top-down processes when they use prior knowledge of the lecture topic or the listening context to understand the meaning of a message. On the other hand, bottom-up processes mean listeners use linguistic knowledge - putting sounds together to form words, and words to form sentences - to understand the meaning of a message (Vandergrift, 2003). The cooperation and co-dependency of top-down and bottom-up processing are called cognitive processing skills. According to Hummel (2014), cognitive processing skills are “the emphasis on actual performance, as well as on investigating psychological variables related to learning the language and exploring how this new information is processed and acquired” (p. 75). There are three stages of cognitive processing skills of listening: memory store, working memory, and long-term memory. In the first stage, sounds come into the auditory sensory store (Stern, 2012), which is retained here for a maximum of four seconds in its unanalyzed form. This is the basis of bottom-up processing. In the second stage, the auditory information is kept

in the working memory to construct meaning. This is the activity of top-down processing. In the third stage, when meaning is created, “the meaningful information is transferred from working to long-term memory” (Stern, 2012, para. 3). Although researchers have argued that listening comprehension can be gained by either a bottom-up or top-down process, Field (2004) expresses a different opinion about the relationship of cognitive processing skills with top-down and bottom-up processes. According to him, this relationship is not static; it can vary according to “the listener’s confidence as to the reliability of each” (p.367). In L2 academic listening environments, students are expected to use both top-down and bottom-up processing to achieve listening comprehension.

There are eleven statements on cognitive processing skills in the ALSA questionnaire (see Table 1). These are: how much students can understand the lectures without referring to a dictionary, how much they understand the meaning of the lectures that are not mentioned directly, and to what extent they understand the descriptions of familiar persons or objects while listening to the students having the same or different first language. The students’ responses to these statements indicated that most of them understand ‘well’ or ‘very well’, which ensured their use of top-down and bottom-up processing. They may use their prior or linguistic knowledge to understand the lectures and to construct meaning.

Furthermore, few students marked ‘not well’ for these statements, suggesting that they may employ ‘bottom-up’ processes when listening to lecturers or peers, and listening to single words or sentences. Goh (2000) and Vandergrift (2002) state that a more proficient listener can incorporate both top-down and bottom-up processing, and

can use prior knowledge, linguistic cues, and contextual information to achieve an accurate understanding of a text. On the other hand, a less proficient listener relies on bottom-up processing and often gets distracted by unfamiliar words or expressions. The cognitive processing skills required to process information involve combining prior knowledge, linguistics knowledge, and control of emotions. A student's listening performance relies heavily on the efficiency of these cognitive skills. When students listen to lectures with little attention and an increase in frustration, it takes longer for them to understand the information.

5.2.2.2 The Relationship Between Note-taking and Listening Performance

On the ALSA questionnaire, there are four statements (see Table 1) on note-taking which seek to evaluate how well students can summarize and paraphrase the content of the lectures and take notes on it. Most students responded either 'not well' or 'well' for these statements, which demonstrated their ability for note-taking. The result of the linear regression also indicated that note-taking has a significant positive linear relationship with students listening performance where the regression coefficient is 4.289 and $p < 0.01$.

This result is supported by the findings of Haswell and Lee (2013), who state that note-taking has a positive relationship with listening performance, and it enhances the comprehension of academic lectures. Note-taking is the integration of new information into the cognitive structure, which makes the information easier to recall. It has been found that note-taking helps L2 listeners to pay closer attention to the lectures and more easily apprehend essential information. Note-taking is an essential technique for recording and keeping information from academic lectures for later use.

Ellis (2003) says that simultaneous listening and taking notes is a dual-task that is challenging for L2 students. Academic lecture listening and taking notes in L2 is “a question of survival” (Dunkel, 1988, p. 11) for international students as they come to pursue higher studies in English-speaking universities. According to Dunkel (1988), students should collect as much information as possible when listening to lectures without worrying about essential or nonessential information. He also states that some activities need to be done after listening, including (1) reviewing and rehearsing the lecture information, (2) rewriting notes in the students’ own words, (3) searching for clarifications of some points, and (4) comparing prior knowledge with new knowledge (p. 15).

Based on the above factors, the researcher states that these activities should be practiced by students to develop note-taking skills. A contrary view is found in Haswell and Lee’s (2013) study, where they state that note-taking is not just about how much students can write, but about how students can manage their written performance and enhance their ability to recall it after the text is done. They think that students should take notes of only specific and most relevant information from the lectures. However, the quality and quantity of student note-taking depend on their level of language proficiency (Dunkel and Davis, 1994). It usually takes a long time for international students to develop this skill while listening to L2 lectures. While listening to lectures, they need to take notes, summarize, understand the main ideas, and use auditory or visual learning styles to apprehend academic lectures. Note-taking in L1 is a habitual activity; but taking notes while listening to L2 lectures is a bit more complex due to some other factors that may affect note-taking. These include (1) the accent, pronunciation, and lecture-style of the teacher, which are only oral presentations; and

(2) student's attention and concentration, lack of vocabulary, lack of subject knowledge, and L2 proficiency. Specifically, sitting in an L2 classroom, taking notes is difficult for international students if they do not understand what the teacher is saying. This lack of understanding means they lose their concentration and are unable to understand the content of the lecture.

5.2.3 The Relationship Between Metacognitive Strategies and Listening Performance

Descriptive statistics show that international students possess a moderate level (Mean = 3.87, SD = 0.542) of metacognitive awareness in listening. The Pearson correlation coefficient shows that only mental translation has a significant negative correlation with listening performance. This finding is inconsistent with previous results of Baleghizadeh and Rahimi (2011), Tavakoli et al. (2012), and Goh and Hu (2013), who have found that students' listening performance has a positive relationship with problem-solving, planning and evaluation, person knowledge, and directed attention. However, the only similarity is that they also found a negative correlation between the students' listening performance and mental translation.

This study found that only mental translation had a significant negative relationship with IELTS listening performance; therefore, it was used as a predictor in the regression. The result of the linear regression analysis also ensures a significant negative relationship between this variable at the levels of $p < 0.05$. The possible explanation for this negative relationship could be that students use bottom-up processes of listening (word-by-word, or sentence-by-sentence translation), which does not allow them to pay attention to the whole meaning of the lectures. In the case of L2

listeners, translating words or sentences into their native language often occurs while listening to lectures. Sometimes they miss information while they are busy translating words or sentences from memory.

Translation is a complex cognitive activity. During translation, students use their working memory and attention for the translation of words/sentences, which lead to cognitive load. They are actually using their full cognitive energy to translate a word/sentence, and eventually fail to pay attention to the message. Cognitive load means “the total amount of mental activity imposed on working memory at an instance in time” (Cooper, 1998, p.11). The capacity of working memory is limited by time and space. Frequent translation during listening is a mental process that may overburden the working memory capacity, and as a result, decrease the learning outcome of students. Mental translation demands the process of analyzing the data which is related to the cognitive load of that activity. “The cognitive load itself can be influenced by the way working memory process the information” (Rahimi & Sayyadi, 2019, p. 02) when listening to academic lectures. When students listen to a word/sentence in an L2, they receive the information, translate it into L1, and then understand the meaning. During these mental translations, the student misses the next part of the lectures. Mental translation strategies can be useful if students can skillfully translate only the keywords of the lectures and retain their concentration. Word-for-word translation does not assist in comprehending lectures, rather it relates to the listening comprehension of less successful listeners. Less-skilled students use mental translation substantially more than more-skilled ones (Goh, 2000; Vandergrift, 2003; and Berne, 2004), so they get more distracted from listening. Therefore, the reason for translation may be due to their lack of vocabulary and their failure to identify the sounds of words that may be known to

them. If students want to become skilled listeners, they need to avoid translation while listening. Those who perform better in academic listening avoid using this strategy.

5.3 Discussion of the Open-ended Questions

Figure 2 in the previous chapter presents student's responses to the first open-ended question. If we look at the responses, we see the students have other explanations for their listening difficulties that all might not have been captured by our ALSA measure. These reasons are- native and non-native professors' accent and pronunciation, speed of delivering lectures, teaching style, and the students' lack of vocabulary, lack of subject knowledge, lack of interaction, and anxiety.

5.3.1 Teacher's Accent and Pronunciation

The vast majority of students (52%) clearly state native and non-native teacher's accent and pronunciation as an obstacle to their understanding of academic lectures. They sometimes find it challenging to recognise known words because of the way they are pronounced. They reported that the difficulty of word recognition caused by an unfamiliar native accent or by the speech pattern of non-native English-speaking lecturers. Since the students do not have much exposure to different accents, they often cannot understand words or sentences because of how they are spoken. For instance, a student writes, *"I could not understand the accent or pronunciation of a Chinese professor. Like, she used to pronounce the word 'field' in such a way, I understood it 'feud' and later find out the right word"*. Another student writes, *"I face problem in listening because of a native English professor' unclear pronunciation of words; maybe he uses dialect"*.

5.3.2 Teacher's Speed of Delivering Lectures

Some students (33%) mention the lecturer's speech rate as a reason for listening difficulties. They report that the teacher most often speaks too fast without any repetition which creates problem for students to recognize the accurate words and to understand the sentences as well as the content of a lecture. It is difficult for the students to comprehend familiar words while teachers deliver lectures at a rapid speed. Many students state that especially native speakers' fast speech rate hamper their concentration. *"My professor used to speak super-fast. Sometimes I lost myself , because I couldn't understand the lectures at all"*, said a student.

5.3.3 Teaching Style

Several students (21%) reported that the teachers' teaching style influences academic lecture listening. A student said: *"My course instructor used to have class without any visual support such as multimedia, and that I could not understand the lectures. If he would use multimedia, we L2 listeners could understand the content well"*. The students reported that the visual presentation of lectures helped them to make connections with the information that they were hearing. It also helps the L2 students to understand lectures when facing problems for different accents and pronunciation. If teachers design their way of delivering lectures considering the presence of L2 students in the class, then they can help students to overcome these listening problems.

5.3.4 Student's Lack of Vocabulary and Subject Knowledge

A lack of vocabulary and subject knowledge has been identified by some students as causing listening difficulties. Once students come across an unfamiliar word, they begin to think about the word's meaning and lose concentration. Several students reported that they were admitted to a department that was different from their previous education. Due to this lack of subject knowledge, they sometimes cannot understand the lectures well. They had to struggle a lot to tackle the content of the lectures and new vocabularies. For instance, a student said “ *I am a graduate student in Oil and Gas Engineering which is different from my background, Geology. Sometimes I couldn't understand professor's lectures because of my lack of vocabulary and content knowledge of the courses that are taught. If I had a relevant vocabulary about oil and gas, I would face less trouble in academic lecture listening*”.

5.3.5 Student's Lack of Interaction

Students report a lack of interaction and anxiety as another factor that makes a problem in academic lecture listening comprehension. Often, because of their lack of English language skills, students feel awkward in class discussions or talking to the teachers and native classmates. Sometimes international students do not interact much with the native English-speakers as they have a feeling of inferiority. Students feel uncomfortable when classes are full of native English-speakers, thinking “*I am only a student who does not understand the lectures*”. If students are unable to comprehend the spoken message, they always feel nervous and have trouble listening.

5.3.6 Suggestions to Overcome Listening Challenges

In the second open-ended question (see Figure 3), students were asked how they thought could improve their listening comprehension and overcome these difficulties. Some students talked about how they can improve themselves, while others talked about how teachers can help students solve these issues. The majority of students suggested that students should practice more by listening to TV/News/ TED Talks/ podcasts to enrich their vocabulary. Students need to increase their communication with teachers and native English-speaking students if they want to develop their listening skills. The more they will interact, the more they will be accustomed to listening to different accents and thus will be able to improve their listening comprehension.

Some students mentioned that teachers can help their students using visual aids, speaking loudly, and most importantly giving time and interacting with international students. Some others recommend that the administration could provide an ESL course for all levels of students. A master's student suggests, *“university/ departments could arrange some free talks/seminars on ESL regularly so that international students could get a platform to share their problems”*. Sometimes there are only a few international students in some classes, and their problems remained unnoticed by the teachers. If a platform is set up for teachers and students every semester in which international students can share their difficulties, it could help teachers to learn about students' challenges.

Chapter Six

Conclusion, Limitations, and Recommendations

6.1 Conclusion

This study investigated international students' perceptions of their academic listening skills and the metacognitive strategies they use when listening. Listening performance was measured using a listening module of IELTS.

The findings of this study show that there are negative correlations between metacognitive strategies and IELTS listening performance. More specifically, mental translation is proved to be relatively unproductive during listening to lectures. However, the findings also suggest that there is a significant positive correlation between students' self-assessment of academic listening and IELTS listening performance, especially with regard to note-taking. This study also found that students in different program levels differ from each other on their performance in listening.

Gaining insight into the perceptions that international students held about their academic listening ability is important for teachers because this is how they (teachers) can help their students to overcome listening difficulties. Teachers need to identify the factors of students' listening problems in order to make their lectures more understandable. In addition, it is important for teachers to look for teaching techniques that can foster students' interest in the class. The results of my study could also contribute to the academic institutions by providing a better understanding of international students' problems related to academic listening. Therefore, the study will

assist instructors in thinking about their teaching style and in choosing the most appropriate strategies for improving international students' listening comprehension.

The study also provides suggestions for international students to overcome their listening difficulties. They should increase their vocabulary, communicate with English speakers, and practice listening to Ted talks, radio, or TV shows in English more. Finally, as the scope for future research, this study suggests examining international students' listening skills and the strategies they use during listening to an academic lecture.

6.2 Limitations of the Study

Like any other study, there are some limitations in this study which cannot be ignored. Firstly, the number of students in the three different academic levels is small, which cannot represent the whole international student population in general. Secondly, though students from 12 nationalities participated in the study, most of them are from Bangladesh (21 out of 46). It is not that they are from Bangladesh per se, but there might be something unique to one linguistic group that may cause findings to be less generalizable.

6.3 Recommendations for Future Studies

There are several recommendations that can be made for further research in the area of international students listening problems in Canada. Firstly, future researchers may use a more qualitative approach, including individual interviews, focus-group discussions to get a more precise understanding of students listening problems and perceptions. Secondly, further exploration of PhD students performance in listening

needs to be done using a larger sample. Thirdly, students' academic listening skills should be examined providing academic content or observing students' performance in an academic lecture. The use of different tools to measure students' listening performance and also the use of metacognitive strategies might change the findings of the present study. Finally, a longitudinal study may help gaining a better insight into international students listening problems and how they can overcome them over a sustained period of time during which they are living in an English-speaking country.

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Appendix A

The Invitation Letter to International Students

Dear fellow students,

My name is Joyshree Deb and I am a student in the Faculty of Education at Memorial University of Newfoundland. I am conducting a research project called “An exploration of the relationships among academic listening, metacognitive awareness and listening strategies in L2 English” for my master’s degree under the supervision of **Dr. Leslie Redmond**. The purpose of the study is to explore international students’ perceptions about what they think of their listening skills, difficulties in academic listening, and the use of metacognitive strategies to overcome the problems.

I am contacting you to invite you to participate in study which will involve you taking three different test instruments, designed to measure different facets of your listening comprehension skills. **Participation will require an hour of your time and will take place in the Education building at MUN.** Data collection will take place in a group setting with other international students. My supervisor, Dr. Leslie Redmond, will be present to assist with data collection. Please indicated your preferred time when you respond. We will arrange a mutually convenient time for you to participate in the study.

If you are a current undergraduate or graduate student whose first language is not English, you are welcome to participate in my study. There are no known or anticipated risks to your participation in this study. All collected data will be kept confidential and will only be used for the purpose of my study. Your participation is voluntary and will not be disclosed. Furthermore, participation is not required by MUN or any affiliated association. You may withdraw from the study for any reason without penalty.

I would like to inform you that this study has been reviewed and received ethics clearance through the Memorial University’s Interdisciplinary Committee on Ethics in Human Research (ICEHR) board. Any concerns regarding your right as a participant, you may contact the Chairperson of the ICEHR at icehr.chair@mun.ca or by telephone at 709-864-2861.

If you are willing to participate in the study or have any concerns regarding my research, please email me at jdeb@mun.ca or my supervisor, Dr. Leslie Redmond at leslie.redmond@mun.ca.

Thank you in advance.

Joyshree Deb

M.Ed. Student

Faculty of Education, MUN

Email: jdeb@mun.ca

Appendix B
The Consent Form

Joyshree Deb
E-mail: jdeb@mun.ca
Faculty of Education
St. John's, NL Canada A1B 3X8

Informed Consent Form

Title: An exploration of the relationships among academic listening skills, metacognitive awareness and listening strategies in L2 English.

Researcher(s): Joyshree Deb, M.Ed. student, Department of Education, Memorial University of Newfoundland. E-mail: jdeb@mun.ca

Supervisor(s): Dr. Leslie Redmond, Assistant Professor, Faculty of Education, Memorial University of Newfoundland. E-mail: leslie.redmond@mun.ca

You are invited to take part in a research project entitled “An exploration of the relationships among academic listening skills, metacognitive awareness and listening strategies in L2 English”.

This form is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. It also describes your rights as a participant, including the right to withdraw from the study. In order to decide whether you wish to participate in this research study, you should understand its risks and benefits to be able to make an informed decision. This is the informed consent process. Take time to read this carefully and to understand the information given to you. Please contact the researcher, *Joyshree Deb*, if you have any questions about the study or for more information not included here before you consent.

It is entirely up to you to decide whether to take part in this research. If you choose not to take part in this research or if you decide to withdraw from the research once it has started, there will be no negative consequences for you, now or in the future.

Introduction

My name is Joyshree Deb, and I am currently a graduate student in the Faculty of Education. This research will investigate international students' perceptions of their academic listening difficulties (for example, during lectures) and their use of metacognitive strategies to comprehend what they are hearing. As part of my Master's thesis, I am conducting this research under the supervision of Dr. Leslie Redmond.

Most international students who come to study in an English-speaking country often encounter difficulties in understanding academic lectures in their second language. Through using three measurement instruments, I will try to investigate students' perceptions and difficulties when listening for comprehension in academic settings in order to find effective ways to help international students overcome difficulties brought about by their receptive language abilities.

Purpose of study:

The purpose of my study is to explore your (international students) perceptions regarding your academic listening skills (as measured by a self-rated listening questionnaire) and the use of metacognitive strategies (as measured by a metacognitive awareness questionnaire) in relationship with the level of listening skills (as measured by a standardized listening test). It is hoped that the results of this study will lead to suggestions to help international students better understand their listening struggles in an academic context with a view to improving their listening comprehension skills.

What you will do in this study:

If you agree to participate, you will be asked to complete a socio-demographic information form that includes your age, gender, your education level and your program of study. In this study, you will first take the IELTS listening test, and then, you will need to express your opinions in two questionnaires about academic listening and the use of metacognitive strategies. In the IELTS listening test, an audio recording of an IELTS listening module will be played and then you will be asked to respond to multiple-choice comprehension questions. Furthermore, you can skip any questions that you do not wish to answer either in any of the test instruments.

Length of time:

It will take approximately sixty (60) minutes to complete the study.

Withdrawal from the study:

Your participation is voluntary. If you do not agree to participate, you can withdraw at any time without any penalty or negative consequences. You can leave the room without explanation at any time during the testing session and the data that you have provided will be destroyed. In order to withdraw after the testing session, you can email

the researcher with your alphanumeric code indicating that you would like to withdraw from the study. You are no longer be able to withdraw once data has been aggregated (June 15th, 2019).

Possible benefits:

There is no direct benefit for your involvement in this study. However, the findings from the study will provide implications and recommendations for international students who have challenges with academic listening.

Possible risks:

Participation in this study does not present any risks beyond those encountered during regular class attendance. However, there is a psychological risk of test anxiety for some students who may experience anxiety in testing situations. Feel free to share if at any point you feel uncomfortable, I will be there to assist you and accompany you to seek help from Memorial University's Student Wellness and Counselling Centre (UC5000) at (709) 864-8874.

Confidentiality:

Any information obtained in connection with this study that could identify you will remain confidential. Your name will appear only on this consent form, and consent forms will be kept separately from subject data.

Anonymity:

There are limits to anonymity in group testing situations as you may know some of the other participants. The study does not require you to give your name, address, or educational institution. Please do not put your name on any of these materials. You will be identified by an alphanumeric code and the only personal information kept on file will be your gender, your age at the time of participation and the language that you speak at home.

Storage of Data:

The paper data forms will be stored in a locked cabinet in my supervisor's office. An electronic copy of the data will be stored in secure files on a password-protected computer.

All files (electronic and paper-based) will be kept securely for a minimum of five (5) years as required by Memorial University policy on Integrity in Scholarly Research, and then securely destroyed. Electronic files will be deleted from computer hard-drives and servers, and electronic "rubbish bins" will be emptied.

Reporting of Results:

The data collected from this study will be part of my master's thesis and may be presented at various professional seminars and academic conferences. I also hope to publish the results in a scholarly journal.

Sharing of Results with Participants:

If permission has been obtained from my participants, I will send a summary of the results and implications of this study to their personal email address as soon as I finish the data analysis. Furthermore, upon completion of my degree, my Master's thesis will be available at Memorial University's Queen Elizabeth II library, and can be accessed online at: <http://collections.mun.ca/cdm/search/collection/theses>.

Questions:

You are welcome to ask questions at any time during your participation in this research. If you would like to know more information about this study, please contact me at jdeb@mun.ca or my supervisor *Dr. Leslie Redmond, Faculty of Education*, leslie.redmond@mun.ca

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research, such as the way you have been treated or your rights as a participant, you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 709-864-2861.

Consent:

Your signature on this form means that:

- You have read the information about the research project.
- You have been able to ask questions about this study.
- You are satisfied with the answers to all your questions.
- You understand what the study is about and what you will be doing.
- You understand that you are free to withdraw from the study without having to give a reason and that doing so will not affect you now or in the future. In order to withdraw after the testing session, you can email the researcher with your alphanumeric code indicating that you would like to withdraw from the study.
- You understand that any data collected from you up to the point of your withdrawal will be destroyed.
- You understand that data will be retained for a minimum of five years in accordance with Memorial University policy on Integrity in Scholarly Research.

If you sign this form, you do not give up your legal rights and do not release the researchers from their professional responsibilities.

Your signature:

I have read what this study is about and understood the risks and benefits. I have had adequate time to think about this and had the opportunity to ask questions and my questions have been answered.

I agree to participate in the research project understanding the risks and contributions of my participation, that my participation is voluntary, and that I may end my participation.

A copy of this Informed Consent Form has been given to me for my records.

I would like to receive feedback of this study from the researcher through my personal email. Yes No

E-mail address: _____

Signature of participant

Date

Researcher's Signature:

I have explained this study to the best of my ability. I invited questions and gave answers. I believe that the participant fully understands what is involved in being in the study, any potential risks of the study and that he or she has freely chosen to be in the study.

Signature of Principal Investigator

Date

Appendix C
Socio-demographic Questionnaire

Please do not write your name on any of this questionnaire.

You may refuse to answer any questions you don't wish to answer.

1	Gender	
2	Age	
3	Nationality	
4	Native language	
5	Other Spoken languages	
6	Degree/ program in which you are currently enrolled	
	Department/ Faculty	
7	What level of education had you completed when you left your home country?	
8	At what age did you start to learn English?	
9	Have you taken IELTS/TOEFL Test?	
	If yes, please specify the year, your overall score and the score on the listening portion.	Year: Overall score: Score on listening:
10	Have you ever been enrolled in an ESL program at a post-secondary institution?	

11	During the past five years have you lived in any country other than Canada or your home country.	
	If yes, where and for how long?	
	Your status during that period (Student/Job etc.)	
12	How long have you been in Canada?	

Appendix D
IELTS Listening Test
Measurement of participants level of listening skills

SECTION 1 Questions 1-10

Questions 1-6

Choose the correct letter A, B, or C.

Free activities in the Burnham area

Example:

The caller wants to find out about events on

- A. 27 June.
- B. 28 June.
- C. 29 June.

- 1 The 'Family Welcome' event in the art gallery begins at
 - A. 10 am.
 - B. 10.30 am.
 - C. 2 am.
- 2 The film that is now shown in the 'Family Welcome' event is about
 - A. sculpture.
 - B. painting.
 - C. ceramics.
- 3 When do most of the free concerts take place?
 - A. in the morning
 - B. at lunchtime
 - C. in the evening
- 4 Where will the 4pm concert of Latin American music take place?
 - A. in a museum
 - B. in a theatre
 - C. in a library
- 5 The boat race begins at
 - A. Summer pool.
 - B. Charlesworth Bridge.
 - C. Offord Marina.

- 6 One of the boat race teams
- A. won a regional competition earlier this year.
 - B. has represented the region in a national competition
 - C. has won several regional competitions.

Questions 7-10

Write **ONE WORD ONLY** for each answer.

Paxton Nature Reserve

7. Paxton is a good place for seeing rare all year round.
8. This is a particularly good time for seeing certain unusual
9. Visitors will be able to learn about and then collect some.
10. Part of the has been made suitable for swimming.

SECTION 2 Questions 11-20

Questions 11-15

Choose the correct letter **A**, **B**, or **C**.

Changes in Barford over the last 50 years

- 11 In Shona's opinion, why do fewer people use buses in Bardford these days?
- A. The buses are old and uncomfortable
 - B. Fares have gone up too much.
 - C. There are not so many bus route
- 12 What changes in the road network is known to have benefited the town most?
- A. the construction of a bypass
 - B. the development of cycle paths
 - C. the banning of cars from certain streets
- 13 What is the problem affecting shopping in the town centre?
- A. lack of parking spaces
 - B. lack of major retailers
 - C. lack of restaurants and cafes

- 14** What does Shona say about medical facilities in Barford?
 A. There is no hospital.
 B. New medical practices are planned.
 C. The number of dentists is too low.
- 15** The largest number of people are employed in
 A. manufacturing.
 B. services.
 C. education.

Questions 16-20

What is planned for each of the following facilities?

Choose **FIVE** answers from the box and write the correct letter, **A-G**, next to questions 16-20.

- Plans**
- A. It will move to a new location.
 - B. It will have its opening hours extended.
 - C. It will be refurbished.
 - D. It will be used for a different purpose.
 - E. It will have its opening hours reduced.
 - F. It will have new management.
 - G. It will be expanded.

Facilities

- 16** Railway station car park
- 17** Cinema
- 18** Indoor market
- 19** Library
- 20** Nature reserve

SECTION 3 Questions 21-30

Questions 21-26

Complete the table writing **ONE WORD ONLY** for each answer.

Subject of drawing	Change to be made
A 21 surrounded by trees	Add Malcolm and a 22 noticing him
People who are 23 outside the forest	Add Malcolm sitting on a tree trunk and 24
Ice-skaters on 25 Covered with ice	Add a 26 for each person

Questions 27-30

Who is going to write each of the following parts of the report?

Write the correct letter, **A-D**, next to questions 27-30.

- A Helen only
- B Jeremy only
- C both Helen and Jeremy
- D neither Helen nor Jeremy

Parts of the report

- 27** How they planned the project
- 28** How they had ideas for their stories
- 29** An interpretation of their stories
- 30** Comments on the illustrations

SECTION 4 Questions 31-40

Complete the notes below.

Write **ONE WORD ONLY** for each answer.

ETHNOGRAPHY IN BUSINESS

Ethnography: research which explores human cultures

It can be used in business:

- To investigate customer needs and **31**
- To help companies develop new designs

Examples of ethnographic research in business

Kitchen equipment

- Researchers found that cooks could not easily see the **32** in measuring cups.

Cell phones

- In Uganda, customers paid to use the cell phones of entrepreneurs.
- These customers wanted to check the **33** Used.

Computer companies

- There was a need to develop **34** To improve communication between system administrators and colleagues.

Hospitals

- Nurses needed to access information about **35** in different parts of the hospital.

Airlines

- Respondents recorded information about their **36** while travelling.

Principles of ethnographic research in business

- The researcher does not start off with a hypothesis.
- Participants may be selected by criteria such as age, **37** on product used.
- The participants must feel **38** about taking part in the research.
- There is usually direct **39** of the participants.
- The interview is guided by the participant.
- A lot of time is needed for the **40**of the data.
- Researchers look for a meaningful pattern in the data.

(IELTS 11, Test 3 listening module)

Source: Cambridge English official IELTS 11 with answers. (2016). *Authentic examination papers from Cambridge ESOL*. Cambridge University Press, 57-64.

Appendix E

ALSA Questionnaire

The Academic Listening Self-Rating Questionnaire (ALSA)

This questionnaire requires you to make a self-assessment of your academic listening comprehension ability. The following statements describe possible listening comprehension levels in English. For each statement, please indicate your self-assessment of your current ability level by putting a **tick (✓) mark** in the appropriate number. Please note the ability level of each number:

- Not at all well = 1
- Not well = 2
- Well = 3
- Very well = 4

When I am listening in English, I can...		1	2	3	4
1	understand numbers, commonplace names, and short phrases in Standard English easily.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	often remember much of the content of the lecture a day later.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	concentrate on the lecture without being distracted by my own thoughts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	understand simple descriptions given by my professors about familiar persons, places, and objects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	understand the language of short oral reports of events and biographical information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	understand short and simple technical descriptions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	understand the language expressing personal likes and dislikes without reference to a dictionary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	understand oral reports about current and past events.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	generally understand simple descriptions of feelings and wishes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	understand radio and TV news programs without major problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	understand meanings that are not directly stated in lectures/seminars/tutorials.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	easily get clues from the slides to understand lectures/seminars/tutorials better.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	understand the main ideas and facts of lectures.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	understand important names, dates, and numbers in lectures/seminars/tutorials.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15	easily take notes of important details of lectures/seminars/tutorials.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	understand the language relevant to professional needs without reference to a dictionary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	understand details of short descriptions of places, people, and events that I know.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	understand lectures/tutorials /seminars better whenever the lecturers signal when they are going to go on to another topic.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	understand the meaning and the purpose of most idioms, cultural references, word play, and irony.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	tell apart the language of humorous anecdotes and jokes from facts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	understand simple descriptions about familiar persons, places, and objects given by other students with a different first language than mine.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	understand the lecturers who are non-native English speakers better than the native speakers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	relate the description of an object to a map.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	understand the language expressing spatial relationships and directions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	understand the relationships among the ideas in a lecture.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	distinguish main points of lectures/tutorials/seminars from details.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	connect the information of the lecture with my textbook and handouts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	understand the lecture/ tutorial/seminar format—how it starts, continues, and ends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	rephrase the content of the lecture and then take notes on it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30	understand facts without being concerned about distinguishing main points from details in a lecture/ tutorial/seminar.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31	follow the hypothesis, persuasion, or argument in lectures/ tutorials/seminars.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32	keep up with and understand lecturers/tutors who speak fast.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33	summarize the information from lectures/ tutorials/seminars.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34	recognize incorrect grammar and vocabulary when listening to my peers speaking English.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35	understand key vocabulary items when listening to a lecture/ tutorial/seminar.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

36	understand how different ideas in a lecture relate to each other.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37	distinguish between supporting examples and major points easily.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38	identify the main topic of the lecture.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39	understand lectures/tutorials/seminars better if they are delivered in formal language with fewer jokes and anecdotes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40	correct my understanding of lectures/tutorials/ seminars immediately if my understanding is incorrect.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41	identify the purpose and scope of lectures/tutorials/seminars.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42	distinguish between information that is relevant or irrelevant to the main points in lectures/tutorials/ seminars.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43	tell when the lecturer/tutor is about to start a new topic.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44	concentrate on lectures/tutorials/seminars without being distracted by people, things, and sounds around me in the room.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45	understand simple descriptions given in English about familiar persons, places, and objects by students with the same first language as me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46	paraphrase the lecture/tutorial/seminar content to take notes of it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47	understand the main ideas and important facts of conversations about academic subjects in lectures/tutorials/seminars.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Source: Aryadoust, & Goh, 2017.

Appendix F

MALQ Questionnaire

Metacognitive Awareness Listening Questionnaire (MALQ)							
<p>Please put a tick (✓) mark against each of the statements that best express your strategies use while listening to academic lectures.</p> <p>(1 = Strongly Disagree, 2 = Disagree, 3 = Slightly Disagree, 4 = Partly Agree, 5= Agree, 6 = Strongly Agree).</p>							
	Strategy or belief/perception	1	2	3	4	5	6
1	Before I start to listen, I have a plan in my head for how I am going to listen	<input type="checkbox"/>					
2	I focus harder on the text when I have trouble understanding	<input type="checkbox"/>					
3	I find that listening in English is more difficult than reading, speaking, or writing in English	<input type="checkbox"/>					
4	I translate in my head as I listen	<input type="checkbox"/>					
5	I use the words I understand to guess the meaning of the words I don't understand	<input type="checkbox"/>					
6	When my mind wanders, I recover my concentration right away	<input type="checkbox"/>					
7	As I listen, I compare what I understand with what I know about the topic	<input type="checkbox"/>					
8	I feel that listening comprehension in English is a challenge for me	<input type="checkbox"/>					
9	I use my experience and knowledge to help me understand	<input type="checkbox"/>					
10	Before listening, I think of similar texts that I may have listened to	<input type="checkbox"/>					
11	I translate key words as I listen	<input type="checkbox"/>					
12	I try to get back on track when I lose concentration	<input type="checkbox"/>					
13	As I listen, I quickly adjust my interpretation if I realize that it is not correct	<input type="checkbox"/>					
14	After listening, I think back to how I listened, and about what I might do differently next time	<input type="checkbox"/>					
15	I don't feel nervous when I listen to English	<input type="checkbox"/>					
16	When I have difficulty understanding what I hear, I give up and stop listening	<input type="checkbox"/>					
17	I use the general idea of the text to help me guess the meaning of the words that I don't understand	<input type="checkbox"/>					
18	I translate word by word, as I listen	<input type="checkbox"/>					
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	<input type="checkbox"/>					
20	As I listen, I periodically ask myself if I am satisfied with my level of comprehension	<input type="checkbox"/>					
21	I have a goal in mind as I listen	<input type="checkbox"/>					

Source: Vandergrift, Goh, Mareschal, & Tafaghodtari, 2006, p.462.

Appendix G

Open-ended Questions

Can you think of any other reasons for which you may have make problems understanding academic lectures?

What do you think could help you better to overcome theses challenges? / What are your suggestions for future international students?
